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COLLEGE OF PRECEPTORS.—The Half-Yearly General Meeting of the Members of the Corporation will be held at the College, Bloomsbury Square, W.C., on Wednesday, the 23rd of January, at 2 p.m. C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—
EXAMINATIONS FOR 1889.

1. DIPLOMAS. — The Christmas Examination of Teachers for the Diplomas of the College will commence on the 1st of January, 1889.

2. PUPILS' EXAMINATIONS. — The Midsummer Examination of Pupils in Schools, or under private tuition, will commence on the 4th of June, and the Christmas Examination on the 3rd of December.

N.B.—The Higher Certificates of the College are recognised by Her Majesty's Judges, and by the General Medical Council, as guarantees of good general education; and consequently the holders of them, who may be intended for the Legal and Medical Professions, are exempted from the necessity of submitting to the Preliminary Literary Examinations held by the Incorporated Law Society, and by the various Medical Corporations of the United Kingdom. The Lords of the Committee of Council on Education admit the holders of the same Certificates, without further examination, to the Competition for allowances granted to Students of the Junior Training Class of the National Art Training School. All the College Certificates above the Third Class, the holders of which have passed an Examination in Latin, are also recognised by the Pharmaceutical Society and the Royal Veterinary College.

3. PROFESSIONAL PRELIMINARY EXAMINATIONS.—These Examinations are held in March and September. The next Examination will commence on the 5th of March, 1889.

4. INSPECTION OF SCHOOLS.—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

PRIZES.

Diploma Examination.—In addition to the "Doreck Scholarship" of £20, the following Prizes will be competed for: Theory and Practice of Education, £10; Classics (Greek and Latin), £5; Mathematics, £5; Physical Science, £5.

Pupils' Examination.—The "Isbister Prize" will be awarded to the Candidate who stands First, and the "Pinches Memorial Prize" to the Candidate who stands Second in General Proficiency. Prizes of Books will also be awarded to the Third and Fourth in General Proficiency, and to the First and Second in the following subjects:—Classics, Mathematics, Modern Languages, Natural Science, English Subjects. The "Taylor Jones Memorial Prize" will be awarded to the best Candidate in Scripture History.

The Regulations of the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

PRELIMINARY EXAMINATION of MEDICAL STUDENTS.—The COLLEGE of PRECEPTORS will hold an Examination for Certificates recognised by the General Medical Council as qualifying for Registration as a Medical Student, on the 5th, 6th, and 7th of March, 1889.

The Examination will take place in London, and at the following Local Centres:—Birmingham, Bristol, Leeds, Liverpool.

Examination Fee, 25s.

Regulations and Entry Forms may be obtained on application to the Secretary of the College of Preceptors, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

UNIVERSITY DIPLOMA FOR WOMEN.

THE UNIVERSITY OF ST. ANDREWS grants Diploma and Title of L.L.A. to WOMEN. *Subjects of Examination and Examination Papers* include those for the M.A. Degree. For Prospectuses, apply to the SECRETARY L.L.A. Scheme, The University, St. Andrews, N.B.

COLLEGE OF PRECEPTORS'
THIRD ANNUAL DINNER (1889).

The Dinner will be held at the Holborn Restaurant, January 23rd, at 5.30 p.m. Ladies and Gentlemen who are Members of the College may obtain tickets (5/- each) up to January 22nd, on application to the Secretary, College of Preceptors, Bloomsbury Square, W.C. Every Member has the privilege of introducing *one* friend, for whom a ticket must be obtained on or before January 19th.

Evening dress is not requisite.

EDWARD PINCHES, JOHN STEWART. } *Hon. Secs.*

COLLEGE OF PRECEPTORS.—
SCHOLARSHIPS FOR INTENDING TEACHERS.

With the view of encouraging the systematic training of teachers for their profession, the Council have established four Scholarships (two for male and two for female candidates), which will be offered for competition at the Certificate Examination in June, 1889.

The value of each of these Scholarships is £45 for a single year, or £30 a year for two years, if the candidate should determine to extend the period of training over more than one year.

The Scholarships are tenable

(*a*) At any Training College for Teachers in Secondary Schools, either at home or abroad, that may be approved by the Council; or

(*b*) At any school of established reputation, approved by the Council, which is prepared to offer such facilities for training as may be satisfactory to the Council; it being open to the Council to require the attendance of the scholar at such lectures on the Theory and Practice of Education, and to require him or her to pass such examinations in the Science and Art of Teaching, as the Council may determine.

Candidates (who must not be under 18 or over 24 years of age at the date of the Examination) are required to declare their intention of competing for these Scholarships prior to the Examination, and to submit such testimonials of character as may be considered satisfactory by the Council.

The Scholarships will be awarded to those candidates who, having fulfilled the above conditions, obtain the highest places in the Honours Division of the First Class. C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—
LECTURES FOR TEACHERS.
FIFTEENTH SERIES.

A Course of Twelve Lectures on "Mental Science in relation to Education," by JAMES SULLY, Esq., M.A., will commence on Thursday, the 14th February, at 7 p.m.

*** A Doreck Scholarship, of the value of £20, will be awarded at the Diploma Examination at *Christmas* next, to the Candidate who, having attended two courses of the Training Class Lectures during the preceding 12 months, and having passed the full examination for a College Diploma, stands first in the examination in the Theory and Practice of Education.

The Fee for the Course is 10s. 6d.; Members, free.

C. R. HODGSON, B.A., *Secretary.*

VICTORIA UNIVERSITY.

DEGREES are conferred in the Faculties of Arts, Science, Law, and Medicine.

Candidates for Degrees are required not only to pass the necessary Examinations, but also to attend prescribed Courses and Classes in a College of the University.

The Colleges of the University are Owens College, Manchester, University College, Liverpool, and Yorkshire College, Leeds.

Communications regarding Examinations, Attendance, and University business generally, should be addressed, The REGISTRAR, Victoria University, Manchester.

The Calendar (price 1s.), containing the Regulations, Copies of Examination Papers, Lists of Graduates, &c., is published by Mr. J. E. CORNISH, Manchester, and by Messrs. MACMILLAN & Co., London.

NOTICE.—The "Educational Times" for February will contain the CLASS LISTS OF CANDIDATES who have passed at the recent CHRISTMAS EXAMINATION of the College of Preceptors.

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For EXAMINERS, apply (*pro tem.*) to Miss L. HAIGH, 14 Shirland Road, W.

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TWO ENTRANCE SCIENCE SCHOLARSHIPS of 125 guineas and £60 respectively, open to all first year students, will be offered for competition in September, 1889.

Special Classes are held throughout the year for the Preliminary Scientific, and Intermediate M.B. Examinations of the University of London, and may be joined at any time.

Entries may be made to Lectures or to Hospital Practice, and special arrangements are made for students entering in their second or subsequent years; also for Dental Students and for Qualified Practitioners.

Prospectuses and all particulars may be obtained from the Medical Secretary, Mr. GEORGE RENDLE.

E. NETTLESHIP, Dean.

SOCIETY OF APOTHECARIES OF LONDON.

THE next EXAMINATION IN ARTS will be held at their Hall, Blackfriars, E.C., on Friday and Saturday, the 1st and 2nd of March, 1889.

This Examination will qualify Candidates for Registration as Medical Students.

A Syllabus of the Subjects, which according to the regulations of the General Medical Council may be passed at one or more examinations, can be had on application.

An Examination in Arts will again be held on the 7th and 8th of June, 1889.

T. PEREGRINE, M.D.,
Secretary to the Board of Examiners.

UNIVERSITY COLLEGE, BRISTOL.

THE SECOND TERM will begin on 22nd January. The College supplies for persons of either sex, above the ordinary school age, the means of continuing their studies in Science, Languages, History, and Literature. The Chemical, Physical, Engineering, Geological, and Biological Laboratories are open daily. The Engineering Department includes Civil, Mechanical, Electrical, and Mining Engineering and Surveying; and special arrangements for practical work have been made with various Engineers in and near Bristol. Information with regard to the lodging of Students may be obtained on application. Several SCHOLARSHIPS are tenable at the College.

ENGINEERING EDUCATION.

UNIVERSITY COLLEGE, BRISTOL.—Courses of Civil, Mechanical, Electrical, and Mining Engineering. Mineralogy and Applied Geology for Civil and Mining Engineers. Facilities are offered in the way of College Scholarships, Engineering Works' Scholarships, and special arrangements for entrance into professional life. For Prospectus, and particulars of residence in Clifton, apply to the DEAN, or Professor RYAN, M.A., D.Sc.

For General Prospectus and further information, apply to the Secretary.

LONDON B.A. 1888.

AT THIS EXAMINATION, **33** University Correspondence College Students were successful. (For other Univ. Corr. Coll. Advertisements, see pages 3 and 25.)

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The next Term will commence January 21st, 1889.

For further particulars, apply to the Lady Principal or the Hon. Sec., Mrs. CHAS. ROBBS, St. Peter's Hill, Grantham.

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COURSE OF LECTURES BY MISS WARD, Principal of the Maria Grey College.

On February 1st, Miss Ward will give, at the Datchelor College, the first of a series of four Lectures on the History of Education (Rousseau, Pestalozzi, Froebel, Spencer). Tickets for the Course, 10s. 6d.; for a Single Lecture, 3s. The Lectures will be given on alternate Fridays in February and March, from 4 to 5 p.m.

SLOYD.—The Sloyd Association of Great Britain and Ireland will hold Classes for Children and Adults under the direction of Miss EVELYN CHAPMAN and Miss NYSTRÖM (late Directress of the Sloyd Seminary in Sweden) during the coming Term.

Office, 106, Great Portland Street, W.

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Evening Meeting, December 12th, 1888.

The Chair having been taken by Dr. J. G. Fitch, M.A., Miss E. P. Hughes, Principal of the Cambridge Training College, read the following paper:—

MANUAL INSTRUCTION IN SCHOOLS, WITH SPECIAL REFERENCE TO THE SWEDISH SLÖJD SYSTEM.

Mr. Chairman, Fellow Teachers,—I ask for the sympathy of my audience. I feel oppressed with a deep sense of responsibility towards you and towards my subject—manual work in schools. An audience of *teachers* moves me as no other audience can, because teachers are the moulders of the future, and something of the greatness and of the glory which "shall be" hovers round every assembly of teachers. I feel it, therefore, a great opportunity and a great responsibility to address you to-night. My one comfort is that, as I am a teacher myself, and feel an intense sympathy with every member of my profession, I trust that that sympathy will guide me to say something which will be of use to you. I also feel responsible on account of my subject. A systematised plan of manual work for schools is something new in England, and it behoves us who preach this new educational gospel to see that we understand our message aright, and that we deliver it clearly. But I have on this point also a thought which comforts me. I am here to-night as the pupil and friend of that great educationalist, Herr Salomon, who has elaborated the most scientific system of manual work for schools which the world has seen as yet. It gives me courage to remember that he is willing and glad for me to undertake the work of helping to make known his theory to England.

I will at once proceed to define what is meant by Swedish Slöjd. It is a system of manual work arranged for school children between the ages of eleven and fourteen. Various kinds of manual work have been tried in Sweden and elsewhere—basket-making, book-binding, smith's work, &c.—but the general result seems to be that wood Slöjd, or Slöjd carpentering, is the best form of manual work for school children of that age. I shall, therefore, use the word Slöjd in this narrowed meaning to-night as equivalent to Slöjd carpentering.

I will first of all explain, as clearly as possible, the position which I desire for Slöjd in our English education. I think I can make my meaning most clear by using the figure of various *strata* of education. I hold that every child, boy or girl, rich or poor, ought to have, and must have if England is to prosper, a certain common general education, the object of which is to develop that child as a human being, physically, mentally, and morally. Whatever that child's life may be—peer or artisan, polished lady or simple working woman—that primary stratum of education must be laid. Then begins differentiation—the majority pass on to the education of life, and the fortunate minority have a longer school life and a higher education. Within that second stratum of higher education we have further differentiation, but it is still *general* education, not special, and the object is still the development of the human being as such.

Our third stratum is what I shall call technical-professional education—namely, special skill and special knowledge for special work—in fact, preparation for the various trades and professions. Now, Slöjd belongs to the first stratum. I believe all children ought to learn it, children of all classes, girls as well as boys. They ought to learn it just because they are human beings, which means that they possess a grand possibility of development. They can improve and grow better in all directions, and I claim for Slöjd that it is an excellent means for that development—nay, more, that without some good system of manual work, such as Slöjd, we can never obtain the best possible development for the children in our schools.

Having pointed out the desired position for Slöjd in our educational system, let me do what I can to remove two false impressions, which I have come across several times in lecturing on Slöjd in several parts of England.

(1) Slöjd is *not* a part of technical education. Later on I may perhaps have time to show the connection between the two, but if there was no such thing as technical education, Slöjd would still be invaluable from an educational standpoint. I naturally feel strongly on this subject, because many of us, probably most of us, are concerned in the education of those who will never require to be technically educated. I dread greatly lest Slöjd in England will be made subservient to technical education, because we higher English teachers have so little professional knowledge, and because the question of technical education has absorbed, and rightly absorbed, so much public attention lately. It is of great importance that we teachers should have wide interests and look at great questions from many standpoints. I am intensely interested in technical education from an economic standpoint, but if Slöjd be made the slave of technical education, Slöjd in England is doomed as an *intellectual* factor in education, and it is as an intellectual and moral factor in general education that I, as a teacher, uphold it to-night.

(2) Slöjd is not ordinary carpentering. A most cursory glance at the models we make, and a most elementary knowledge of the way in which we make them, will show that we do not work as ordinary carpenters. The object of the carpenter is to produce goods good enough to sell, with the smallest possible expenditure of energy. The object of the teacher of Slöjd is to develop in his pupils physical, mental, and moral power. The Slöjd models are only means to an end; and, though each model is useful, it could be made quite serviceable with far less care and accuracy than is actually used. To the children the models are the goal of their work, but to us teachers they are only means to a far more important end.

Now, let me attempt to prove that no general education can be complete unless manual work forms a part of it. I reached this point many years ago, long before I ever heard of Slöjd, by simply thinking and reading about education. My impression was deepened by teaching for several years, and three years' study of psychology in Cambridge turned my impression into a fixed belief. I began to make enquiries as to the different kinds of manual work taught in Continental and American schools, and at the same time I began to elaborate theoretically a plan of manual work for school children, based on my knowledge of physiology and psychology and on my experience of children. I suddenly heard of this Swedish Slöjd system, and after studying it in its home at Nääs, I feel sure that I have at last found exactly what I wanted—a missing factor in general education. The system will no doubt be greatly developed in future years; the summer course this year was a considerable development on all the preceding ones, but the general principles of the system are so wide, so scientific—in short, so rational—I feel sure they have been laid down once and for ever.

Now, let me attempt to show the educational importance of Slöjd:—

First, Slöjd is an important factor in physical development. I take it there are three factors in perfect physical development in school: (*a*) Proper healthy conditions of food, light, air, &c.; (*b*) opportunities for play (When will teachers realise the importance of play?); (*c*) a scientific system of gymnastics. Manual work in schools is connected, on the physical side, with

this third part; it supplements gymnastics. I was much interested to hear a short time ago that my friend, Madame Œsterberg, has added Slöjd to her gymnastic course at Hampstead, as of considerable value in supplementing the more general gymnastics. Of course Slöjd is to me chiefly an intellectual factor, but I was delighted to find that Madame Œsterberg rated its physical advantages so highly. It surprised and delighted me in Sweden to see what a great stress was laid on the physical side of Slöjd. Great pains were taken so that we should assume and keep right positions during our work. The work is very carefully arranged, so that one does not, for example, get too much sawing, or too much planing at one time; and, with several tools, the left hand is used equally with the right. I can speak from experience that Slöjd is really excellent exercise, and, if any lady or gentleman present has ever done any sawing in hard wood, they will, I know, agree with me that it is eminently calculated to develop muscle. I am often asked, "Is not the work excessive for girls?" I say, without any hesitation, No, not in the hands of a skilful teacher. I frankly confess, however, I can see infinite possibilities of harm if the teacher does not understand her business thoroughly. On the other hand, I think the *physical* advantage to girls, especially of the middle class, would be greater than to any other class of the community. Our girls do not have enough exercise, and the exercise in Slöjd is so advantageous, because it is so varied, that one feels far fresher at the end than at the beginning, as I can testify by personal experience.

Slöjd is calculated to prove an excellent antidote for the almost constant sitting posture assumed by children during school hours, and it is also an excellent antidote for the possibility of over-pressure. In short, it is my solemn conviction, quite apart from the moral and intellectual gains of Slöjd, of which I shall speak directly, that it is such a refreshing and stimulating change from the purely intellectual work of school that more intellectual work will be done during school hours if three hours a week be taken out of them for Slöjd. But this is always assuming that Slöjd is well taught.

In addition to the general physical development of the body by Slöjd, there is also a *special* physical development, viz., development of the hand, or the acquiring of manual dexterity. Now, I appeal to every one present, does it not make an enormous difference to each of us if we are handy or not? Whatever class in society we occupy, whatever may be our intellectual attainments, we cannot lay claim to being completely and satisfactorily educated, unless, in addition to a great many other things, we are *handy* persons. See, for example, if a woman is handy how much more free she is, how far less dependent on others, and what a much more valuable friend and acquaintance she makes. One's own comfort and happiness, and one's power of helping others, are infinitely increased if one is handy. Now, it is only during one part of our lives that we can acquire easily general manual dexterity, namely, when we are young. This marvellous instrument of the human hand, so wonderfully complex in its movements, so extraordinary in its power of adaptation, it is worth while cultivating, and we must cultivate it when it is supple and plastic; for in later years it is only with infinite difficulty that we can cultivate it, and that very imperfectly. I do not think in our elementary schools, or in our higher schools, our pupils are made handy. In sewing, drawing and writing, and cooking, the object is to give special, not general dexterity. In Slöjd, on the contrary, the system has been arranged so that we have an infinite variety of manipulations with both hands, arranged specially to obtain general dexterity, and I believe that that result is obtained. Some hold that the school develops the child's intellect, the church its moral nature, and the home its physical nature and manual dexterity. This division of labour is impossible; a child is not a three-fold bundle, to be developed first on one side and then on the other. We teachers must accept the task of developing the whole child.

I have hitherto spoken only of the *physical* advantages of Slöjd. I now turn to its intellectual and moral advantages, and this is, of course, that part of my subject which chiefly interests me, and that part also, I hope, which will chiefly interest my audience. I have already said Slöjd is not ordinary carpentering. Let me state emphatically that, if it were, I should object strongly to several precious school hours being occupied by it. Let me refer to a narrow and incorrect view of education, which one often hears stated, and which, unless I am greatly mistaken, is spreading in America. I accept the proposition that the goal of school education is preparation for life, if *life* be taken in its widest sense, and if *preparation* be taken to mean indirect as well as direct preparation. There are two ways of preparing a child in school for life:—1st, *directly*, by simply giving it the knowledge and skill which it requires; 2nd, *indirectly*, and far more rationally, by developing it and making it strong and capable of getting the required knowledge for itself. Now, to be able to do a little carpentering is an obvious advantage, and I greatly fear lest English teachers should not see from the first that the real advantage of Slöjd carpentering is *development* in *indirect* preparation for life. I want to make my pupils, not carpenters, but strong, vigorous, rational thinking souls, quick to seize and strong to hold the truth. I maintain I have a better chance of making the minds of the boys and girls I teach capable minds, strong, clear, and rapid minds, if I use as one of my means to that end a rational system of manual work. This is my assertion. I will try and prove it.

First, Slöjd is a better means than any we employ at present to guide school children, of the stated age, to acquire the power of careful and prolonged attention. I need scarcely lay stress on the great importance of cultivating the habit of attention. A well-known psychologist tells us:—

"It has often been said that great intellectual power turns on the ability to concentrate the attention. Newton based his intellectual superiority on this circumstance. Helvetius observed that genius is nothing but a continued attention. A proposition about which there is so general an agreement among those who ought to know may be safely accepted as expressing a truth. Attention is the condition of all intellectual achievement, and a good power of prolonged concentration is undoubtedly indispensable to first-rate achievement in any direction."

So far, the psychologist and our own experience teach us the same lesson. Who is the man who succeeds in all he undertakes? He who has the power of concentrating his whole mind on the subject in hand, be he scientific discoverer or man of business, scholar or skilled artisan. And what is the most fundamental quality which we must cultivate in our pupils but this same quality of concentrated, sustained attention? Turning again to the psychologist, we learn from him, what our experience of children tells us is true, that the attention of children is largely non-voluntary, and it is only by arranging their conditions as favourable to attention that we can teach them to attend. "Force must be economised by removing all obstacles, and making the task as agreeable and as attractive as possible." Again the psychologist helps us: "The great field for the early exercise of the concentration of attention is action. When a child wants to do something the strong desire for the end secures a prolonged effort of attention." We teachers often have to use little devices to attract and retain the attention of our pupils, and we know that the best device of all is to give them something *to do*. We must give the children something to do, and psychology and experience throw much light on the kind of work we had better give them.

The work must be such that it naturally interests the children Can you imagine any work more delightful to the ordinary child than cutting a piece of wood? Are there not school desks, chipped and hacked with penknives, scattered all over the land which testify to the truth of my remark? It must be work capable of infinite variety; monotony of work is fatal. Now, we have great variety in Slöjd—variety of wood, of tools, of manipulation, and of models.

The work must not too severely try the child's patience. Our first Slöjd models do not take a long time to make; the later models, when one's skill and one's interest have increased, are larger, more complicated, and take a longer time.

The work must have an increasing interest. We certainly have this in Slöjd. In the production of a single model you can imagine how the excitement increases as the work grows under our hands, and our model becomes increasingly like the model we are copying. Again, the models are carefully graduated as regards difficulty, so that from the first the child can complete each model entirely by itself, and it feels steadily growing its power over its tools, its material, and its hands. This alone greatly increases its interest in its work.

Also every model is something useful, and Herr Salomon is of an opinion that most, at any rate, should be articles that can be used at home. I am sure we all realise what an additional interest this will prove to the children, who delight so greatly in being of use. Slöjd is, in fact, just the kind of work likely to prove to be unusually good means for cultivating the attention of the children. I am frequently struck by the rapt, intent faces of the children at their Slöjd work; it always makes me feel that at last we have found the very best means for making them attentive. I have lately read many reports issued by American schools where manual work has been introduced. The reports

are monotonously alike, and many refer to this fact of increased power of concentrating the attention. I need scarcely remind you that the child who attends carefully to Slöjd will attend also to other things. It is the same mind which directs his fingers in the one case, and his tongue or his pen in the other cases.

Secondly, Slöjd cultivates the power of observation in a very marked degree. Thanks to Pestalozzi and Froebel, we teachers are beginning to realise how important it is to cultivate this power. Observation gives us the raw material of thinking, and the more we observe the greater are our possibilities of happiness and also our possibilities of thought. I think some Kindergarten teachers do not sufficiently realise that observation is only one of many desirable steps; they ignore that its chief value is giving the material for thought—thought itself is a far higher process. It is thought which makes observation important. Children can of course attend most easily to concrete objects. Now, Slöjd is excellent for cultivating attention: one has to attend to so many things—first, the model you are copying; second, your own model; third, your material; fourth, your tools; fifth, the directions of your teacher. It is also very easy in Slöjd to test the children whether they have been observant or not. They not only have to observe carefully, but they must keep on observing to the very last moment of making the model; otherwise one careless cut and the model is spoilt. They may perhaps get a sum right by chance—I have known such things happen—but no one ever got a model right by chance; the possibilities of mistakes are too many. I think it is only fair to confess there are disadvantages as well as advantages in becoming a good critic of carpentering—the woodwork in my room, so inaccurately and carelessly put together, and very badly made doors, have caused me a good deal of discomfort since I learnt Slöjd.

Thirdly, Slöjd tends to develop accuracy. Of course, every subject we teach has this for one of its aims. It is very difficult to make a child accurate, and to teach it Slöjd is, I think, one of the easiest ways. It is so easy to test the accuracy of the work, and to show the children their inaccuracy. If you teach a child to be accurate with its fingers, you are helping it to be accurate in its thinking.

Fourthly, Slöjd develops practical common sense, and this is a good quality which I do not think we sufficiently develop in our schools. We strengthen the minds of our pupils, we make them acute and nimble, but we do not teach them sufficiently how to use their minds about practical matters. The education of a human being is not a complete education if it does not come out in his fingers as well as in his words and in his writings. The good Slöjd teacher has excellent means at his command to teach practical common sense. The child has to choose an appropriate piece of wood, has to manage and contrive to avoid knots and other difficulties; he has to depend on himself largely, and to use his own judgment in many ways; he must understand his tools intelligently, and it is advisable to let him try and find out how to make a model, although of course the teacher carefully directs him finally so that he follows the right plan of manipulation. It is a rule in Slöjd that the teacher shall never do any part of the child's model; he tells him what to do, and directs him in the doing of it, and in extreme cases would show him a manipulation on another piece of wood. "Our education is too bookish," we are frequently told; it is too much a matter of words (although no doubt we are greatly improving in this respect) and too little a matter of practical deeds. I believe it is an evil heritage which we have received from the times of the Renaissance, to imagine that we learn chiefly from books. Natural science is teaching us how much we can learn from things, from real objects, but the world has not yet realised how *educative* actual manual work can be. We are so apt to forget that manual work is largely also mental work.

Fifthly, Slöjd tends to develop perseverance. To teach a child perseverance you want to give it work which is very interesting to it, work for which it has many strong motives, and which possesses an increasing interest. I have already referred to the fact that Slöjd possesses these qualifications, and this has been proved over and over again in schools where Slöjd is optional.

Sixthly, Slöjd develops patience.

Seventhly, Slöjd develops love of work. I believe we all love work if we only get it under the right conditions, of the right kind, and of the right quantity. Slöjd teachers have again and again stated that Slöjd tends to make the children love all kinds of work, and we can easily understand how it is so. There is one class of children for which Slöjd will be invaluable—I mean the slow children, whose minds open very slowly and very late. Frequently these minds are of a high order, and do good work eventually, though under existing educational conditions they never succeed brilliantly at school. I think we cannot reach these children through purely intellectual work, but that we can reach them by means of practical work. By giving them control over their hands we help to give them control over their minds, and if we quicken the rate of the work which they do with their hands we shall tend to quicken also the rate at which their minds work.

Eighthly, Slöjd develops love of manual work. Division of labour can be carried too far, and is carried too far when one class works entirely with their hands and another class works entirely with their heads. The division between manual workers and head workers is far too sharp, and we have dull and stupid manual labourers, who forget they have brains, and dreamy and unpractical thinkers who forget they have hands. I cannot treat this only as an educational question. I cannot speak to a London audience without some reference to those great social problems which are perplexing us so greatly, and for which we educated people must find a solution, or the uneducated will take them out of our hands, and settle the problems as we would not have them settled. We can never see a way out of our many social difficulties until the gulf between classes is bridged over, and we respect manual labourers as such, and can enter into the lives of manual labourers. The majority of mankind must always keep themselves by the work of their hands, and no organisation of society can be stable, or in any way satisfactory, until society as a whole honours manual labour. There is no doubt we do honour work more than formerly; for example, in my own class, a lady is no longer regarded as eccentric if she chooses to work without being obliged to do so; but we do not honour *manual* work enough, even manual workers themselves do not, and I doubt if we shall ever do so until we give manual work its proper place in the curriculum of our schools, until it is taught in our schools, not by specialists, not by carpenters, but by our best form teachers. When University men and women are our Slöjd teachers in schools, then, and then only, will England realise the dignity of manual work; and then, and then only, will all classes really respect and honour the manual worker.

Ninthly, Slöjd has an important effect in cultivating the æsthetic faculty. I am sorry I have no time to speak further on this point. I should have liked specially to have referred to the relation between drawing and Slöjd, and modelling and Slöjd. I have no time either to refer to the many other advantages of Slöjd; but let me impress upon you this one fact, that Slöjd is little good, and may be positively pernicious, unless taught by an efficient teacher. I will give you what Herr Salomon says are the four qualifications for a good Slöjd teacher: 1st, to be a good teacher, that is, a good teacher of other things; 2nd, to know the aim of the system, that is, to know exactly what we want to do by means of it; 3rd, to know the means by which we can gain that aim, that is, to understand the principles and method of the system; 4th, to possess a certain technical dexterity. Herr Salomon says the three first are more important than the last, though the last is important. The course at Nääs is divided into two parts, theoretical and practical. The theoretical lectures are the most important.

I feel I shall not do justice to my subject without a short reference to the home of Slöjd at Nääs, where I was myself trained under its founder. Would that I could transport you for ten minutes from this noisy, foggy, restless London to that peaceful and beautiful spot, where we seemed so far from all turmoil and trouble, and where, four times a year, teachers from all nations are received with the greatest hospitality, and given a thorough training in Slöjd for a nominal sum. By the side of a beautiful Swedish lake, in the midst of charming surroundings, are the villas and Slöjd rooms, where a medley crew of Japanese, Russians, Americans, Italians, English, Finns, and other nationalities are instructed in Slöjd. Let me give you a brief account of one of our happy days at Nääs. Lady students were not obliged to work before breakfast, but most of us got up soon after six, and worked from seven to eight. There were several Slöjd rooms, comfortable in all respects, and we were amply provided with benches, tools, wood, and excellent teachers. The teachers in the Slöjd room in which I worked could speak English, fortunately for me. At five minutes to eight we had simple English prayers in our Slöjd room, and from 8 to 8.30 we breakfasted. We had meals together; eighty-five of us. The food was plain, but good. From 8.30 to 11 we worked, and the Director generally came round to see that we had everything we wanted. To give you some idea of the careful way in which our

bodily welfare was attended to, a lady is appointed, called the Lady Directress, to look after our creature comforts. She presides at meals, and the English students can appeal to her in any difficulty of board and lodging. At 11 we had a lecture from the Director, fortunately for me in English; lunch from 12 to 12.30, and another lecture from 12.30 to 1.30. We worked once more till 4, and concluded our day's work with prayer. We dined at 4.30, and enjoyed greatly our well-earned rest in the evening. There was boating on the lake, and bathing, drives and delightful walks for miles along the park, waterfalls and glorious sunsets to be seen, picnics in all directions, and much singing and talk in the salon. Tea at 7.30, and about 10 we were all scattered in our different villas, along the edge of the lake, comfortably tired and looking forward with pleasure to the work of the next day. I cannot speak too highly of the admirable lectures; they were really an education in themselves. The teaching of the practical part was excellent, and the kindness we received from the Swedes made us quite forget we were in a foreign country. I have left the best to the last. Teachers present can realise how interesting and edifying it was for us to meet teachers from other countries and compare notes with them; and, indeed, to meet teachers from our own country also, whose teaching experience had been different from our own. The greatest privilege of all was to meet Herr Salomon himself. His earnest enthusiasm about teaching, his utter self-devotion to Slöjd, his high ideal of what a teacher's life should be, and the generous unselfishness with which he offered his work, his time, his best thoughts to any teacher who wanted them—these made us all feel that we learnt at Nääs several other things besides Slöjd. He taught us many lessons unconsciously, and not the least important was this—his readiness to learn from any one, to receive any suggestions, and his willingness to modify the details of his work if reason could be shown. I am very enthusiastic about Slöjd, and I confess I am very proud as a teacher to remember that the teacher who is the founder of Slöjd is worthy to be regarded as a hero, morally as well as intellectually.

Remembering the happy work, the happy rest at Nääs, I can scarcely forbear smiling when I tell you I paid for it at the rate of 1s. 1½d. per day for board, about 1s. 5d. per week for lodging, tuition and everything else being free. Herr Salomon naturally finds a difficulty in deciding among the many English applications he receives, and he has now deputed to the Committee of the Slöjd Union the task of recommending to him those whom they consider most suitable for the advantages of Nääs.

This Union of Slöjd teachers in England is at present confined entirely to those who have been trained at Nääs, and whose work there was sufficiently good to obtain the Nääs certificate of efficiency. The objects of the Union are:—

(*a*) The mutual help of the members in all matters relating to Slöjd.

(*b*) The members pledge themselves to adhere to the educational principles of Nääs, in order to maintain a high standard of efficiency in Slöjd.

(*c*) The Union shall from time to time make known the principles of Slöjd by pamphlets and in other ways.

As a member of the Union I was very glad to undertake the task of speaking about Slöjd to-night. I must not forget to mention that there is also in England a Slöjd Association, consisting of many of those interested in Slöjd, and which will no doubt do excellent work in the future.

I should have liked to have given you details of the spread of Slöjd on the Continent, but I have no time. I can only say generally that it is spreading fast, either Swedish Slöjd, or some modification of Swedish Slöjd. Manual work is also being taught largely in America, and even in the training colleges for teachers in far-off Japan. Unless we English bestir ourselves, we shall be hopelessly behind in this matter. We are beginning among the higher schools for girls. Nääs-trained teachers are teaching Slöjd at the largest higher school for girls in London—I refer to the North London Collegiate School; in our oldest public school for girls—I refer to the Ladies' College, Cheltenham; and in that excellent school in Scotland, St. Leonards, at St. Andrews. It is also taught in a few other schools. I know it has been taught for some time at Miss Lord's Froebel School, Notting Hill, and at the Ladies' College, Sydenham. This is what we women teachers are doing. I think in this, as in some other educational movements, we are in advance of the men. Perhaps this is only fair, as they have been in advance of us in a good many things.

Now, what shall we do in England about Slöjd? First of all, let English teachers look into the matter, and examine it; and, if it is true that it is a missing factor in general education, the sooner we adopt it the better. But how shall we adopt it? Let a few thoroughly well-educated teachers, who are successful teachers in other things, get thoroughly trained in Slöjd, and understand the theory of the subject, and then let them teach the future teachers of England. I hope our learned Chairman will agree with me that our Japanese friends have begun in the right place when they decided to teach manual work in the training colleges. That is the most satisfactory place to begin all educational reforms, not only in our elementary education, but also in our higher education. When we started a training college for higher teachers in Cambridge, unkind friends predicted that we should spend our days in dreaming of philosophy, and that a practical course of training in a University town was not to be expected. We do not ignore philosophy, but we have included Slöjd in our course, and my students spend one afternoon per week, or part of one morning, in the eminently practical work of Slöjd carpentering.

Let me take one model, and show you in detail how it is made. I will take this paper-knife, and it may surprise you to know that in order to make this paper-knife the child has to go through twelve different kinds of manipulation, and use seven different tools. I will give you the series—1st, sawing off the necessary piece of wood; 2nd, long sawing, that is, sawing a piece of wood into a convenient oblong shape; 3rd, planing the flat surface; 4th, planing the edge; 5th, making the second side exactly at right angles with the first, using a square for the purpose; 6th, gauging to the right width with a gauge; 7th, sawing a curved line; 8th, cutting with the knife to the exact shape a concave cut; 9th, a convex cut; 10th, a plane surface cut; 11th, filing; 12th, scraping. Now, many of these manipulations are familiar to the child, but in each model some are new. In this model the child, for the first time, cuts a broad surface cut, saws a curved line, and uses the scraper; so he not only has the variety of making a new object, but also the variety of using two new tools—a new kind of saw and a scraper—and also uses his knife as he has not used it before. At the end of his careful work, the pupil rejoices in its outward sign, this paper-knife; but the teacher rejoices to think of increased powers of observation, attention, and patience, and increased love of work. I hope that this detailed account of one model will help you to understand the system a little better.

Now, let me attempt, before I sit down, to answer some of the objections brought against Slöjd. Some say, Manual work is good, but why this particular kind of manual work? My answer is this, As soon as I find a better I will adopt it, but this is infinitely superior to any other I have heard about. If we teach manual work at all it is far better to teach a carefully thought-out system.

Others say, We want an *English* system of manual work, not a *Swedish* system. But all good systems agree in general principles, and Slöjd is really universal in this respect. With all due humility, I venture to say that I am no bad judge of the matter. I have had unusual advantages, theoretical and practical—so much the greater is my responsibility; it is my special duty to study the theory of education, and, on the other hand, Herr Salomon considers I understand the theory and spirit of his system. My view certainly is that we should adopt the Slöjd system in England, accepting its principles and being faithful to them, and carefully modifying some of its details to suit English conditions. I once asked Herr Salomon if it was desirable to make in England a Swedish model of no use to an English child; and he said, "If you do so you will be going against one of the fundamental principles of Slöjd, which is, that every object made shall be useful." On the other hand, I frankly acknowledge a teacher requires a very thorough knowledge of the theory of Slöjd, and will have to expend much care and thought before she can find suitable corresponding English models, because the Swedish models are the result of so much thought and care and experience. This is one reason why I hope some of our best English teachers, and some of our great English educationalists, will take up this question of Slöjd—some of those who are learned in the science of child-nature, and who have wide experience of the needs of English life, and of the conditions of English school life.

Another objection is, that the children will hurt themselves. There is absolutely no fear of this; I have armed a class of school children with Swedish knives, and we have not had even a scratch. I insist on silence, and I insist also on the knife being used properly. It is only the bad workman, badly taught, who injures himself. It may surprise you to know that we grown up people are far more likely to damage ourselves than the children. There

is absolutely no fear on this head; but the teacher must be well trained, and the class should not be larger than from twelve to fifteen pupils.

Perhaps the most fundamental objection of all is the one I hear most frequently—"We have no time for Slöjd." I think this is the most irrational objection of all. We want to gain a certain end in education, the development of the children under our care; perhaps Slöjd is a better means for that end than some of the means we use at present. If so, we must give up some of our present means. The *end* is always the same, but the *means* may vary with our increasing knowledge and experience.

Then there is the question of expense. If a poor country like Sweden can afford Slöjd, we can. If England will only see the importance of Slöjd, money will come in. Want of money is never the real difficulty when any good cause appears to languish for lack of it, but want of interest. England's rich citizens give, and give generously, when they care about a thing. I am often hampered in my own work for want of money, but the bitterest part of all is to know that it is a sign that people do not realise the importance of that work; if they did I should soon have plenty of money pouring in to try all my schemes, and so it will be with Slöjd. If we can but interest England in the matter, the money will come in, and it is we teachers who can best judge of the educative value of Slöjd, and it is we who must preach it to England.

I should have liked to have drawn your attention to the *economic* value of Slöjd, and its connection with technical education; but I find it impossible to touch on this subject. I have, however, brought some pamphlets on the subject, which I will gladly distribute among the teachers present.

I am afraid I have sadly tried your patience, but I take it there is not a teacher present who is not willing to have her patience tried, if only she can get new thoughts for her work, or her old thoughts re-vivified, If I have succeeded in doing this, I am richly rewarded for coming here to-night.

I have been speaking of the system and method of Slöjd, and strongly recommending that you should thoughtfully study them; but Herr Salomon never gives undue importance to system and method. He says, "To give the most admirable method to a bad teacher would be like placing a good sword in the hands of an inexperienced fighter. Indisputably, the weightiest element where educational instruction is concerned, be it in Slöjd or in another department, is the *teacher*. System and method are, in themselves, only empty forces; to the teacher it is reserved to breathe into them the life-giving spirit." Let me add an earnest wish that, if the educational world of England adopts the Swedish system and method of Slöjd, it may be carried out in the same spirit of humility and self-devotion, of earnestness and self-forgetfulness, which is so strikingly exemplified in its founder.

On the invitation of the Chairman questions were addressed to the lecturer by several of those present as to what subjects of the ordinary school curriculum she would recommend to be set aside in order to afford time for the new subject of instruction,—as to the possibility of beginning the teaching of Slöjd at an earlier age than that recommended in the lecture,—as to the case of schools where the pupils were required to leave at a comparatively early age,—as to the existing facilities for obtaining instruction in the system in institutions in London,—and finally, as to the possibility of combining the working out of the proposed plan with the necessity of preparing pupils for examinations.

The lecturer suggested that, in the first place, the teaching of English grammar might be postponed to a later period, to make room for the Slöjd teaching, and that something might very well be curtailed from the time given to the study of history and geography, and even of foreign languages, where more than one foreign language was now taught. She also mentioned one or two establishments in London where Slöjd was now taught, and where instruction could be obtained as to the working of the system. She admitted that the system of examinations in its present development was a hindrance to modification of the school curriculum, such as might be necessary for the carrying out of the methods recommended in the lecture; but she considered that the teachers' judgment as to what was required for the physical and intellectual development of their pupils should not be fettered by any such yoke as that which the examinations sought to impose upon them.

The Chairman said that he was sure they would all unite in offering their best thanks to Miss Hughes for her well-reasoned and most suggestive paper, and especially for the interesting record of her personal experience at Nääs. The paper well illustrated one aspect of a very large and important subject. There was a prevalent and increasing conviction among teachers that our systems of education had hitherto been in the main too verbal and bookish; and that a useful corrective for this fault was to be found in exercises specially designed to encourage better training of the bodily senses and to promote manual dexterity. The particular form of such exercise described to-night was that of working in wood; and it had been clearly shown by the lecturer that such work, when performed under intelligent supervision, like that of Herr Salomon, was well calculated to serve as training in accuracy, in neatness, in perseverance, in the love of the beautiful, and in aptitude for work. At the same time it should be remembered that other forms of manual employment—*e.g.*, writing, drawing, designing, needlework, and cookery—were all fitted in their several degrees to exercise the same set of faculties and to furnish the same sort of training. He did not think it had been shown that working in wood possessed a higher value as an element in general education than manual exercises of other kinds. There were special reasons, no doubt, which accounted for the popularity and success of this particular form of employment in Sweden. In that country people led simpler lives, and there was far less variety of industrial occupation than in our own. Wood was far more abundant, and there was not the same objection as there would be here to the waste of a large amount of material by boys in trying experiments. Moreover, carpentering and joinering were, relatively to the needs and circumstances of the Swedish people, far more important than in this country. It was well known that a very large new industry had recently been developed in Scandinavia, by which ready-made doors, window-sashes, and other fittings were prepared by the Swedish and Norwegian carpenters, and sent over here in considerable quantities for use by builders in erecting houses. These were reasons which did not diminish the value of the Slöjd exercises, but which seemed to account for the special prominence given to working in wood in that system. It appeared that, in the opinion of its advocates, tools suited for manipulation in such a material could not properly be put into the hand of a scholar under the age of eleven; but those who wished to see manual training duly recognised as a constituent part of a complete system of general education, desired to introduce exercises in general handiness and physical power earlier than this. What was wanted was a regular series of graduated exercises from the Kindergarten upwards, and from the age of seven to eleven. The simple manual employment devised by Froebel furnished fitting occupation for the eye and for the fingers, in the form of plaiting, brick-building, and the making of patterns. In Belgium and in America, the cutting-out of paper patterns, and modelling in some plastic material were found to be among the most useful exercises, for the interval between seven and the age of eleven, at which the proper use of tools for carving and for the making of simple models in wood might commence. But he held it to be essential that teachers should not regard this kind of hand-work as a substitute for intellectual exertion, but as a supplement and a help to it. After all, the first business of a school was the training of the intelligence, and it would be a great mistake to depose this one purpose and put it in the second place. Manual work, whether in paper, in clay, or in wood, if duly accompanied with measurement, with careful drawing to scale, and with training to a sense of proportion and beauty, would become a most valuable educational instrument. But manual work introduced into schools as a separate subject of instruction, and not duly co-ordinated with mental exercise, would yield only disappointing results. He was particularly struck with the importance attached by Miss Hughes and the Swedish teachers to the due co-ordination of other teaching with the Slöjd work. It was not by turning the scholars over to the hands of artisans, but by keeping *all* the educational work of a school in the hands and under the supervision of a skilled teacher, that manual exercises could assume in due proportion their rightful place in the educational system of the future.

On the proposal of the Chairman a hearty vote of thanks to Miss Hughes for her lecture was carried by acclamation, and the proceedings terminated.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A Meeting of the Council was held on Saturday the 15th ult. Present —Dr. Wormell, Vice-President, in the Chair; Miss Bailey, Mr. Brown, Miss Buss, Mr. Eve, Rev. Dr. Hiron, Sir Philip Magnus, Mr. Maxwell, Mr. Pinches, Rev. W. J. Savell, Mr. Southee, and Mr. Storr.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the Christmas Pupils Examination had taken place on the 4th to 7th of December at 259 Local Centres and Schools in all parts of the country. The total number of candidates for whom fees were paid was 9,600.

Dr. James Sully was appointed to deliver a Course of Twelve Lectures on Psychology in relation to Education, to commence on the 14th of February, 1889.

The Report of the Education Committee was adopted.

The Report of the Finance Committee was adopted.

The Draft Report of the Council to the General Meeting was considered, and referred to the President, Vice-Presidents, and Dean for final revision.

The Rev. A. Conder, M.A., LL.D., Middleton School, Bognor, was elected a member of the Council.

The following persons were elected members of the College:—

Mr. W. Dishart, 25 Mill Street, Crewe.
Mr. C. C. Hall, Redenhall School, Harleston.
Mr. A. Hargreaves, 52 Lugard Road, Peckham, S.E.
Mr. P. A. Mellerio, 79 Plimsoll Road, Finsbury Park, N.
Mr. A. W. Oke, B.A. Camb., 8 Essex Grove, Upper Norwood.
Mr. G. Reed, London Road, Southend.

Mr. G. Armitage Smith, M.A. Lond., 26 Regent's Park Road, N.W.
Miss E. M. Spencer, 13 Mornington Place, Regent's Park, N.W.
Mr. A. H. Thatcher, 13 Bicester Road, Aylesbury.
Mr. P. H. Trachy, The Norman School, Mistley, Mannington.
Rev. H. Wace, D.D., King's College, London, W.C.

The following books have been presented to the library since the last Meeting of the Council:—

By the Author.—Sir Philip Magnus' "Industrial Education.
Blackie.—Century Infant Reader; Century Primers, I. and II.; Century Readers, I., II. and III.; Everett's Natural Philosophy; Hassell's "Play in Work and Work in Play"; Layng's Euclid I.—IV.; also (separately) Book IV.; Shakespeare's "Hamlet" and "King Lear"; Poynter's Drawing Books, I., II., III. & IV.
Longmans.—Airy's "English Restoration and Louis XIV." (Epochs of Modern History); Bell's "Petit Théâtre des Enfants"; Greive's Elementary Mechanics.
Macmillans.—Jebb's "Attic Orators; Loewy's Questions in Experimental Physics; Lupton's Latin Lyric Verse Composition; Strachan & Wilkins "Analecta."
Rice.—"Journal of Education" for 12 months, ending December 1888.

THE HEAD MASTERS' CONFERENCE.

The Head Masters' Conference was held at Winchester on December the 20th and 21st, under the presidency of the Rev. Dr. Fearon. Dr. Fearon opened the proceedings on Thursday afternoon by welcoming the members of the Conference to Winchester, and thanking them for attending in such large numbers.

The Rev. G. C. Bell moved and Dr. E. A. Abbott seconded, "That the Head Masters' Conference desires to thank Dr. Kennedy for the pains he has taken in revising the 'Latin Primer.'"

Mr. Bell next moved and Mr. J. E. C. Welldon seconded,—"That the Conference recommends the 'Revised Primer' and the 'Shorter Latin Primer' for adoption in such schools as attach importance to uniformity in the elementary teaching of Latin." On this there was some discussion, but the resolution was carried by 26 votes to 3.

Dr. E. Warre moved, and Mr. Wickham seconded, the motion,—"That, in the opinion of the Conference, the time has arrived when it is desirable that a Royal Commission should be appointed to inquire into the scope and methods of public competitive examinations as affecting boys in schools higher than elementary."

Mr. Moss moved, and Dr. Abbott seconded, "the previous question," and Mr. Phillpotts moved as an amendment,—"That it be an instruction to the committee to inquire into the scope and methods of public competitive examinations as affecting boys in schools higher than elementary."

After a long discussion, on the votes being taken, the previous question was lost, 16 votes being given for, and 22 against it. Mr. Phillpotts' amendment was carried by 23 votes against 9. It then appeared that some members had only voted for Mr. Phillpotts's amendment to keep Dr. Warre's out, and they would not vote for it as a substantive resolution.

After further discussion, Mr. Phillpotts' resolution was modified as follows:—"That the committee be instructed to make inquiries among head masters and other persons versed in educational matters as to the scope, methods, and results of public competitive examinations as affecting boys in schools higher than elementary."

Mr. Phillpotts' amendment, on being put as a substantive motion, was carried by 19 votes against 10.

Mr. Welldon next moved: "That the present system of entrance scholarships in public schools is productive of very serious evil." Mr. H. Millington seconded. The discussion was a protracted one, the following amendment, moved by Dr. Percival, and seconded by Mr. Marshall, being eventually carried:—"That while the present system of entrance scholarships in public schools is acknowledged to have conferred much educational benefit, it has also been productive of serious evils, and that the committee be instructed to formulate a scheme for the award of such scholarships, to be considered by the Conference at its next meeting."

On the resumption of business on the second day, Mr. Wickham moved:—"That the committee be instructed to call the attention of the authorities in the University of Oxford to the grave difficulties caused in schools by some of the present arrangements for Responsions." Mr. Marshall seconded the resolution, which was carried unanimously.

Mr. Bell moved:—"That the committee be instructed to communicate with the authorities of colleges in Cambridge in reference to the times and arrangements of scholarship examination." Mr. Moss seconding the resolution, it passed unanimously.

Dr. Percival moved:—"That in the opinion of the Conference, the interests of higher education would be advanced if the Universities would now require some knowledge of a modern language, and of elementary natural science in connexion with Responsions or the Previous examination." Mr. Marshall seconded the motion.

Mr. Wickham thought the resolution would be carried with more general assent, and would have a more practical result, if "or" were substituted for "and" between "language" and "of elementary natural science." Mr. A. R. Vardy seconded. The amendment was put and carried by 27 votes against 7, but, on being put as a substantive motion by means of voting papers, it was thrown out by 19 votes against 17.

Mr. Welldon next moved, "That it is desirable to take steps for fixing the holidays of all the public schools in the spring as nearly as possible at the same time, without regard to Easter." Mr. Robertson (Haileybury) seconded the resolution. Considerable discussion ensued, some of the headmasters thinking it preferable to have the boys under religious influence at school at Easter, and others thinking it would be more advantageous for the boys to be at home at that time. Ultimately the following resolution was carried *nem. con.*;—"That it is desirable that the spring holidays of all public schools should begin in either the first or second week of April as the Headmasters' Committee may from time to time determine."

Dr. Percival then moved, "That the demand for greater attention to be paid in school education to the requirements of practical life is best met, so far as the first-grade schools are concerned, by providing that pupils in the upper forms shall be allowed a certain choice of studies, with the view of concentrating their attention primarily on those branches of liberal or scientific study which may bear most directly on the work for which they are preparing." Mr. Phillpotts seconded the motion. Mr. Bell objected, and moved the following amendment, "That, in the interest of liberal education, this Conference enters its protest against any system which prematurely confines the studies of boys to a narrow range of subjects, but that it recognises the wisdom of allowing boys in the upper forms, at or about the age of sixteen or seventeen, a certain choice of studies suited to their special purpose." Dr. Abbott seconded the amendment, which was ultimately carried.

The following resolution, moved by Dr. Percival and seconded by Mr. Wickham, was also agreed to, "That, further, the Conference desires to put on record its opinion that the true solution of the problem of higher technical and commercial education is to be found in continued study of a specific kind on the part of those who have left school, and that employers may reasonably be called upon to make some provision for such study, and to give to those employed by them a certain amount of leisure to be used in such study."

Votes of thanks to Dr. Fearon and the assistant-masters of Winchester College were carried, and the proceedings then closed.

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

November and December have been prolific in Examinations. There have been firstly twelve sets of Honours Examinations for the B.A. and B.Sc. Candidates who were successful at the Pass. The most interesting of them this year is the new Examination for Honours in English, just held for the first time. No less than 24 candidates have been successful thereat, three in the first class, twelve in the second, and nine in the third. The prize of £15 goes to Mr. T. W. Phillips, of University College, Cardiff; and both the second candidate (a lady), and the third are marked worthy of the prize. It appears to us, however, that this examination (by means of two three-hour papers) hardly gives sufficient scope for testing, while the prize is scarcely an adequate encouragement to acquire, the degree and quality of English scholarship to be expected for a degree honours. Considering that there is an examination by four three-hour papers at the Intermediate Examination, with an attached Exhibition of £60, one would like to see a similar examination at the B.A. Honours, with an attached scholarship of £100. If any money difficulty were apprehended, it might easily be obviated by reducing the classical scholarship, the mathematical scholarship (which nearly always goes to a Cambridge man), and the scholarship in Logic and Philosophy (which of late years seems never to have gone to anybody) from £150 to £100, which is the value of the other scholarships in Arts and Science awardable by the University; this change would in fact give the University £65 a year to dispose of for the encouragement of learning in other directions.

The Scholarship in Mathematics this year goes to Mr. W. E. Brunyate, of Trinity College, Cambridge, who obtained the mathematical exhibition at the Intermediate Examination in 1886. The Scholarship in

Classics is won by Mr. J. Y. Evans, of University College, Aberystwith, who similarly obtained the exhibition in Latin at the Intermediate of 1887. In German, the first candidate, Mr. F. J. Curtis, a private student, is too old to receive the prize, which is passed on to the second candidate, Miss M. S. Young, of University College, Bangor, who likewise obtained the prize at the Intermediate of last year. Thus three pieces of emolument, out of the four awarded, go to students from the three Welsh colleges. There is no first class candidate in French; while in Mental and Moral Science there is neither a first class nor a second class candidate, and in the third class there are but three. The condition of the lists in this subject of late years offers a puzzling problem; the University Calendar shows that in 1863, when the number of B.A. candidates was perhaps one-fourth of the present number, no less than 23 candidates obtained honours in this subject, of whom nine were in the first class, and eight in the second.

Of the Science Scholarships, that in Chemistry is awarded to Mr. C. F. Baker, of University College, London, and that in Zoology to Mr. F. E. Weiss, of the same College. The gentleman recommended for the Scholarship in Physics (Mr. R. W. Stewart, of Aberystwith and Owens Colleges) is too old to receive it.

We may mention, in passing, that Scholarships in Arts and Science cannot be held by candidates over 23 years of age; the corresponding limit of age for exhibitions at the Intermediate Examinations is 22 years. In the faculties of Medicine and Laws, however, no limitations of age are imposed.

At the First Scriptural Examination two candidates have passed, both in the first class, and each obtains a prize of five pounds' worth of books.

The M.B. Honours lists show a large number of successes, and a scholarship and two gold medals are awarded, both in Medicine and in Forensic Medicine; but in Obstetrics only a medal is awarded. A feature in the Medicine list is the number of double or treble distinctions; six gentlemen hold the B.Sc. degree, one is D.Sc., and two are both B.A. and B.Sc.

There are forty-one names in the M.D. pass list. Mr. G. E. Rennie, of University College, carries off the large gold medal, and three other gentlemen have reached the standard of merit qualifying for the medal. In this list, too, a marked feature is the number of double or treble distinctions; thirteen of the doctors are also Bachelors of Surgery (B.S.), one is B.Sc., one is B.S. and B.Sc., and one is B.A. and B.Sc.; the medallist is B.A. of the University of Sydney. Among the doctors marked B.S. we note with pleasure the name of Mrs. Scharlieb, who distinguished herself so much in 1882, when she took the M.B. Examination in November, and at the Honours Examinations carried off the scholarship and medal in Obstetrics, obtained a first class in Forensic Medicine, and a second class in Medicine; while, in the following month, she took the B.S. Examination, and was first in the second class at the Honours in Surgery.

At the M.S. (Master in Surgery) Examination three candidates have passed, and the large gold medal is awarded to Mr. L. A. Dunn, of Guy's Hospital. The medal has been awarded only three times previously since this examination was re-modelled, more than twenty years ago.

At the B.S. Examination nineteen candidates have passed; eight of these have subsequently obtained honours; and the scholarship and two medals have been awarded to the highest candidates.

A candidate has passed the Examination in Public Health (or Sanitary Science). It is said that the Senate propose to abolish this examination, and to substitute for it a branch of the M.D. Examination dealing with State Medicine.

One candidate (the only one, we are informed, who presented himself) has passed the Examination in the Art, Theory, and History of Teaching, —an examination open to all the faculties, and specially instituted for the benefit (as was supposed) of graduate teachers, who may now probably be numbered by the thousand.

In the case of these outlying examinations it is clear that the results are ridiculously disproportioned to the expectations of the University in instituting them, and, one might add, to the clamour raised in some quarters for their institution. If there is no serious demand for them, then, as it seems to us, the large sums of money which must be spent in examining and perhaps rejecting a single candidate, or even as many as two, might be much more advantageously employed.

Lastly come the examinations in Music. It is said that fourteen candidates presented themselves for the Intermediate Examination; two have obtained the degree of B.Mus; one appeared at the Intermediate D.Mus. Examination; but, up to the time of our going to press, no report on the Intermediate Examinations had appeared. It is also rumoured that there has been a candidate for the full doctorship; but, as that final examination involves the public performance of a musical composition (by the candidate) of a high order, and as this performance requires two or three months for preparation, we shall not see any pass-list just yet.

Oxford.

The Examiners to the Craven Fellowship have reported to the Vice-Chancellor that they have elected to the Craven Fellowship Mr. H. A. Tubbs, B.A., of Pembroke College.

It is now authoritatively stated that the Rev. T. Fowler, President of Corpus Christi, has resigned what will henceforth be called the Wykeham Professorship of Logic.

Mr. W. Hatchett Jackson, of New College, has been appointed, for one year, deputy Professor of Anatomy.

Mr. C. D. E. Fortnum has presented a valuable collection of antiquities and works of art to the University. Mr. B. L. A. du Pontet, of Trinity College, has been elected Hertford (University) Scholar.

The Taylorian Scholarship and Exhibition for Spanish, have been awarded to Mr. H. B. Clarke, of Wadham, and Mr. J. G. Wardrop, of Balliol.

Cambridge.

The Provost of King's, Dr. Okes, died at the Lodge on Sunday morning, November 25th, at the age of over ninety. His strength had completely failed, and for several days before his death he was hardly conscious. He was the son of a Cambridge surgeon, and was keenly interested in the prosperity of the town, as well as in that of his college, though he never took much active interest in University affairs. For nearly thirty years a master at Eton, he returned to Cambridge in 1850, and under his presidency great changes have taken place at King's. The society relinquished the privilege which entitled its members to the B.A. degree without examination in the Senate House; and they have been rewarded by obtaining a very long list of high distinctions in open competition. Formerly a college of old Etonians, it is now open to men from any school who are reading for Honours. Its character is much changed, and the numbers have greatly increased. During the period of the late Provost's connection with the college the buildings were much enlarged; and it is probable that in the immediate future additional accommodation will be provided on a garden which Dr. Okes was unwilling to relinquish, but which will not be at the disposal of his successor.

The Carus Greek Testament Prize for Bachelors has been awarded to A. M. Knight, B.A., Pembroke College, and that for undergraduates to F. Robinson, of Christ's College.

The University Library has recently received two valuable donations: Dr. Venn's unique Library of logical books comprising more than 1,000 volumes, and the oriental books and MSS. of the late Dr. George Percy Badger. Mr. W. Gardiner, of Clare College, has been appointed University Lecturer in Botany; and Dr. Hill, Master of Downing College, University Lecturer in advanced Human Anatomy.

Other Universities, Colleges, and Schools.

Mr. G. C. S. Bland, M.A., late House Master at Ipswich School, has been appointed Head-master of the Devon County School. Miss Nicholson, of Somerville Hall, Oxford, has been appointed Head-mistress of Reigate High School. The Rev. H. L. Thompson, M.A., Rector of Iron Acton, Gloucestershire, has been appointed Warden of Radley College, in succession to Mr. Wilson, who has been appointed Warden of Keble.

The Rev. A. P. Dawson, of the Wyggeston Schools, Leicester, has been elected Head-master of Kitworth Grammar School.

The Rev. Alfred C. Fox, Head-master of the Tideswell Grammar School, Derby, has been appointed Head-master of the Reigate Grammar School.

EDUCATIONAL NOTES AND SUMMARY.

The Bill for the Better Prevention of Cruelty to Children, on which we commented in our last number, has not been the subject of discussion in the past session of Parliament, and, before it is again brought forward, there will be ample time for its promoters to profit by the criticism which it has called forth in the public press and elsewhere. Should the bill be re-introduced in the next session, it is probable that some of its more objectionable features, especially those embodied in the first clause, will be removed; for it is obvious that the abuses sought to be redressed by it cannot be intended to extend to cases of school discipline, which would, nevertheless, be included within the four corners of the Act if the wording of its clauses were not largely modified. The Council of the College of Preceptors have had the matter under consideration, and will not fail to take such action as may seem to them best adapted to secure the necessary alterations in this loosely-drawn bill.

Speaking lately at Sidcup, Sir William Hart-Dyke said that, although changes in the existing educational system might be made, there was no intention of upsetting the compromise embodied in Mr. Forster's Act of 1870. If the question of religious teaching had to be fought over again much mischief might result, and certainly he should be against bringing the country into such strife.

The Rev. J. R. Diggle has been elected Chairman of the School Board for London by 30 votes against 22, a larger majority than at the election three years ago. Sir Richard Temple has been replaced by Dr. Gladstone as Vice-Chairman.

The Treasurer of the Manchester Art Museum, says the *Globe*, explains in one of the local newspapers a scheme which his

committee has in view for the furtherance of art-teaching and art-culture in the local elementary schools. The committee desires to do, so far as Manchester and Salford are concerned, what is being done, to a certain extent, for different parts of the country by the Art in Schools Association. It wishes to lend to each school a collection of paintings, engravings, pottery, plaster casts, wall papers, and other artistic products, to be changed every six months, each article being accompanied by a note explanatory of its nature and intention. In addition to this, it would require that the school managers should allow the children to pay regular visits to the Art Museum itself, there to have the various exhibits described to them. These visits alone would be of great educational value to the young people, but it is obvious that still more useful to them would be such collections of art-work as the Committee propose to locate in the schools themselves. By this latter means the children would be enabled practically to live in an artistic atmosphere highly favourable to the infusion and growth of a feeling for the beautiful. The notes supplied by the Committee, and supplemented by the competent supervisors it proposes to furnish, would be of service, in the first place, in making the pupils acquainted with the different forms of art and their various modes and purposes. But even more effective would the collections and the explanations be in cultivating the taste of the children—in accustoming them to graceful surroundings, and thus creating in them a love and desire for such environment. That love and desire once infused into them, it would give a tone to their characters and to their lives, and have incalculable results for good. It would be a potent civiliser, being in that respect a much more vigorous agent than mere book-learning.

In a recent article on the Greek language, Professor Blackie observes: "I undertake to prove that by learning Greek in the natural and true way as a living language, by a direct appeal to the ear and response by the tongue, thinking and speaking in Greek from the very first lesson, a greater familiarity with that noble language will be acquired in five months than is done now by the assiduous labour of as many years. Nature is always right; schoolmasters and scholars are sometimes wrong."

"'To produce character: that is the end of teaching.' This is easily said," observes the New York *School Journal*, "but how difficult to realise! A young teacher at an institute, after hearing the first sentence in this article pronounced by the conductor, asked with surprise, 'And is character to be aimed at in teaching geography, for example?' Is it not, then, a common idea that character is the result of reading the Scriptures, or of some moral lesson? In other words, is it not a common idea that character has relation to lying, thieving, slandering, &c.? The questioner evidently looked at character from a low standpoint. What is character? The word is so often used by all classes of people that the teacher forgets it is an educational term, and must have a technical meaning. As the educator uses it, it means a fixed purpose, graven into the mind, *charactered* into the warp and woof of the soul, to live in accordance with the truth of things. And to impress character there must be an earnest and honest search after truth. And so all searching after truth tends to form character. There are higher and lower truths; there are different purposes that impel the search, so the character takes shape and colour accordingly. But all earnest and honest search after truth is fruitful in effects; and so the teacher must aim to awaken this desire to know the truth. And so the answer to the question proposed must be, that all children at school who are earnestly and honestly seeking after truth are laying the foundation of character. And so the great question the teacher must ask himself is, How can I arouse an earnest seeking after truth?"

The Manchester Geographical Society have had under consideration the question of the foundation of commercial museums, and the Council of the Society hope, during next year, to bring some practical proposition before their members. For some time past they have made a special feature of visiting public museums, libraries, and other similar institutions, so as to ascertain the whereabouts of all collections of objects or of books bearing upon geographical research.

On the afternoon of Saturday, December 1st, a very large meeting, convened by the Council of the Teachers' Guild of Great Britain and Ireland, was held at the Hall of the Society of Arts, Adelphi, to consider and discuss the Organisation of Secondary Education. There were considerably over 200 teachers present, and Sir Philip Magnus was in the chair. The object of this meeting, as of others held, or to be held, by the fourteen local branches of the Guild—was to elicit and discuss the opinions of teachers, rather than to set forth any formal propaganda. The meeting, however, seemed completely unanimous on two main points, viz., that it is desirable that an educational council should be called into existence, into whose hands the organisation, oversight, and direction of secondary education should be placed; and that on this council teachers themselves should be adequately represented. When all the meetings have been held, and the answers received to the questions now being circulated by the Guild, it is the intention of the council of the Guild to lay the opinions expressed before the proper authorities. In his opening address, Sir Philip Magnus very clearly set forth the chief points to be considered. No one, he said, would advocate that secondary education should be placed on the same basis as elementary education; but that was no reason why it should have no organisation at all. At present there was no body existing which was responsible for the secondary education of the country, and there was no department which was cognisant of the secondary schools, or of the character of the education which they provided. He insisted that it was necessary that some kind of machinery should be brought into existence for several specified objects, including—(1) provision of a sufficient number of efficient secondary schools duly related to one another, and to the elementary schools beneath them, and to the universities above them; (2) the adaptation of the instruction given in these schools to the wants and requirements of different towns and districts; (3) the registration of teachers employed in these schools; (4) the utilisation of the present enormous secondary scholarship fund to provide free places in these schools, and to enable pupils from the elementary schools to receive a good secondary education, and, in certain cases, higher technical or university education; (5) the regulation and inspection of all schools in receipt of funds derived from public sources, and the recognition of all private schools that submit to such inspection; (6) the annual publication of reports showing the number and distribution of schools, the curriculum of studies, the qualifications of the teachers, the character of the teaching appliances, and the general sanitary condition of the schools.

There remains little to be said that is original on the subject of education; still, old things may be made to look new and fresh by a speaker who has got the gift of putting wise saws neatly and effectively. Mr. Phelps, the American Minister, did this admirably in his address at the distribution of prizes to the scholars at the United Westminster Schools, on the 21st ult. Speaking our language and considering the old masterpieces of English literature as much their inheritance as ours, the philosophers and poets of America have struck out less that is original in philosophy and poetry than the conditions of life in a new world would, under other circumstances, have led us to expect. As one of their writers has said, "We still read the old English wisdom, and harp on the ancient strings." And so an American of culture says very much the same things when addressing an audience on education that an Englishman would say—with, perhaps, this difference, that a very featurely sort of humour often runs through the speech of the former. That sort of humour which surprises by stating truisms as if they were novelties—or superficialities as if they were profundities—is peculiarly American. Artemus Ward's sage remark pointing to a hill, "The highest point of this mountain is the top," is an example of what we mean. Not unlike this is Mr. Phelps' advice to the boys, prefaced as it was with the remark that "he was not going to give them any good advice. That was rather a cheap article, and, like many cheap articles, it was apt to be disappointing. When he was a boy he had good advice enough to float a ship, but he did not know that it did him much good. He used to wonder, before he was old enough to know better, why the gentlemen that were so generous with it did not keep some for their own use, and why they did not pitch in and do some of these good things they seemed to think he ought to attempt. He used to wonder whether anybody would ever come along to give him some bad advice,—to tell him to enjoy life in a quiet honest way as well as he could, and not to overstrain himself in the effort to be a greater man than Divine Providence ever intended he should be." Again, how consoling to the average boy is the following: "It was fortunate that the world had but very few great men; he did not know whether it had all it needed; perhaps it had all it could stand, for, like the blossoms

of the century plant, they did not appear oftener than once in a hundred years. If there were any such boys that started out with the idea that they were remarkably clever, they would be likely to find as they got along that other people did not agree with them. But those who were destined to meet with any great success were the boys who were not conscious of their own remarkable deserts or importance, but would find it out from other people as they went along in life. Mr. Phelps, though following in office so popular a minister as Mr. Russell Lowell, has won golden opinions from all Englishmen, and we greatly regret to hear from himself that he is about to quit our shores not to return.

The Datchelor Training College, Camberwell, has just added a new department to its work. The Head Mistress of the school has from the first taken much interest in the training of young teachers, and now the Cambridge Teaching Syndicate has been asked to recognise the School as an authorised Training College, and to examine its students annually for the Cambridge Teaching Certificate. The Syndicate appointed an examiner to visit the School, and on his report has accorded to the School the desired formal recognition.

It is with deep regret that we hear of the death of Professor Paley, which occurred at Bournemouth. Frederick Apthorp Paley was born at Easingwold, near York, in the year 1816, the eldest son of the late Rev. Edmund Paley, and grandson of the famous Dr. Paley, author of "The Evidences of Christianity." He was educated at Shrewsbury, over which school, at that time, Dr. Samuel Butler presided, who was afterwards Bishop of Lichfield, and is remembered now chiefly for his atlases of ancient and modern geography. From Shrewsbury, Paley proceeded to St. John's College, Cambridge, where he took his degree in 1838. It is singular that the name of a man who, in after years, became one of the very first of classical scholars should not be found in the Tripos of his year. This may perhaps be accounted for by the circumstance which in those days kept many a good scholar from his place in the Classical Tripos—namely, the necessity of taking mathematical honours first. For eight years after taking his degree he resided at Cambridge. In 1846 he joined the Roman Catholic Church and left Cambridge, whither he did not return until 1860, at which date the disabilities, under which dissentients from the doctrines of the English Church had till then laboured, were partially removed. For fourteen years he remained at the University, where he was known as one of the most successful and careful classical tutors. In 1874 he accepted the appointment of Professor of Classical Literature in the Catholic University College at Kensington, which post he held till recently. At different periods of his life Professor Paley produced a very great quantity of work for the Press, chiefly in editing Greek and Latin authors. Good as are all his notes, they are surpassed in perspicacity by his prefaces, which, indeed, are of almost unique value. He was devoted to other pursuits besides classical learning. He wrote many papers on archæology and botany, and was one of the original members of the Camden Society at Cambridge. In 1883 the University of Aberdeen conferred upon him the honorary degree of LL.D.

We are glad to see that an influential Committee has been formed for the purpose of appealing to the public for a sum of £200,000 to provide for the erection of four technical and recreative institutes in the four metropolitan boroughs north of the Thames (Finsbury, Hackney, Islington, and St. Pancras). If this sum be secured, the Charity Commissioners, it is hoped, will, as in the case of South London, be prepared to appropriate a sum of £200,000 from the City Parochial Charities fund to provide an endowment for the proposed institutes. The assistance of the City Companies—especially of those owning property in the boroughs—will, we doubt not, be forthcoming; but the wealthy residents must be prepared liberally to aid the movement if the sum necessary to secure £200,000 from the City Parochial Charities fund is to be raised before the expiration of the powers of the Charity Commissioners next year. The Chairman of the Executive Committee may be communicated with at 20 Finsbury Pavement, E.C., or payment may be made to the account of the North London Technical Institutes at the Bank of England.

A "Crammer" writes to the *St. James's Gazette*:—I have just been spending a profitable and not unpleasant half-hour in reading the list of names (in the current number of the *Nineteenth Century*) of those eminent authorities who have lately been signing my death-warrant. The chief thing that struck me, in my perusal thereof, was the jealous care that had been exercised in the selection of signatures. It is doubtless right that the reader should search in vain for the name of any single schoolmaster of any eminence, for nobody wants their opinion on matters connected with teaching; but it is a pity that, though we know we are condemned by Mr. (and Mrs.) Cunninghame Graham, Mr. Wilfrid Blunt, and Mr. T. P. O'Connor, we should be left in uncertainty as to whether Citizen Burns and Sir Charles Warren are against us or not. Then, too, it looks like unkindness on the part of Mr. Churton Collins to let Mr. Edmund Gosse's name appear in print unaccompanied by his own. We know that we are found wanting at the hands of the ex-chairman of the Failsworth (ominous name!) Local Board and of a former Lord Mayor of London; but why, O why, is the name of no member of the Metropolitan Board of Works to be found? It must be a matter of rejoicing to all who have the cause of real education at heart to know that "a late member of the firm of H. S. King and Son," Mrs. Mary Jeune, and the editor of *Good Words* do not approve of examinations; but why not also have gladdened their hearts by assuring them that a present member of the firm of Messrs. Snooks and Juggins, Mrs. Ponsonby de Tomkins, and the editor of the *Infants' Friend* are of the same opinion? It will be a blow to many to seek in vain for the honoured signature of Professor Baldwin.

CORRESPONDENCE.

THE MYSTERIES OF EXAMINATIONS.

The following letters appeared in the *Daily Telegraph*, of December the 13th and 14th:—

Sir,—Will you do me the favour of inserting a few lines respecting the recent College of Preceptors' Examination in your widely-read paper?

I should like to ask your readers if they think it right to ask pupils questions in English history which cannot be answered from any ordinary history. The following questions were put in the First Class College of Preceptors' Examination held last week:—

"What is meant by the following: The Statute of Provisors, the Dictum de Kenilworth, Justices in Eyre, the Assize of Clarendon, Presentment of Englishry?"

"What do you know of the Mad Parliament, the Good Parliament, the Wonderful Parliament, the Parliament of Bats, the Unlearned Parliament, the Model Parliament?"

"What do you know of the Kentish Petition, the Aylesbury Case, the Mohocks, 'Mrs. Morley,' Sorrel, the Kit-Cat Club, the Sacheverell Clause, the 'Flying Squadron,' the 'Tackers?'"

One of the Recent History Candidates.

Sir,—May I say a few words in reply to a letter in your columns to-day on the First Class History paper in the recent College of Preceptors Examination, and, if it be not presumptuous to do so, to your leading article on the subject. I would submit—

1. That it is scarcely fair to judge an examination paper by two or three selected questions, as you judge wheat by a sample, especially as it may be presumed that the questions chosen were those least acceptable to your correspondent.

2. That a paper intended partly as a competitive, and partly as a pass test, may reasonably be expected to contain questions of very different degrees of difficulty, provided always that it is possible for a fairly prepared candidate to obtain pass marks, and for a well prepared candidate to obtain the marks required for distinction. It is scarcely expected in any examination that any paper should be quite "floored."

3. That the incriminated questions are by no means so open to criticism as might at first sight be imagined, and in particular that they are calculated to elicit thoughtful, rather than "mnemonic," answers.

The paper under discussion consists of a general section and of alternative groups of questions on limited periods. The general section consists of four questions, two of which are quoted by your correspondent. The two which he did not quote are as follow:—

"Give an account of the Dutch wars during the Commonwealth and the reign of Charles II.; *or*, of the wars in India between 1740 and 1790;"

"Explain, in your own words, what you understand by the South Sea Scheme; *or*, by the Armed Neutrality;"

both surely unexceptionable questions. As to the questions so severely criticised, the first, containing historical terms like the Statute of Provisors and Presentment of Englishry, seems to me

to deal exclusively with points of great importance. That on the Parliaments (in quoting which, by the way, your correspondent omits the "Little Parliament") would no doubt be out of place in a paper intended simply for pass candidates; and were an examination made up largely of such questions, it would deserve severe criticism. But, surely, in revising English History with pupils who have been through it several times before—and this is the case with First Class candidates—it is natural for a teacher to run through it on various lines, one of which would be Parliamentary History. In such a review, the nicknames given to several Parliaments, though trivial in themselves, are often convenient and suggestive.

I now pass to the question taken from the paper on a selected period. The question is one of five on a period of only twenty-six years (1688—1714), which is, of course, expected to be known in some detail. Of the nine items of which it consists—none of them, I think, particularly abstruse to any one who has recently read the period—*only five* are to be answered, a detail of some importance which your correspondent passes over. Moreover, the form of the question: "What do you know about....", seems to me to invite intelligent answers—an explanation, for example, of the constitutional privilege of which the teachers awaited themselves, and not a mere effort of memory.

The remaining questions of the section contain much that even a moderately prepared candidate could not fail to answer.

I am sorry to have troubled you with so long a letter. May I add, in conclusion, that a good many years' experience both in setting History papers myself and in revising those set by others, has convinced me of the extreme difficulty of the task. History is too often taught from inferior text-books by men whose knowledge does not go beyond their text-book; and it is quite possible for an examiner, who feels strongly the evil of such a system, to go to an opposite extreme. From long intercourse with the examiners of the College of Preceptors, I am convinced that they are alive to both dangers.—I remain, Sir, your obedient servant,

H. W. Eve,
Dean of the College of Preceptors.

LONDON MATRICULATION MECHANICS.

To the Editor of the Educational Times.

Dear Sir,—Allow me to call attention to a serious evil in connection with the Matriculation Examination of the University of London, viz., the *uncertainty* of the character of the paper on Mechanics. One set of examiners spring dynes and ergs on the astonished candidate, then repent and settle down to good, though, at first, puzzling questions on the first principles of the subject. Their successors ignore these efforts, and, at one jump, go back to the style of twenty years ago. The climax was, I hope, reached last June, when an attempt was made to gauge the reading of the candidates by *two* questions with riders on Dynamics; *two, without riders*, on Statics; and *four, each with a rider*, on Hydrostatics. Now it may be assumed that teachers and candidates would either divide their preparation equally between the three subjects, or would give the greater part of their time to Dynamics and Statics. The paper must, therefore, have disappointed many. Candidates who would have done well in a searching all-round paper were fearful of their pass in this; on the other hand, many who could not have stood a good test were able to pass by answering a few questions of a cram character. The latter fact is soon manifested in the Intermediate Science classes, when matriculated candidates at once show that they know next to nothing about the rudimentary ideas of Dynamics—such as the nature of an acceleration, the theoretical unit of force, the quantitative meaning of the Third Law of Motion, and, of course, the relation between the measures of work and energy—all unrepresented in the June paper.

Again, candidates are allowed to pass in Statics either on merely stating the rule for the distances of the centre of gravity of a system of particles from two axes—without in the least appreciating the definition of that point, or on solving a problem about upsetting a table, which necessitated taking moments about a line not in the plane of the principal points, unless, forsooth, the legs of the table were to be taken as examination legs whose length might be neglected (it would be interesting to know how many candidates saw this point). Candidates who did the table question by the light of nature break down when asked a simpler question, such as "to state accurately the resultant of two given unlike parallel forces."

I ask teachers to unite with me in endeavouring to upset this *sham-sample* style of paper, and to obtain a real test of continuous work, such as is supplied in the other subjects of examination. I think a good model would be found in the papers of the Science and Art Department; but I venture to suggest the following plan: (1) that there should be an unvarying number of questions, say five, on each branch of the paper; (2) that one of each kind should carry an asterisk implying that it is meant specially for the Honours candidates; (3) that no candidate should attempt more than ten questions; (4) that a pass be not allowed for answers in only one branch; (5) that, with the exception of those marked with an asterisk, the questions should be mainly of an arithmetical character—so that the attention may not be distracted from the physical concepts.—I am, dear Sir, yours &c.

University College, Aberystwyth, R. W. Genese.
17*th December*, 1888.

SLOYD.

To the Editor of the Educational Times.

Sir,—I should like to join with you in bearing testimony to "what Miss Chapman and Miss Nyström are ably, zealously, and indefatigably doing to acclimatise Sloyd in England," and to say a word or two on the three advantages ascribed by Miss Chapman in your issue this month to Sloyd study in England over that in Sweden.

Last Christmas I was a pupil of Miss Chapman and Miss Nyström's for four weeks, and last summer I was at Nääs for four weeks with an old friend. My friend is the nimbler man with his fingers, but he had not worked at Sloyd before. At Nääs he got through his models more rapidly than I; and, if I further mention that out of a possible 5 he obtained on an average 3¼, whilst I obtained 4¼, it is only for the purpose of gladly acknowledging that the difference, and something more than the difference, was due to the care and skill of Miss Chapman and Miss Nyström's instruction.

And now for Miss Chapman's three advantages. (1) Miss Chapman very properly says that people understand better what they learn when it is conveyed through the medium of their own language. But the instruction at Nääs is given in English. Let me quote the words of a Nääs student which appeared in print on Sept. 28th last:—"The language need be no difficulty. The lectures were, for the first time this summer, delivered in English as well as in Swedish and German. The Sloyd teachers themselves know some English, and are eager to learn more. The English, too, help one another; those who are going through their second course pass their experience on to the beginners." What sort of English Director Salomon speaks may be seen from his "Farewell Address to the Students" on Sept. 4th last, which may be procured from Miss Ward, Girls' High School, Ipswich.

(2) I may be an unobservant man, but it seems to me that the Swedish tools are much the same as the English. The chief difference is that, in Sweden, as on the Continent generally, the frame saw is used instead of the hand saw. And for school purposes the frame saw is better, as necessitating a better hygienic posture. Most of those, too, who go to Nääs, learn for the first time that tools and benches can be procured there at such a cheap rate that makers in England are beginning to cry out that Herr Abrahamson is selling under cost price. Promoters of Recreative Evening Classes, who are often hindered by scarcity of funds, will not fail to note this.

(3) The objects made in England must, of course, be things used in English, and not in Swedish, households. I myself worked through the first eighteen models of the Higher Boys' School series at Nääs, and there is not one of them that is not just as useful in England as in Sweden; and, to the best of my remembrance, the same may be said of all the remaining members of the series.

In a lecture delivered at Brighton two years ago, which appears in full both in the *Journal of Education* for Feb., 1887, and in Lord Meath's *Prosperity and Pauperism*, Miss Chapman dwells upon the loveliness of the scenery at Nääs; the enthusiasm of the Director, and his determination to make students of every nation seize his ideas; upon the interesting, fruitful, and varied discussions on educational questions which the Director does his utmost to promote; upon the simplicity and refinement of student-life there; upon its cost, so absurdly small, and gives the clearest directions for the journey. But all these matters, occupying 100 lines in the original lecture, are silently dropped in Miss Chapman's pamphlet reprint. I am sure all her best friends (the Sloyd Association Committee, for instance) will join with me in urging her to restore the gem of her paper to its former and rightful place. J. S. Thornton.

Manchester.

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THE EDUCATIONAL TIMES.

LONDON, JANUARY 1, 1889.

The tilt against the "fashionable fancy for examinations" seems to have spent itself in the first attack, and the discussion has not been materially advanced during the past month. The public appears to be recovering from the scare which was at first caused by the formidable array of great names which were marshalled for the general assault; and, if we may judge from their eagerness to add explanations, we shall be right in surmising that some of the "protesters" are half ashamed of the part they have played.

The after-fruits of the commotion are, however, appearing, and one of these is not without some amusing features. It might, perhaps, have been expected that some of Mr. Harrison's "trained examinees who have learned to play ten examination games blindfold," would have retorted, and would have proved, as many of the "much-examined"—judges, statesmen, educationists, and others—might easily prove, how base and baseless a calumny it is to say that "they have lived their mental lives before they are five-and-twenty; that the victory of life has seemed to them gained, and knowledge exhausted, almost before the threshold of either has been passed."

Although the prize-winners have not been drawn out, it seems that the unsuccessful examinees of all kinds are aroused, and are on the alert to catch examiners tripping at every opportunity. This is the amusing outcome of the great crusade, and we are inclined to commend the new critics. Examiners have been too prone to ridicule mercilessly the absurdities which are written for them, and now that the hue-and-cry against examinations has been raised, the tables are turned, and it is the examiners who are in the pillory. We have always felt that examiners would do more good by pointing out and dilating on the merits of the best answers, than on making sport of the worst, and we are therefore predisposed to share in the amusement of the retaliation. It is easy to make fun of the bad answers in a set of papers, and it is just as easy to turn any examination into ridicule by making use of minute errors and bookish technicalities which may be found amongst the questions. At the present moment, however, we must be on our guard lest we condemn the whole, when we may cure the little that is unsound.

The first of these complaints we note is the following: "In the algebra paper set at the Army preliminary examination, part of the fifth question is impossible of solution; *seven* factors common to two expressions are asked for, while, in fact, there are only *three* common factors; indeed, the greatest possible number of factors in either expression is *six*. It is unnecessary to comment on the hardship entailed upon the candidates, or on the negligence displayed by a

board of examiners specially appointed to ensure the accuracy of the questions set."

It is very wrong of the examiner, no doubt, to ask for *seven* when there are only *three* to give; but, if it were true that there were but three common factors, the slip would be one of so little significance that it could not possibly alter the position of any candidate. One who could find the three would know there were but three, and would not lose time in looking for a fourth. The fault in the question, however, if fault there be, would make it possible for those who found the rest of the paper too much for them to complain of the "terrible hardship" of being set an impossible task. But the explanation given in the House of Commons, by the Secretary of the Treasury, shows that the examiner does not admit there is any fault, and that he had in mind, not simple elementary factors, but *any* quantity which will divide the expressions without remainder; thus, if a, b, and c are simple elementary factors of an expression $abcn$, then, in addition to a, b, and c, there are ab, ac, bc, and abc, in all seven factors of the given expression. The explanation, however, must have amused more than it enlightened the M.P.'s to whom it was given.*

The second complaint is, that in an examination in geography, supposed to be limited to the British Empire, a question contained, amongst other names, Pekin and Cairo as places the positions of which were to be described. We are asked if the examiner thinks Pekin has been recently annexed.

The third complaint has reference to the history examination of the College of Preceptors, and is referred to in another column. The questions here incriminated are not erroneous, but are too minute. It is perfectly true, as the Dean admits, that "were an examination made up largely of such questions, it would deserve severe criticism," but we cannot say it would be wise to exclude questions on small details altogether. Knowledge which is loose, indefinite, and inexact is often worse and more dangerous than ignorance; and hence knowledge which is well-ordered, definite, and exact should be encouraged. At the same time, questions of the kind complained of ought not to be so numerous as to encourage cramming; and there ought to be amply sufficient in the rest of the paper to pass a candidate who has qualified himself by general reading. Those who are responsible for the papers of the College will do well to see that these conditions are well secured in the future. It is by no means clear that they have not been fulfilled in the paper referred to. Probably, when the results of the examination are reported, it will be found that the proportion of candidates who succeeded in satisfactorily answering the history questions is as great this year as it has been in any former year.

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* Mr. Hubbard asked the Secretary to the Treasury whether, in the Army Preliminary Examination on the 13th of December, question 5, which was set in the Algebra paper, was incapable of solution:—"Write down all the seven factors common to $xy\,(x^2-16)\,(y^2-9)$ and $x^4\,(x+4)\,(y-3)$;" why question 12 was set in the Arithmetic paper:—"If one cubic foot = ·028 cubic metre, and if one kilogram = 2·2 lb., find the number of ounces in one cubic foot of water,"—a knowledge of the metric system not being required by the syllabus.

Mr. Jackson.—In the earlier part of question 5, candidates were asked to define a factor, and I am informed that, according to the correct definition of a factor, there are seven factors common to the two expressions. As regards question 12 of the arithmetical paper, I am informed that there is no such syllabus as is implied in the hon. member's question, and that the metrical system is included in the well-known text-book, "Colenso's Arithmetic." A general statement is made as to the knowledge of Arithmetic required from candidates, but the strict interpretation of it desired by the hon. member would exclude a knowledge of the English as well as of the metrical system of weights and measures.

Those who have been advocating, in the interests of British Trade, changes in our Educational courses which, if carried out in their entirety, would have transformed our Schools and Universities into little other than annexes to the counting-house and workshop, might profitably revise that knowledge of the present condition of the commerce of the world on which they grounded themselves in making their revolutionary proposals, by aid of a paper printed in the Proceedings of the International Conference on the Sugar question, recently published.

They will there learn that in one hemisphere, at least, the decadence of British commerce, which they ascribed in good part to the defects of British School Education, is the very reverse of fact. They may also discover that the well-meant advice they gave English Schoolmasters to study and copy as quickly and closely as may be the school systems of foreigners, their own being utterly unsuited to the new conditions of a new epoch, was premature, if not presumptuous.

The paper to which we refer is a Report dated 9th February, 1888, emanating from the Committee on Foreign Affairs of the United States' Senate, on a Bill then before it respecting a Conference between the United States of America and the Republics of Mexico, Central and South America, and the Empire of Brazil. It may, perhaps, be well to explain that for several years past, owing to the stationary condition of their export trade, and the steady decline of their carrying trade, the merchants of the United States have sought an extension of their commerce with the States of the South American Continent by means of Commercial Unions. They are extremely sensitive with reference to the unprogressive condition of their trade with the peoples lying south of them, compared with that of this country, and so they desire their Government to promote the formation of a sort of Amphiktyonic Council, composed of the States of North, Central, and South America, which would, for each and all of these, effect similar objects to those effected by its prototype for the cities of Ancient Greece. It was to support a project of this kind that the Report from which we are about to quote was written. It is there stated that the best markets for United States Industrial Products are not far from her own southern border:—

"They are nearer to us than to any other commercial nation. The people of Mexico and of Central and Southern America produce much that we need, and our abundant agricultural and manufactured and mineral productions are greatly needed by them . . . . but the great bulk of their commerce and trade is with Europe. The Argentine Republic has from forty to sixty steamships running regularly between Buenos Ayres and European ports, and no regular line between that country and the United States, and our commercial facilities with the other Republics of Central and South America are about the same."

To show the "amazing and humiliating" disparity between the trade of the United States with the four chief countries of South America, and that carried on with them by this country, a table is given, setting forth the imports of merchandise in the year 1886 from Great Britain and the United States, by which it appears that those South American States purchased British goods to the amount of 81,000,000 dollars, whilst from the United States the purchases were below 15,000,000.

But a still more striking piece of evidence to British commercial supremacy is contained in the following passage:—

"The consumption of cotton goods in Central and South America, and in Mexico, amounts to nearly 100,000,000 dollars annually, and, although they are so near our cotton-fields, England furnishes about 90 per cent. of these goods. Cotton fabrics constitute the wearing apparel of nearly three-fourths of those peoples, and they have to import all they use. England monopolises this trade because of her cheap transport facilities, and because her mills furnish goods especially adapted to the wants and tastes of the consumers, which our mills have never attempted to produce."

The same tale of English monopoly is repeated by the United States' Ministers and Consuls writing from the various States to which they are accredited. The Minister to Brazil wrote to his government that his attention was attracted to the remarkable fact that, while the United States take so large a proportion of the coffee of Brazil, "the great bulk of the trade of this country is controlled by England."

The Special Commissioner of the United States, sent out by his Government to report on the commercial affairs of these South American countries, sent home the message that—

"English trade is the largest in South America, on an average amounting to 50 per cent. of the total trade of each country, and it is everywhere the creation of the vast fleet of steamships which England has placed in that service within the last 20 years."

Now, it is well to remember that the comparison instituted in the above passages is one between the two great communities of the world which most nearly approximate to that industrial type of society which is destined, after a longer or shorter interval, to supersede the type of society which is modelled on a military basis.

They are the only two civilised nations in the world that are not augmenting their national indebtedness. They are both paying off their national debts; the younger nation, with less than half the debt of the older, is paying it off twice as fast. Our kinsfolk in America, and not Germany, will be our most formidable competitors in the markets of the world. Free a few years hence of public debt, and exempt from the pest of militarism, which is visibly bringing Continental Europe to bankruptcy if no worse, the United States will be the rival from whom we have most to fear. At present, notwithstanding all that alarmists have said and written, England holds the field in the Western Hemisphere, and whatever else may be sufficient cause or mending for ending certain peculiarities of our secondary or higher education, the decay of British commerce is not such.

No harm has been done, we admit, by the cry that the supremacy of British commerce was endangered. On the contrary, we owe to it the establishment of many excellent Technical and Commercial Schools, which will remain and do good work when the alarm vanishes and its cause is seen to be baseless. By all means let us derive from these institutions every advantage they are capable of yielding, but we will do well not to despise those sources of energy—physical, intellectual, and moral—on which our fathers drew before these schools existed. The industrial habits, hereditary aptitude, social stability, commercial honesty, and the rest, which have given our country its present industrial and commercial supremacy, will in the future be needed, in as large measure as linguistic skill, to prevent the transfer of that supremacy to another people.

The supply of children's books has been greater than ever this year. In matters of binding, illustrations, and print, there continues to be an improvement. The advance in colour-printing alone has been so great in recent years that it is difficult to conceive that we shall ever have anything more beautiful for little children than the pictures which now decorate so many of their books. But, with regard to the subject-matter of the stories and the ways in which they are told, we have searched in vain for any signs of a general improvement. The stories continue to be *about* children rather than *for* children; and the writers have one eye—or sometimes both eyes—fixed on the adult bystanders, instead of being wholly engrossed with the child. The level of interest and motive is that of the adult, not that of the child; while some authors, adopting this higher level, try to write down to children, whereas they should start from the child's own level, and try to raise him just so far above it as it is possible for him to rise. Even in the rarer instances when the child's level is chosen and maintained, the interests and motives are not always the healthiest and most natural; while, in the books for boys, the main interests in most cases are still bloodshed in one form or another, and what, stripped of its tinsel, is simply crime or something perilously near it. We speak in quite general terms; but, during the last few weeks, we have read many children's books and glanced into several others, and few indeed are the exceptions we have found to the general rule. The writers do not understand normal child-nature, and are seemingly quite unconscious of the effects on child-mind of what they write. Some ethical effect, however small, a story must have, and it is lamentable to think how little care is taken that it shall only be of the best kind. We are not advocating the introduction of moral themes and the goody-goody. We plead for the natural; and the goody-goody is not natural, at least in children, though it may be natural in some writers. And surely it is somewhat strange to allow children, in their books, to become intimate with characters and actions from which, in real life, we should keep them apart to the utmost of our power. Moreover, what we should always be trying to do for children is to help them to become their own true best selves, and to discourage their habitually playing a part not their own—in other words, to be natural and not artificial. And we shall not effect this if in their story-books—one of the most potent factors in their education—we give them artificial children to associate with, and interests and motives attributed to children which for children are wholly artificial. How much unhappiness is caused in the world by people persistently aping the personality of some one else, instead of being content with being themselves. And yet we are constantly showing our delight at the artificialities of children, and giving them books whose tendency is to make them unnatural. It is the abnormal and artificial child, or the scapegrace, who interests adults, and so we write stories about such and call them children's stories.

In our last issue we took occasion to remark, in reference to the new School Board for London, that it did not make for the efficient discharge of the duties for which it was called into existence, that its members should be split into two sharply opposed sections. The work to be done within the area of its jurisdiction, as marked out for it by the

Elementary Education Act of 1870, and subsequent Acts incorporated therewith, is precise and definite. Two interpretations, however, have been placed on the operative clauses of these Acts, and two parties have arisen to give effect to them. Party is seen at its worst when it rests on such a narrow basis as this. To justify its existence, it is constantly driven to accentuate and magnify differences which, under more favourable conditions, reasonable and intelligent men would seek to minimise. And it is especially deplorable when party antagonism, for which there is so little justification, should be an impediment to the smooth and intelligent working of the vast system of Elementary Education now established in this metropolis. We are therefore glad to find that expression has been given at the first meeting of the Board to the view, that it is desirable in the interests of education to abate this party feeling.

It was to mitigate its bad consequences that the minority sought to elect a Chairman outside the Board, who was not identified with either party. This attempt failed; the party that had a majority at the polls were not in any humour to forego a triumph, and so Mr. Diggle, the late Chairman, was re-elected by a strict party vote.

The choice of a Vice-Chairman was not however made on party lines, as Dr. Gladstone, a member of the minority, was chosen in preference to Sir Richard Temple, the Vice-Chairman of the late Board, who was again nominated to fill the vice-chair. Of Dr. Gladstone's devotion to the work of Elementary Education it is unnecessary to enlarge. Nor will our readers need to be told that the office of Vice-Chairman could not have been better bestowed. It raises our opinion of the new Board considerably to find that, at its first meeting, it displayed so much moderation and good sense as to recognise that long and excellent service in the cause of education was to be placed above party preferences.

One of the most important questions brought into prominence by the rival reports of the Educational Commission, is that of the training of teachers. The conclusions arrived at are not weakened by any minority protests, but on the main points the Commissioners are entirely agreed.

The advantage and the necessity of providing for the training of teachers before they enter upon their work are acknowledged by all. It is agreed, also, that the existing provision does not cover the ground that ought to be covered, and that the training is not carried far enough and is not pursued long enough. Hence there is a need of additional colleges, and the important recommendation that day colleges should be opened, in addition to the colleges for resident students, seems to have met with general favour. The Commissioners are also unanimous in recommending a third year's training for the most promising students in existing colleges.

The old denominational difference crops up again, of course; and, when this appears, we may safely conclude that the interests of education do not supply the only motives of the sides which differ. All agree that the training colleges have done good work; but some complain that the number of denominationally trained teachers, as compared with others, is far greater than the proportion of scholars in attendance at denominational elementary schools to those of undenominational schools. Hence some see, in the proposal to found new undenominational training colleges for day as well as for resident students, a means of adjusting the inequality. The thorough and efficient training of the teachers is the first requisite for a sound system of national education, and every institution which supplies this training to a high degree of efficiency merits support. When the system of day training in connection with existing colleges is adopted, the emancipation of training from its present bonds will not be far distant. If, of two candidates for a board-school mastership, one has more ability as a teacher and schoolmaster than the other, the Government ought not to refuse to sanction the selection of the better man simply because he has obtained his training at his own expense; and very many and great advantages would accrue from the throwing open of the entrances into the ranks of the elementary teachers to all who can satisfy the Government of their professional skill and power, and of their integrity and respectability. The introduction of day training colleges will be a step towards this end.

REVIEWS, NOTICES, &c.

A History of English Sounds from the Earliest Period, with full Word-Lists. By Henry Sweet, M.A. (*Clarendon Press.* 1888.)

For the last two or three years philological activity has been largely directed to a welcome series of books, summing up the results obtained in the last two decades. For classics we have Iwan Müller's "Handbuch der klassischen Altertums-Wissenschaft"; Schleicher's "Compendium" has been replaced by the indispensable "Comparative Grammar" of Brugmann; and, instead of Diez, we have Gröber's "Grundriss der romanischen Philologie"; early next year we are promised Paul's "Grundriss der germanischen Philologie."

Parallel with these, for compressed material and strict scientific method, stands Dr. Sweet's book; indeed, in one point of capital importance, that of phonetics, it is in advance of them all. Phonetics forms the very foundation-stone of all scientific study of language; and it is not much of an exaggeration to say that this principle has received adequate recognition for the first time in this "History of English Sounds." Even in Brugmann the remarks on phonetics wear something of the look of a label stuck on. In the same way writers on education are wont in their prefaces to hang out the sign-board of psychology, but when we get well into the house we find that the sign-board is all forgotten. "Aryan *tt* becomes Germanic *ss*, or *a* is mutated to *e* by an *i* in the following syllable," cannot rise above "Buchstabengelehrsamkeit," unless we know the physiological reasons for those changes.

In the preface the author gives an interesting sketch of the rise and progress of his work; he complains justly that at Oxford his Plato and Aristotle had so interfered with his own proper studies that his knowledge of Old English was at a lower ebb than it had ever been during the preceding five years. The time and money expended on the classics at our Universities are out of proportion to their value compared with that of other languages. Surely there are students enough for all; but, as long as classics and mathematics take the lion's share of the scholarships and fellowships, other studies must perforce languish.

The book consists of two somewhat disparate parts. The first quarter deals with several difficult problems of general philology; the rest is devoted to the special subject in hand, and is certainly the best account in existence of the phonetic development of any language.

The notation is, of course, Dr. Sweet's modification of Bell's "Visible Speech." We are afraid the first thirteen pages will be unintelligible except to students who have done a fair amount of work at phonetics. It is for these only, in reality, that the book has been written. Dr. Sweet's horror of the "Turkish delight" style of philology is well known, and he would probably demand with justice the same degree of study as is required for reading advanced text-books on science or mathematics.

The translation into phonetic symbols of words from out-of-the-way languages like Welsh, Old Bulgarian, &c., as well as of the sounds in Aryan and primitive Germanic, is a welcome

innovation. Following a general discussion of the conditions under which sound-change takes place is an excellent chapter on the Origin of Dialects.

A striking proof of the advantages enjoyed by those who come after is given by the somewhat sad remark—"The ten pages into which I have condensed my sketch of the Aryan sounds represent years of tedious toil and groping after light." Now the modern student can obtain it all and more in ten weeks with the aid of Brugmann. At times it is a little difficult to see whether Dr. Sweet disagrees with generally received results or offers us material accumulated some time ago. His view, for instance, of Aryan *dh* passing at once into Germanic *d* is sure to meet with strong opposition. It is now generally held that the voiced aspirates passed first into voiced spirants and then into voiced stops after nasals, as well as initially in the case of the labial and dental. Their further development was carried out independently in the various dialects.

In the four pages devoted to the vexed question of the runes, a compromise is made between the views of Canon Taylor and Dr. Wimmer. The latter scholar has recently published a new work on the same subject in *Döbefonten i Akirkeby Kirke*: under the title of *Die Runenschrift*, a translation of the second edition of his great work has been made by Dr. F. Holthausen. In 1854, Kirchhoff ascribed the runes to a purely Latin origin; this view Dr. Wimmer adopts, placing the date of borrowing in the third century A.D.; his main argument is based on the rune for *f*, which he considers can only be derived from the Latin. Dr. Sweet thinks the third century too late, and says with justice against the Latin hypothesis, "In Greek itself such spellings as FHE = *Fé*, from Aryan **swe* through **swhe*, show that the digamma must often have had the sound of bilabial *f*." Canon Taylor supposes some non-Germanic tribe of central Russia to have taught the Goths the runes about the third century B.C.

There is a case on record of the Cherokee Indian Sequoya, who saw white men "talking from books," and invented a syllabarium from some twenty Greek and Roman letters. Wulfila fashioned his alphabet for the Goths out of the same source, and it looks as if some single genius of earlier times did a like service for the primitive Germans. Any complete account of the method he followed seems out of the question. The main difficulty lies in the phonetic value of *g, d, b*; were they voiced stops (as we should read them now) or voiced spirants (usually written , ð ƀ in Germanic? We hold for the latter, especially as it seems to answer a difficulty in § 339.

"X*g* and ⊠*d* appear to be reduplications of < *k* and Greek-Latin D respectively. Another view is that they are the Greek X*kh* and ⊕ *th* respectively; but it is difficult to see how those letters could have been applied to Germanic sounds which at that time were either Aryan *gh, dh*, or else some modification of them." Now the Greek χ, θ, φ are known to have passed from an aspirate to a spirant value even in antiquity. If at the same time Aryan *gh, dh, bh* had become in Germanic not *g, d, b*, as Dr. Sweet assumes, but the spirants ȝ, ð, ƀ, then the Greek spirants X and ⊕ might be the natural source of the rune spirants X and ⊠. This assumes an unvoiced and voiced value for the signs, just as in modern English *th* in *thin* and *then* stands for þ and ð; a somewhat simpler hypothesis than taking the same rune to represent *d* and ð. As against Dr. Wimmer, we think it more likely for the inventor to adapt a sign already in use than to make a new rune by doubling an old one. For ourselves we should be contented with the statement that the runes were derived from a Greek-Latin source and used at the time when Verner's law was in living force.

Dr. Sweet's conciseness leads him to make one remark which is sure to be obscure to most readers. "The ψ seems to point to the old Greek-Italian I rather than the late Latin Z." How many, even among classical scholars, will know that I stands for *z* in the oldest texts of the *Carmen saliare?*

We now come to the Old English Sounds. The first impulse to their scientific study is due entirely to Dr. Sweet; the account here given of them is the fullest we possess, many of the obscure problems left in Sievers' "Old English Grammar" being cleared up.

As in Mr. Skeat's "Principles of English Etymology," a chapter is devoted to Scandinavian and its influence on English. The next fifty pages are occupied with Middle English, and the rest of the book with Modern English. This, according to Dr. Sweet, begins about 1500; he subdivides it into periods, one for each century, and gives a most welcome abridgment and critical sifting of the material accumulated in the "Early English Pronunciation" of Mr. Ellis, a scholar who, as a recent German writer elegantly puts it, suffers from phonetic superfœtation.

The various sounds under discussion are transcribed throughout in the symbols of "Visible Speech," and afford perhaps the best possible proof of its value. We are not acquainted with any other capable of showing so many fine distinctions in nearly identical sounds with the like clearness. The fact that Mr. Bell's vowel system is English seems not to have been without influence in some of the recent attacks made on him in Germany. It will be time to discuss the retention or rejection of his analysis when a piece of work parallel and comparable to this of Dr. Sweet has been presented to the world with another phonetic transcription. To all earnest students of language, who do not wish to be distracted and disheartened by the multiplicity of phonetic systems, we recommend the mastery of "Visible Speech" as a starting-point.

The phonetic authorities are taken from Mr. Ellis; the date of 1609 is given to Holyband's French Littleton. The first edition, however, was in 1566, followed by others in 1578, 1581, and 1607. His real name was C. Desainliens. In 1580 he published "Claudii a Sancto Vinculo [*i.e.*, Holy band] de pronuntiatione linguae Gallicae libri duo." He wrote the book as he was "victus quotidianis multorum Anglorum querelis." In 1582 came out his "Frenche Schoolemaister, newly corrected: wherein is most playnely shewed the true and most perfect way of pronouncing of the Frenche tongue. . . ." G. Delamothe N. published in 1592, "The French Alphabet, teaching in a very short time, by a most easie way, to pronounce French naturally."

More important, however, than these is a German Grammar the writer found in the Berlin Royal Library—"The High Dutch Minerva *à la mode*, or a Perfect Grammar never extant before whereby the English may both easily and exactly learne the Neatest Dialect of the German Mother-Language used throughout All Europe, London, 1680."

Long phonetic transcriptions are given. In the chapter on "Etymologia," equations are given for changing English words into German, and *vice versâ*, "though a certain rule or standing certainty cannot be prescribed (as we could wish it were) through the whole language."

The leading feature of the first edition in 1874 is reproduced in the word-list of 2144 forms traced through Early and Middle down to Modern English. A wonderful amount of information is compressed into these pages by means of a few symbols. To the student the list is simply invaluable. From it a second one is made of Old English forms still living.

In conclusion, after expressing our gratitude for a work which removes from us the disgrace of having to learn German before starting on a scientific study of our own tongue, may we ask Dr. Sweet to give us a popular dogmatic exposition of his Revised Organic Alphabet with copious transliterations of easily procurable passages from English, French, and German? Another small demand of the practical student: can the Clarendon Press give us a double folded card, printed only on one side, and containing a list of all the symbols employed, with a copy of the contractions which are copious and curt?

A Short Account of the History of Mathematics. By Walter W. Rouse Ball. (Macmillan & Co.)—The first chapter is devoted to a discussion of the Mathematical Attainments of the Egyptians and Phœnicians; chapters ii.—vii., to the Mathematics of the Greeks; chapters viii.—xiii., to those of the Middle Ages; and the remaining chapters to those of modern times. There is much in these chapters that will be interesting to all who are acquainted with the elements of mathematics, and much that is useful as well as interesting to teachers. As an illustration of the latter kind, we may refer to the development of arithmetic and its extension into algebra. The kinds of questions which Metrodorus collected in the beginning of the fourth century and solved by the *rule of false supposition*, paved the way, first, for a rhetorical algebra—that is, a process of algebraical reasoning in words used by Ahmes and by the earliest Arabian, Persian, and Italian algebraists—and secondly, for symbolical algebra. The example solved is as follows:—"Demochares has lived a fourth of his life as a boy; a fifth as a youth; a third as a man; and has spent thirteen years in his dotage. How old is he?" Suppose we assume Demochares' age to be 40; then, by the given conditions, he would have spent $8\frac{2}{3}$ years in his dotage; and, therefore, we have the proportion—$8\frac{2}{3} : 13 :: 40$: the required age. Hence his age is 60. Their place in the history of discovery suggests that for beginners such questions are useful introductions to algebra

The greatest fault we can find with the work is that occasionally the facts given concerning the particular person named are too meagre to convey a fair estimate of his title to fame, and occasionally they are not sufficient to warrant the general conclusions which are drawn from them. For instance, this is what we read of Hypatia :—

"Hypatia was the daughter of Theon. She was more distinguished than her father, and was the last Alexandrian mathematician of any general reputation; she wrote a Commentary on the Conics of Apollonius, and possibly some other works. She was murdered at the instigation of the Christians in 415.

"The fate of Hypatia may serve to remind us that the Christians, as soon as they became the dominant party in the State, showed themselves bitterly hostile to all forms of learning. That very singleness of purpose which had at first so materially aided their progress developed into a one-sidedness which refused to see any good outside their own body; those who did not actively assist them were persecuted, and the manner in which they carried on their war against the old schools of learning is faithfully pictured in the pages of Kingsley's novel. The final establishment of Christianity in the East marks the end of the Greek scientific schools, though they nominally continued to exist for two hundred years more."

These two paragraphs contain all that the author tells us on the subject, and yet in the whole story, as far as the actual facts are known to us, we can find nothing to show that the tragedy of Hypatia's death resulted from opposition of a sect to learning. The account given of the dispute between Newton and Leibnitz is exceedingly fair and interesting; but it does not show as clearly as it might that even supposing Leibnitz obtained his first hint as to the Calculus from some MS. of Newton's, which he was allowed to see while visiting in England, yet afterwards he developed the method from a different standpoint to that of Newton. Leibnitz proceeded by seeking the summation of infinitesimals; Newton, by finding the finite ratio of infinitely small quantities.

A New Era of Thought. By Charles Howard Hinton, M.A. (Swan Sonnenschein & Co.)—In this volume Mr. Hinton gives a careful and systematic exposition of what we may term "Fourth Dimension Philosophy." The first half of the book traces in detail the genesis of the conception in the author's own mind, and is semi-autobiographical in character. Mr. Hinton spent years of fruitless research before he found the way of escape from his psychological difficulties in the conception of "higher matter" or "higher space." "The task was to obtain a sense of the properties of higher space, or space of four dimensions, in the same way as that by which we reach a sense of our ordinary three-dimensional space. I now prefer to call the task that of obtaining a familiarity with higher matter, which shall be as intuitive to the mind as that of ordinary matter has become." The problem is to ascertain what that is "which is to a cube or block or shape of any kind as the cube is to a square." As might be expected, the argument is largely one of analogy, and is consequently more interesting than conclusive. The chapter which strikes us as the best is the one devoted to an examination of an imaginary "plane world" or space of *two* dimensions; the conceptions are felicitously and ingeniously worked out, and the subjective or *self-limitations* (to use Mr. Hinton's term) of the inhabitants of such a region are indicated. The analogy is pressed home upon the dwellers in a three-dimensional world, and it is argued that similar self-limitations beset them and make it difficult for them to grasp conceptions of four-dimensional activity. Mr. Hinton asserts, at the close of this chapter, that "after a number of years of experiment which were entirely nugatory, I can now lay it down as a verifiable fact that by taking the proper steps we can feel four-dimensional existence, that the human being somehow, and in some way, is not simply a three-dimensional being—in what way it is the province of science to discover" (p. 46). Further on, we find the assertion, "We must be really four-dimensional creatures, or we could not think about four dimensions" (p. 99). Surely the argument from analogy is pushed too far. On some of Mr. Hinton's hypotheses, there is no reason why there should not be space and matter of n dimensions. At the same time we readily admit that the author's laborious and prolonged researches deserve study; he is decidedly in earnest, and has fully convinced himself that he has discovered the Tessaract, or the four-dimensional representative of the cube, and he announces a complete system of four-dimensional thought—mechanics, science, and art. He contends that we can see four-dimensional pictures with our mental and inner eye, "if only we can acquire the power of mentally carrying a great number of details." The second half of the book has been elaborated from the author's hurried sketch (on account of Mr. Hinton's absence from England) by the two editors, and consists of a very complicated series of exercises designed to familiarise the student with these novel conceptions; coloured and numbered models and cubes are employed, and the combinations of these are infinitely varied. This portion of the work will be found stiff reading even by those who have had a mathematical training.

Memorials of the Hon. Ion Keith-Falconer, M.A. By the Rev. Robert Sinker, B.D., Librarian of Trinity College, Cambridge. (Cambridge: Deighton, Bell, & Co.; London: George Bell & Sons. 1888.)—"Late Lord Almoner's Professor of Arabic in the University of Cambridge" and "Missionary to the Mohammedans of Southern Arabia" are the especial titles given to Ion Keith-Falconer, but they by no means convey all that these Memorials tell of him. Beginning with his early childhood, we trace the same brave, cheerful spirit which distinguished him to the end. Just as he was a manly boy, so something of a boy's brightness seems to have marked him as a man, even amidst the weariness and weakness that was to close a short life—in which, nevertheless, so much had been accomplished, and which promised so much more. Deeply earnest, and, very probably, with the cause for which he gave his life always before him, Mr. Sinker shows us how nothing that he did was ever slurred over as though it were not worth his while to do his very best. As a boy at Harrow, as a student at Cambridge, it was the same, and pleasant are the glimpses of him at both, which Mr. Sinker and his correspondents give us. He might be, and he *was*, intensely interested in the work carried on at Barnwell (a suburb of Cambridge, where overcrowding had led to much of crime and misery), and, giving to that work all the assistance in his power, he yet felt that at that time his studies were his *first* duty, and nothing was allowed to seriously interfere with them. His energy, always great, was shown even in his schooldays; on the one hand, by the way in which he worked at Shorthand—a matter quite apart from his general studies—and, on the other, by his soon distinguishing himself as a bicyclist, enjoying the exercise as he enjoyed everything he did, whether it were work or play. Even when his doings entailed self-sacrifice it was so willingly offered that he might have seemed to be most pleasing himself when he was really giving up most. This is particularly striking in his readiness to interrupt an all-engrossing occupation to help anyone who needed help; for it is just those who, like Ion Keith-Falconer, throw their whole hearts into their work, who find it hardest to turn aside on the instant at the call of another. It is well said of him that he might have taken as his motto, "Serve God, and be cheerful." Although we are told that distinction was not his first object in working, we are not to suppose that he undervalued the many honours that he gained, though perhaps he prized them chiefly as means to the great end he had in view, the going as a missionary to Southern Arabia, where he had reason to believe much might be done to Christianise the Mohammedans of those parts. Mr. Sinker tells us how he planned and strove for this, earnestly and enthusiastically, but still with the calm good sense which always came to his aid and prevented his acting foolishly. For him the work was soon ended, but it is hoped and believed that it may be carried on by others with brighter hopes of success. However this may be, none who read of the life of Ion Keith-Falconer, as it is shown us in these Memorials, can believe that such a life was lived in vain. Its "crowded hour" was, indeed, "worth an age without a name."

Dictionary of National Biography. Edited by Leslie Stephen. Vols. XIV.—XVI. "Damon" to "Edridge." (Smith, Elder, & Co.)—The last number of this excellent Dictionary, whereof it is only fair to say that the achievement fully realises the lavish promises of its original design, brings us, approximately, to a point which should be one-third of the way towards the completion of the work. The publishers still express a hope that the Dictionary will occupy about fifty volumes, spread over a period of twelve years and a half. It is now four years since the publication began, and the sixteenth volume has just appeared. But it is evident that less than a third of our national biography has been included in these sixteen volumes. Comparing Mr. Stephen's Dictionary with one or two others on a smaller scale, we should be inclined to say that little more than one-quarter of Mr. Stephen's task is accomplished. In Mr. Cates's dictionary (4th edition) the name Edridge occurs on page 374, out of a total of 1484 pages—about one-fourth of the distance from post to finish. Vincent gives the same proportion. The comparison of a British with a general dictionary, however, is not altogether fair; and it

is noteworthy that the proportion of pages in Vapereau supports Mr. Stephen's scheme of work. The point is worthy of attention, because in so large and costly an undertaking it is important for purchasers, as well as for the publishers, that the design of the prospectus should be fulfilled as closely as possible. Meantime, the practical value of this Dictionary increases in a geometrical ratio as its publication advances, for the reader is in a better position to refer from volume to volume, and to pursue a general subject of inquiry by consulting a larger number of biographies. By frequent use of the work as far as it has gone, we have been able to apply to it a test which has been both searching and critical, and we are justified in saying that its value to the student and reader is not only great and constant, but progressive. Apart from the literary and merely historical lives, to which one is perhaps first and most frequently attracted, the Dictionary has other less conspicuous virtues, arising from the care which has been taken to select competent writers in special branches of biography, so that, as far as possible, each life has been dealt with by a competent and well-informed man. We have illustrated this in previous notices by referring to the articles on distinguished schoolmasters. The same thing might be done, though with less favourable examples, in the volumes now under consideration; and we have verified the statements in many of the architectural and general scientific articles, with results which are satisfactory. The few inaccuracies and omissions which we have noted need not be specified here; but it may be said in conclusion that accuracy of detail is one of the main characteristics of the "Dictionary of National Biography."

German School Books. (1) *German Exercises, etc. By G. J. R. Glünicke, B.A.* (*Rivingtons.*) (2) *A Complete Practical Grammar of the German Language. By T. H. Weisse. Fourth Edition.* (*Williams & Norgate.*) (3) *Progressive German Reader. By Dr. F. Lange.* (*Whittaker & Co.*) (4) *Graduated German Reading Book. By G. C. Macaulay, M.A.* (*Rivingtons.*) (5) *German Examination Papers. By G. Hein.* (*Williams & Norgate.*) (6) *German Dialogues. By A. an der Halden.*—Mr. Glünicke tells us in his preface the *raison d'être* for his book. "Soon after the appearance of the German Grammar by Phillpotts and Glünicke, he was asked to compile a collection of exercises to illustrate the rules contained in the Grammar." We are ready to believe this statement, but we are at a loss to understand why he should have inserted any rules at all in his book, and given a number of paradigms, instead of simply referring to the "Grammar by Phillpotts and Glünicke." Many of the sentences chosen are rather clumsy, and some of them require correction. The author tells us that "he believes that no pupil working carefully through his book will need any other grammar." This may be true; but where will he find that paragon of pupil, endowed with more than Teutonic patience, who would wade through this ponderous volume of nearly five hundred pages? Mr. Glünicke has evidently taken great pains with his book, and it is only to be regretted that he did not limit it to half or one-third of its present size. Herr Weisse's *Grammar* has reached a fourth edition. It certainly contains some useful points, but, like the preceding book, it suffers from wearisome ponderosity. We believe that the author, who undoubtedly knows his own language thoroughly, would do well to issue the next edition of his Grammar as an independent manual, and to omit the "full directions for the proper use of Ahn's French Course," considering that this publication is one of the worst of the usual "Practical Methods," which is saying a great deal. The poetical extracts in Dr. Lange's "Progressive German Reader" are in general well chosen; but some of them are far too advanced for a beginner's book, such as Uhland's *Glück von Edenhall*, Schiller's *Unüberwindliche Flotte*, and Platen's *Grab im Busento*. The prose extracts, on the other hand, do not indicate any special care in the selection. The "Anecdotes and Fables" are, we believe, well known in the school-room, and so are the "Tales from History" and the "Greek Legends," so that we really do not see any original feature in the publication. The Vocabulary seems to have been carefully compiled. Mr. Macaulay has also made an attempt to solve the problem of supplying a "suitable Reading Book," and, according to the usual fashion of the common run of school-book compilers—more especially in modern languages—he finds fault with his predecessors in the same field. Thus he censures those German reading books which set off "with such idiomatic German as Lessing's Fables." In this censure he is entirely wrong; for the sooner pupils become acquainted with the idiomatic turns of a language, the better. Mr. Macaulay begins his Reading Book with exercises on the auxiliary verbs of tense; but, according to our notion, such materials do not belong to a "Modern Language Reader." The special Vocabularies at the beginning of the first six chapters seem to us superfluous, considering that all the words occurring in the text are given in the appended Vocabulary. Some of the Notes will prove very bewildering to the pupils, such for instance as—*Ihro Gnaden, genitive.* On the whole, there is a want of systematic arrangement in the book. Several of the extracts are hackneyed; but we were very glad to meet with the poetical extract from Herder's "Cid." Herr Hein has collected in a separate volume all the German "Examination Papers set in Scotland at the Local Examinations of the four Scottish Universities," since the time when these examinations commenced, and has added a Vocabulary of some of the more difficult expressions. An occasional test by means of Examination Papers is certainly very useful and advisable; but the collections of them increase to such an alarming degree, that it is to be feared that they will soon be used as regular "Manuals," to the great annoyance of the pupils and to the detriment of their intellectual development. The dialogues in Herr A. an der Halden's "Progressive German Dialogues" are in general correct, but not spirited enough to have any interest for either "our boys" or "our girls." In the dialogue at the jeweller's, the author has taken the opportunity of advertising—not to say "puffing"—a well-known London watchmaker. To such a pass our modern languages school-books have come!

Simple History of English Literature, with illustrative extracts. By A. L. Stronach. (*Nelson & Sons.*)—The title of this small book of some 270 crown 8vo pages exactly describes its contents. It is also one of the Royal Upper Class Readers, and costs eighteenpence. It consists of 28 simple and pleasant talks about writers and topics in connection with the history of English Literature, illustrated by extracts more or less characteristic of the writers and books mentioned. These extracts, by the way, require to be collated and corrected, for in a quite cursory reading of them we have come upon two or three mistakes (*e.g.*, p. 242, l. 22, "its own hands'" should be *my own hand's;* and p. 249, l. 2, "deeds" should be *things*). In the talks themselves there are also a few loose statements, such as, for instance, p. 160, "Shelley has written many smaller poems, which are often sung" (will Miss Stronach name them?); or again, p. 163, "Lord Tennyson still lives in his pretty home in the Isle of Wight." But we must not dwell too much on small errors. If children are interested in their books, and really care to hear something about the people who wrote them, they will find much in this book that is freshly and simply put on the subjects of both—"told story fashion," to quote the phrase used in the preface. The selection of topics and authors is in the main happily made; but the extracts should have been very much fuller (especially in the prose), or have been much fewer and restricted to two or three authors. As they stand they are neither one thing nor the other. To give four lines of quotation to represent Sir Isaac Newton, and about the same amount to Wyclif, is to fritter away space to no purpose; and, when soon after one comes upon an extract of some fifty lines from Mr. R. L. Stevenson, one wonders where the author's sense of proportion has got to, and whether her judgment is always to be trusted.

The Musical Profession. By Henry Fisher, Mus. Doc. (*J. Curwen & Sons.*)—The need for a book dealing with the interests and obligations of the musical world is undeniable; and the scope and contents of the work before us include nearly every aspect of the subject. The author has apparently addressed a number of inquiries to members of the musical profession in all parts of the kingdom, and has thus taken a kind of *plébiscite* on the various topics; the results are interesting, and some of the quoted opinions are intrinsically valuable. We regret, however, that it has not been possible to indicate more definitely the opinions of those who may be considered "authorities;" the reader is often left without any clue to the experience or position of the correspondent who lays down the law on some disputed point. We fear that, as Dr. Fisher contends, it is too true that the musical profession is at present disorganised, and that members of it are largely isolated. "The musical profession is perilously easy to enter, for the simple reason that it does not require the investment of a large capital. None of the expenses which are absolutely necessary in qualifying for the legal and medical professions are demanded in the case of music." A family piano and a brass plate make it possible for a young man to set up as a "teacher of music." To any who are thinking of music as a source of income, we commend the valuable chapter on the subject, and the advice given as to the best means of securing permanent success. Business and legal matters, the examination for degrees, the organisation of concerts, and the rules of pro-

fessional etiquette receive due attention. Taken as a whole, this volume will prove of great value to all interested in music. So far as we know, it has at present hardly a rival.

Select Passages from French and German Poets, for Repetition. Compiled by Clovis Bévenot. (*Rivingtons.*)—The idea of this selection is excellent. Opposite the French and German poems and passages are printed the best poetical renderings into English which Mr. Bévenot has been able to discover. In this way—and we think there could hardly be a better—the young learner will not only get the meaning of what he is to learn, in detail and as a whole, but will also catch something of the spirit of the original piece *as a poem* instead of merely viewing it as a puzzling arrangement of strange words. To catch the spirit is the first thing. Then comes the task of realising that spirit in audible language; in other words, of reciting the passage with intelligence, feeling, and right pronunciation. To aid the learner in this part of his work, Mr. Bévenot has added some very sensible and helpful notes bearing on the pronunciation of the French and German words and the reciting of French and German poetry; at the close of which he gives what we must call the *excellent* advice—though we ourselves have often given the same—the advice to "make it a point to pronounce neatly any language it is given you to put your lips to." In the rush to get translation books finished the young are given far too little oral exercise, and that, too, of but a slovenly kind, in the foreign languages which they learn. This is a very serious drawback in every way, and the book before us is a very good attempt to help us out of the difficulty. The selection of pieces is small—nine French and sixteen German—but is made with considerable taste and judgment; and amongst the renderings are some beautiful old friends and some very good new ones. The price of the book, however, seems to us somewhat high—three shillings and sixpence for 25 pieces occupying 100 octavo pages. The same plan has, we are told, been employed to good effect by Mr. E. H. C. Smith, with regard to select passages from Greek and Latin poets.

The Construction and Maintenance of School Infirmaries and Sanatoria: prepared by the Council of the Medical Officers of Schools Association. (*J. & A. Churchill.*)—This pamphlet represents, we are informed, the result of careful and prolonged investigations into the provisions made in a number of schools for the treatment of various kinds of illness. It appears that full statistics were obtained from 30 schools, varying in average attendance from 65 to 1,100 each, and representing an aggregate of about 10,000 pupils. Of these schools, 46 per cent. have only one infirmary for the treatment of infectious and non-infectious illness alike, while 50 per cent. have a "Sanatorium" restricted to infectious maladies. The numerous defects and dangers in most of the existing arrangements are pointed out; and an ideal scheme for the construction of (1) an "Infirmary" for non-infectious cases, and (2) a "Sanatorium" for infectious maladies, is supplied, and fully explained in every detail with the aid of numerous plans. It is strongly urged that the arrangements ought to admit of the isolation of patients in whom the symptoms do not *absolutely* indicate a specific disease, and also the separation of those simultaneously affected with different contagious diseases. This carefully compiled summary of the recommendations of medical science ought to be studied by all responsible for boarding schools; and should be consulted by those intending to erect school buildings.

OUR LIBRARY TABLE.

The Invisible Powers of Nature. By E. M. Caillard. (*John Murray.*)—The author is of opinion that "without experiments and even without diagrams, both of which may be baffling where classes cannot be attended or special teaching be had, it is possible to convey in narrative form a general and rudimentary idea of the nature and causes of phenomena of daily occurrence so far as they are known." The work produced on this principle is a reading-book rather than a text-book. It is a series of narratives on gravitation, attraction, properties of solids, liquids, and gases, heat, light, sound, and electricity, and is perhaps as interesting as a book on such subjects, without diagrams and experiments, can be.

The Parent's Cabinet of Amusement and Instruction. By Martha Hill and Friends. New Edition. Edited by Constance Hill. (*W. H. Allen & Co.*)—This is a revised reprint in six volumes (the number of the volume being indicated only by the number of gilt stars on the back) of a publication which first appeared in monthly numbers, and was printed as a whole by Smith and Elder in 1835. It contains short stories and short articles on general and interesting information, after the style of "Chambers' Miscellany." The following account of the origin of the work has been left by Martha Hill:—"In the spring of 1832 some friends, greatly interested in the moral and mental training of children, were in the habit of meeting at the house of Mr. William Ellis, the well-known social economist and munificent promoter of a liberal education among the working classes. I proposed that among us a little juvenile serial should be written and published monthly. Mr. Ellis was so kind as to offer to be not only contributor but editor; Professor Cowper promised familiar articles on mechanical science; Mrs. William Ellis some of her graphic tales and accounts of travel that delighted her own children; Mr. Ellis geographical and historical articles; and I for my part promised tales and easy articles on Natural History." The special and unique character of the work which had this beginning more than justifies the reprint.

Xenophon: Anabasis, IV. Selections. Edited by the Rev. E. D. Stone, M.A. (*Macmillan & Co.*)—The editor has selected the episode of the journey through the mountain passes of Armenia, and has given a brief introduction with map of the route, the text with short notes, and a complete vocabulary. There are also three short appendices dealing with the irregular verbs found in the text, the various usages of prepositions, and the principal constructions of dependent clauses. The special feature of the book is a series of forty short exercises to be turned into Greek.

Moffatt's Edition of the Gospel according to St. Matthew. (*Moffatt & Paige.*)—This book contains (1) an Introduction, consisting of a life of the Evangelist, and an account of the language, design, and characteristics of the Gospel; (2) the Text, with marginal readings and elaborate notes; (3) an Appendix of longer notes. It is one of the fullest and most conveniently arranged handbooks on the Gospel.

Easy Outline Lessons and Graded Lessons in Old Testament History, from Joshua to the Captivity of Judah. By W. Taylor. (*Church of England Sunday School Institute.*)—These two text-books by the Master of Method in Battersea Training College contain fifty-two well-arranged, carefully thought-out lessons. The first book gives the lessons in outline only; the second gives the same lessons fully explained for Junior Intermediate and Senior Classes.

Theoretical Mechanics. By J. Edward Taylor, M.A. (*Longmans, Green, & Co.*)—The Headmaster of the Central Higher Grade School, Sheffield, has succeeded in writing an exceedingly clear work on Elementary Mechanics, Dynamics, and Hydrostatics, which is a suitable text-book for students reading for the College of Preceptors' examinations in this subject.

A First Reader. Stickney. (*Ginn & Co., Boston.*) — This is the best First Reader we have ever seen for carefulness of arrangement and beauty of printing and illustration. The preface tells us that it claims "no special originality," but chief among its features are (1) careful grading in text and type, (2) brightness of style and vivacity in expression, (3) facilities for teaching by sounds of letters.

GIFT BOOKS OF THE SEASON.

The Academy Boys in Camp. By S. F. Spear. (*T. Nelson & Sons.*)—This tale of a school is of a style more common in America than in England. A boy Drayton cuts out of all the text-books the pages of the "Anabasis," which form the lesson of the day. Drayton will not confess, and another lad, Joe Chester, who sees him burning the leaves, while admitting that he knows who the offender is, will not name him. The boys and masters of the school go in a steamboat to an island to camp out for fishing and pleasure. Joe is condemned to remain at home unless the culprit should confess. Drayton and his friend Carver rise early after a troubled night; the former sends a note to Mr. Bernard, the master, confessing the mischief, and then both go on board a fishing smack out to sea. The adventures of the boys on the island "Whaleback," and those of the repentant runaways, afford much interesting reading. The style of the tale, the quaintness of the dialogues, and the incidents recorded, are the more attractive because they are unreal and peculiar.

Little Miss Wardlaw. By Louisa M. Gray. (*T. Nelson & Sons.*)—A pretty story for girls, with a good purpose.

Saved by Love: a Story of London Streets. By Emma Leslie. (*T. Nelson & Sons.*)—This is a story full of feeling, charity, and benevolence, telling of two orphan girls, Effie, a veritable street Arab or "gutter-child," and Susie, the daughter of decent but very poor people. Both were "saved by love."

Ernest Hepburn; or, Revenge and Forgiveness. By the Rev. H. C. Adams, M.A. (*Religious Tract Society.*)—Ernest is a proud and wayward boy, whose temper leads him into many difficulties, but who is finally subdued through the example and death of a dearly loved friend.

Harold, the Boy Earl. By J. F. Hodgetts. (*Religious Tract Society.*)—A good story of the Vikings, reprinted from the *Boys' Own Paper*. It describes the pursuits, pleasures, religion, and mode of war of these Northern rovers, and abounds in thrilling incidents, such as exciting sea fights and mysterious appearances and disappearances. Its serious side is intended to show the best influence of Christianity.

The Children's Champion. By Miss Lucy Taylor. (*T. Nelson & Sons.*)—Those of us who remember the earlier work of the late Earl of Shaftesbury, and more especially those who had the privilege of working in connection with him in the shoe-black movements and other works for rescuing children, will rejoice to see these passages from his life.

That Bother of a Boy. By Grace Stebbing. (*Jarrold & Sons.*)—This story, from the first page to the last, is full of fun and delicate humour.

The boy is an ever restless, mischievous, precocious, and inventive little elf, who is absolutely irrepressible and irresistible. He provokes endless mirth by his dilemmas and comical escapades. The character of his little sister is equally well drawn, and the story forms a wholesome gift-book for boys and girls alike.

The Makers of British India. By W. H. Davenport Adams. The Story of our Colonies. By H. R. Fox Bourne. (*John Hogg.*)—These historical compilations are carefully classified and arranged, but they come better under the head of "Useful Christmas Presents" than of entertaining books of the season.

Captain Bayley's Heir: a Tale of the Goldfields of California. By G. A. Henty. (*Blackie & Son.*)—Mr. Henty knows no restraint in time or place; he uses every age and generation, and every country really existing or purely imaginary. The school which produced his hero in the case before us was Westminster, as it was in the last half-century, and the field of the exploits a goldfield of California.

When I'm a Man; or, Little St. Christopher. By Alice Weber. (*Griffith, Farran, & Co.*)—This is as good a story as any which the season has produced, and is equally suitable for boys and girls, young and old. It is written in charming style, has an excellent tone, and is well illustrated. "Only think, when you have time, that *everybody's* story lives for ever. For even that first Christopher's story—him whom we call Saint—is not ended yet, nor will it be, so long as there are waves in this troublesome world, so long as there are strong souls amongst us, so long as there is a Divine Face shining above the waters."

Lionel Harcourt, the Etonian. By G. E. Wyatt. (*Nelson & Sons.*)—L. H. is a somewhat poor scholar, whose false pride leads him into grave difficulties and then to dishonesty, disgrace, and ruin. He is contrasted with his brother Alfred, so that, when towards the end of his career in England his uncle returns from India, the uncle thus addresses him:—"Your brother Alfred appears to me to possess just those qualities in which you are lacking, and which are indispensable in my destined heir. He is industrious, while you are idle; and unselfish, while you are eaten up with self-love; and finally, all the reports which his school authorities make about him testify to the thorough and manly way in which he has done his duty, while I see, in looking over the packet labelled 'Leo's Reports,' that each one tends to convey a precisely opposite idea of your behaviour." The story leaves Leo on board ship, self-exiled and penitent.

Morning and Evening. Pussy Cat Stories. Seaside Pictures, and other Stories. Bow-wow, or Dog Stories. (*Nelson & Sons.*)—Each of these story-books for very little readers contains four large (quarto) coloured pictures and four pages of letterpress.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending December 31st, 1888.

Abercromby's (Hon. R.) Seas and Skies in many Latitudes, 8vo, 18s. cl.
Aristotelis quæ feruntur de Plantis, 3m.
Bassett's (A. B.) Treatise on Hydrodynamics, Vol. 2, 8vo, 12s. 6d.
Baltzer (A.): Spinozas Entwickelungsgang, 5m.
Bellerman (L.): Schiller's Dramen, Beiträge zu ihrem Verständniss, 6m.
Bettany's (G. T.) The World's Inhabitants, or Mankind, Animals, and Plants, roy. 8vo, 7s. 6d. cl.
Clark's (E. C.) Cambridge Legal Studies, 12mo, 2s. 6d. cl.
Chaucer, the Minor Poems, edited by Rev. W. W. Skeat, cr. 8vo, 10s. 6d. cl.
Day's (L. F.) Text-Book of Ornamental Design: Vol. 3, The Application of Ornament, cr. 8vo, 3s. 6d. cl.
Delitzsch's (F.) New Commentary on Genesis, Vol. 1, 10s. 6d. cl.
Douglas's (J.) A Sketch of the First Principles of Physiography, cr. 8vo, 6s. cl.
First Class Army School Certificate made Easy, by an Army Schoolmaster, cr. 8vo, 3s. 6d cl.
Gisborne's (W.) The Colony of New Zealand, its History, Vicissitudes, and Progress, cr. 8vo, 7s 6d. cl.
Grey's (Mrs. W.) Last Words to Girls on Life in School and after School, cr. 8vo, 3s. 6d. cl.
Halliday's (G.) A First Course in Mechanical Drawing (Tracing), oblong folio, 2s. swd.
Hiorn's (A. H.) Text-Book of Elementary Metallurgy, 4s. cl.
Horder's (W. G.) The Poet's Bible, Old Testament Section, cr. 8vo, 7s. 6d. cl.
Johnston's (W. and A. K.) Multum in Parvo Atlas of the World, 2s. 6d. cl.
Keilinschriftliche Bibliothek, hrsg. v. E. Schrader, Vol. 1, 9m.
Knight's (A. E.) Concise History of the Church from the Apostolic Era to the Reformation, cr. 8vo, 5s. cl.
Lemaistre (A.): L'Ecole des Beaux-Art, 10fr.
Longman's Elementary Mathematics, cr. 8vo, 2s. 6d. cl.
Martha (J.): L'Art Etrusque, 30fr.
Mombert's (J. S.) History of Charles the Great (Charlemagne), 8vo, 15s. cl.
Nicols's (A.) Snakes, Marsupials, and Birds, cr. 8vo, 5s. cl.
Ouroussow (Princesse): L'Education dès le Berceau, 3fr.
Oxford, illus., by J. Fulleylove, with Notes by T. H. Ward, 42s.
Pepys's (S.) Diary, with Notes by Richard, Lord Braybrooke, 6 vols, 12mo, 21s. cl.
Pinet (G.): Histoire de L'Ecole Polytechnique, 25fr.
Plato's Republic, Books 1—5, Introduction and Notes by T. H. Warren, 12mo, 6s. cl.
Poynter's South Kensington Drawing-Books: Freehand for Children, 4to, 2s. 6d. cl.
Rammelsberg (C. F.): Chemische Abhandlungen, 10m.
Religious Knowledge Manual, by Miss Yonge, Canon Daniel, and Canon Benham, 12mo, 3s. 6d. cl.
Robinson's (A. M. F.) The End of the Middle Ages, Essays and Questions in History, 8vo, 10s. 6d. cl.
Romanes's (G. J.) Mental Evolution in Man, 8vo, 14s. cl.
Scholia in Sophoclem Vetera, ed. P. N. Papageorgius, 4m. 80.
Seager's (Rev. J. L.) Faciliora, Easily Graduated Latin Exercises, cr. 8vo, 2s. 6d. cl.
Sophocles' Dramas in English Verse, by Sir G. Young, 12s. 6d.
Steinmann (G.): Elemente der Paläontologie, Part 1, 10m.
Usill's (G. W.) Practical Surveying, cr. 8vo, 7s. 6d. cl.
Winslow's (Rev. F. E.) The Children's Fairy History of England, cr. 4to, 6s. cl.
Wordsworth's (W.) Complete Poetical Works, with Introduction by J. Morley, cr. 8vo, 7s. 6d. cl.

THE PUPIL-TEACHER SYSTEM.

Many comments have been made from time to time on what is termed the Pupil-teacher System, and, especially of late, there has been a disposition in some quarters to declare that it should be swept away altogether as wholly bad and mischievous. But the subject deserves far more careful and discriminating enquiry. It may well be asked, Is there any "system," in the proper sense of the word, in the existing arrangements which at present supply the wants of our public elementary schools? In many respects they are still rather of the nature of *expedients*, and those who bear in mind the difficulties against which the great work of national education has had to contend during the present century will gratefully recognise how many of those first steps which cost so much have been made good by expedients—imperfect, indeed, but which yet contained in them the most important elements of ultimate success.

It is worth while to glance back at those early days in the first decade of the century when Lancaster and Bell were the pioneers of popular education, and made good use of the method of employing "children to control and instruct children." Bearing in mind the limited means at their disposal, the effect produced was marvellous. A new light of hope dawned upon many who responded to the efforts made on their behalf, and eagerly availed themselves of the opportunities afforded; while, on the other hand, a capacity for teaching was developed in many who, on the score of knowledge, were at starting but little in advance of their pupils. Self-denying energy and enthusiasm worked wonders, but still the masses, as a whole, were barely touched.

Ere long, however, this energy and enthusiasm waxed cold, and these methods fell on evil days of prosperity when all men spoke well of them. The promoters of them naturally, and not unreasonably, looked only at their successes, and did not see how much larger a field lay beyond them. Those who grudged expense hailed the system by means of which their consciences could be lulled to rest at a marvellously cheap rate, while those who dreaded the education of the masses in any form were not long in coming to the shrewd conclusion that there was little danger of its being "carried too far" by such means, under the judicious supervision of those whose zeal was tempered by a full measure of their own discretion.

Then followed a long period during which all direct educational efforts in this direction were relaxed or suspended, though even then much good work was done of which we have since reaped the fruits. When, again, towards the middle of the century, the extension of primary schools was urged with some effect, the old tradition influenced the opinions held as to the means required for imparting efficient instruction in them; though, as the work proceeded, the necessity of a higher standard of capacity for teachers was fully recognised by all those who favoured educational progress, but was vehemently decried by their opponents. The Government of the day, even when in accordance with the former, had thus to deal with an administrative duty of a very arduous kind. The question of money became urgent. The financier is always unpopular. In the minds of partial and over sanguine reformers, he appears to be one always wanting to get money from those who cannot afford to pay it, and *not* giving it to those who think they have a claim to have it. How to give much and get little, is the insoluble problem which he is constantly called upon to solve. He is ground as between the upper and nether millstone, between conflicting claims on his forbearance or generosity. He is inevitably a much harassed and somewhat hardened man; yet withal his experiences are not without their value, for "promise" and "performance" have to be weighed by him with an impartial balance, and even his sympathies may be attracted by those whose well-ordered work stands the test of time and can be accepted as an earnest of what may yet be accomplished. He cannot be much in advance of the opinion of those who pay. All will admit that the qualities necessary to carry out work of so

high a kind as that of education are not to be called forth by Act of Parliament. Enforced work, in these regions especially, is heartless and inefficient, and, to quote a hackneyed phrase, the *minimum* (of obligation) becomes the *maximum* in practice, and failure is courted as the readiest means of getting rid of an unwelcome burden. Much as we may deplore the shortsighted parsimony which grudges the cost of good seed to be sown in the springtime of childhood and youth, we shall not remedy the evil by ignoring the fact that only by slow degrees has public opinion been brought, first to admit the paramount necessity of undertaking such work at all, and then to recognise that true economy consists as much in adequate expenditure on things needful as in rigid avoidance of all ill-advised and superfluous outlay.

This argument applies to the point in question in a preeminent degree. It is easy to declaim vehemently and vaguely of the failure of the Pupil-teacher System; but what are the issues actually involved in the question? The Education Department, early in its career, adopted the term "pupil-teacher" instead of that of "monitor," thus broadly asserting that the instruction of the youthful teachers was an essential part of the scheme introduced by their authority. It was in reducing this to practice that the "money difficulty" came in. The staff required to earn the State grant-in-aid was on a lamentably low scale, but, nevertheless, was only maintained with difficulty, and in spite of much active and tacit opposition. For some years after the passing of the Act of 1870, the Department were compelled to accept such makeshifts as a certificated teacher of no great capacity, with a limited staff of pupil-teachers, all perhaps very young—for little inducement was offered them to stay—as satisfying the conditions entitling the school to participate in the State grant. A higher standard has been enforced by degrees, and the word "pupil" has acquired a practical significance in the title of "pupil-teacher," though much remains to be done in the same direction. But an increase of staff implies generally a higher cost, for the time being at all events, though the outlay is calculated to ensure permanently economy of the highest kind. Parsimony in this respect has entailed a fearful amount of waste if tested by the valid work done by the ordinary run of the unfortunate pupil-teachers, who were treated rather as school drudges than as "pupils." It is unreasonable to talk of the success or failure of any system carried on in this imperfect manner, though it cannot be denied that good work, leading to better work, has been done even by such means as these, especially where exceptional ability and energy have been brought to bear upon them. Nevertheless, it cannot be too clearly recognised that the shortcomings which are so painfully apparent are owing to the broad fact that there was, and still is, in many schools a deficiency of teaching power in the aggregate; and, until this fundamental weakness is remedied, no system, however theoretically perfect, can yield satisfactory results. The question of expense must not be evaded.

The call for economy is, indeed, one which is by no means to be neglected or ignored. On the contrary, the ideal school should, among other things, be a standing example of well-ordered *thrift*—a thrift which is inexorable as against waste of all kinds in order that things needful for health and well-doing should not be found wanting. Widely different is this from the blind parsimony to which all immediate saving is equally acceptable. We must look carefully to the nature of the outlay before any credit can be given on the score of economy. The truth holds good in this, as in every other sphere of industry, that inferior work is ruinously dear in the long run.

To what extent pupil-teachers should be admitted as forming part of the strength of the school staff, is a practical question which it would be out of place here to attempt to define; but the essential principle involved is, that their double position as learners as well as teachers should be fully recognised, and that with due regard to considerations of health, both mental and physical.

There are some, however, who go beyond this. The "system" has been apparently discredited in their eyes, and they can see no good in it whatever. But there is much to be said on the other side of the question. Of course, such errors as entrusting the teaching of the young and inapt scholars wholly to inexperienced and half-taught teachers are utterly indefensible. It does not follow that, under proper conditions, children may not be employed with advantage "to control and instruct children in many ways."

In the first place, as regards the future supply of teachers. Too much stress should not be laid on the advantages of very early training, for premature specialisation in any form is fraught with danger, though, where the natural aptitude for teaching is strong, the scope given to its exercise under thoughtful supervision must tend to develop capacity of this kind in a very marked degree. Beyond this, however, and in the ordinary run of pupils, there are many who, for unsound reasons, are anxious to become teachers. It may be from a childish notion that it is easy to find fault, to criticise, and to teach, or from a mere love of power, which they imagine to be irresponsible. Such aspirants, who cannot always *prima facie* be pronounced unsuitable, are tested by practice. Their faults as teachers may, or may not, be remediable; even in the latter case their early removal is an unmixed gain to themselves, and yet more to those who otherwise might come under their charge. This timely *elimination of the unfit* is one of the advantages of systematic training which is not sufficiently regarded. Teaching is an art requiring special qualifications, and the mischief and misery suffered and entailed by those who have mistaken their calling in this respect have been very great, though their failure by no means implies incapacity for other kinds of useful and honourable industry.

The art of teaching is no doubt a part of the curriculum of the training colleges, and rightly so, but the more advanced teaching of the college is by no means incompatible with that afforded by the school, though it is naturally an extension of it. The employment of pupil-teachers must stand or fall on its own merits.

The question remains,—Is it also an advantage to the taught, or do the many suffer for the advantage of the few? Assuredly, they are not a *corpus vile* upon which reckless experiments are to be tried; and the reply will depend much on the way in which the true nature of education is regarded. If it were merely designed to impart a knowledge of "facts," even the casual errors of young teachers would be a very serious consideration. But we are all agreed that its higher object is to train the young pupils from the first to use their own faculties and learn for themselves—to excite an intelligent curiosity, and show how it can be rightly satisfied—to test facts, and bring common sense to bear in reasoning about them. The old idea of the master as a superior being—perfect, complete, and self-sufficient, crammed with inscrutable knowledge—is happily discredited, though by no means practically exploded. He must no longer dwell among the clouds, but tread the paths upon which he invites his scholars to enter. He has to make plain to them the means by which he has gained his superior knowledge, and show them how in like manner they may make good their own advance. There is no fear of his losing his just authority by adopting this method, for the need of his help is too vividly realised as it becomes a matter of daily experience. The danger is rather that they will regard him as an oracle in spite of himself, and accept his utterances without the trouble of thinking about them at all. Familiarity with the right way of learning can surely best be given to the young by daily experiences which they almost unconsciously realise. The master is a long way above them. The pupil-teacher is nearer, and more one of themselves, who has to learn as they have to do. Teaching and learning necessarily go on side by side; and the master, in teaching the pupil-teacher how to teach, can hardly fail to convey to the scholars some instinctive perception of how they in turn will have to learn—not *what* they have to learn, but the way in which all steps in learning have to be gained. There is no mystery about the matter.

It is true that such teaching as this makes a large call upon head teachers themselves, and some may be found to say that it is far easier for them to do the work directly than indirectly through others. In other walks of life, similar remarks are to be heard; the difficulty is felt by many who in some respects are thoroughly capable. But this power, not only of doing work but of getting work well done by others, is the basis of that faculty of organisation which plays so important a part in the affairs of the world, and must be regarded as one of the most valuable qualifications of a head teacher.

There are moral advantages also to be gained by securing to our public elementary schools this youthful element associated with some degree of responsibility, as a link between the teacher and the scholar. The example of well-graded subordination for definite and limited purposes is one which cannot be made too familiar. It tends to strengthen discipline, and illustrates the benefits of order. It leads by easy steps to the practical sense of duty, exemplified and enforced by those who are still comrades and in many respects still equals. And, last but not least, it should be made equally serviceable in the class-room and in the play-ground.

R. H.

MATHEMATICS.

9330. (Professor Crofton, F.R.S.)—Prove that (1) the nth power of the series
$$S = 1 + x + 3\frac{x^2}{2!} + 4^2\frac{x^3}{3!} + 5^3\frac{x^4}{4!} + \dots$$
is
$$S^n = 1 + n\left\{x + (n+2)\frac{x^2}{2!} + (n+3)^2\frac{x^3}{3!} + (n+4)^3\frac{x^4}{4!} + \dots\right\};$$
and (2) that $\log s = xs$.

9332. (Ch. Hermite, Membre de l'Institut.)—Soit la série
$$y = x + x^2 + 2x^3 + \dots + \frac{(n+2)(n+3)\dots 2n}{2\,.\,3\dots n}x^{n+1} + \dots,$$
qui est convergente, si l'on suppose $x < \frac{1}{4}$. On demande de démontrer qu'on a, pour toutes les valeurs de l'exposant w,
$$\frac{1}{(1-y)^w} = 1 + wx + \frac{w(w+3)}{1\,.\,2} + \frac{w(w+4)(w+5)}{1\,.\,2\,.\,3}x^3 + \dots$$
$$+ \frac{w(w+n+1)(w+n+2)\dots(w+2n-1)}{1\,.\,2\dots n}x^n + \dots.$$

Solution by Professor Sebastian Sircom, M.A.

(9330.) Putting $z = xs$ and reversing the series by the usual method, $x = ze^{-z}$, whence $s = e^{xs}$ and $\log s = xs$. Applying Lagrange's theorem to $z = a + xe^z$, where 0 is to be put for a after the differentiations,
$$z^n = \dots + n\frac{x^n}{n!}\left(\frac{d}{da}\right)^{n-1}(e^{na}a^{n-1}) + \dots + n\frac{x^{n+r}}{(n+r)!}\left(\frac{d}{da}\right)^{n+r-1}(e^{(n+r)a}a^{n-1}) + \dots,$$
$$\left(\frac{d}{da}\right)^{n+r-1}(e^{(n+r)a}a^{n-1}) = e^{(n+r)a}\left(\frac{d}{da} + n + r\right)^{n+r-1}a^{n-1},$$
which, when 0 is put for a, is
$$(n+r-1)\frac{n+r-2}{2}\dots\frac{n}{r}(n+r)^r(n-1)! = \frac{(n+r)!}{r!}(n+r)^{r-1}.$$
The first term that does not vanish is x^n, and we have
$$z^n = x^n + n\left\{x^{n+1} + (n+2)\frac{x^{n+2}}{2!} + (n+3)^2\frac{x^{n+3}}{3!} + (n+4)^3\frac{x^{n+4}}{4!} + \dots\right\},$$
which gives the required result.

(9332.) This question can be treated by the same method.

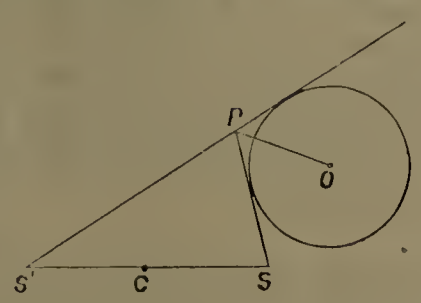
9575. (J. C. Malet, F.R.S.)—If the plane of a triangle ABC cut three spheres S_1, S_2, S_3 at equal angles, and if through AB a pair of tangent planes be drawn to S_3, through BC a pair to S_1, and through AC a pair to S_2, prove that the six tangent planes so drawn touch the same sphere.

Solution by W. S. M'Cay, M.A.

The plane of the triangle ABC passes through an axis of similitude of S_1, S_2, S_3. Hence (denoting for shortness the positions of the sides of the triangle by a, b, c) we can find a line b', in the plane, the homologue to S_1 of b to S_3 with respect to that centre of similitude which lies in the plane, and a line c' the homologue to S_1 of c to S_3 with respect to their centre of similitude in the plane. [The rest in volume.]

9855. (The Editor.)—Find the locus of the intersections of tangents drawn from two fixed points to a variable circle around another fixed point.

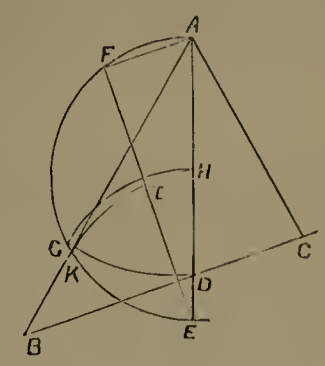
Solution by Professor Wolstenholme; W. S. Foster, M.A.; *and others.*



Let S, S′ be the two fixed points, O the centre of the variable circle, P a point of intersection of tangents to such a circle from S, S′. Then, since OP bisects one of the angles between PS, PS′, P is a point of contact of a tangent drawn from O to some conic having S, S′ for foci, and the locus is the well-known circular nodal cubic whose equation is
$$(x^2 + y^2 - xX - yY)(Xy - Yx) = c^2(x - X)(y - Y) \quad\dots\dots(A),$$
the origin C bisecting S′S, along which is the axis of x, S′C = CS = c, (X, Y) the coordinates of O. [The rest in Volume.]

4146. (Prof. Evans, M.A.)—Construct a triangle, the product of two sides, the medial line to the third side, and the difference of the angles adjacent to the third side, being given.

Solution by D. Biddle.



Let AD = the medial line, AE = the product AB . AC, and AEF = half the difference of the angles B and C. Upon AE, regarded as unity, describe the semi-circle, cutting EF in F. With centre A, radius AD, describe an arc, cutting the semi-circle in G, and with E as centre, and EG as radius, describe the arc GH, cutting AE in H. Draw HI parallel to AF, and with centre E radius EI describe the arc IK, cutting the semi-circle in K. Join AK and produce; also make
$$\angle EAC = EAK,$$
and through D draw BC at right angles with EF . ABC is the triangle required. [The rest in Volume.]

9904. (Professor de Longchamps.)—Si l'on a $\tan\alpha = m\,.\,i$, on a $\tan\frac{1}{3}\alpha = i\,(m + u + v)$, après avoir posé
$$u = \{(m+1)^2(m-1)\}^{\frac{1}{3}}, \quad v = \{(m-1)^2(m+1)\}^{\frac{1}{3}}.$$
Montrer comment la Question 9848 conduit à cette conclusion.

Solution by Professor Wolstenholme, M.A., Sc.D.

Put $\tan\frac{1}{3}\alpha = xi\,\{= (y+m)\,i\}$, when $\tan\alpha = \dfrac{3xi + ix^3}{1 + 3x^2} = mi$,

or $\quad x^3 - 3mx^2 + 3x - m = 0, \quad$ or $\quad y^3 - 3y\,(m^2-1) - 2m\,(m^2-1) = 0,$

and the solution of this is, by Tartaglia's rule, $y = u + v$, where
$$uv = m^2 - 1, \quad u^3 + v^3 = 2m\,(m^2-1);$$
i.e.,
$$u^3 = (m+1)^2(m-1), \quad v^3 = (m-1)^2(m+1),$$
whence the result follows.

9834. (Professor Reuchle.)—Les droites qui joignent les sommets du triangle ABC aux points de contact des côtés opposés avec le cercle inscrit I, se rencontrent en un point Γ (point de Gergonne); celles qui joignent les milieux des côtés de ABC aux centres I_a, I_b, I_c des cercles exinscrits correspondants se rencontrent en un point U. Démontrer que la droite ΓU passe par le centre de gravité de ABC.

Solution by R. Tucker, M.A.; G. G. Storr, M.A.; *and others.*

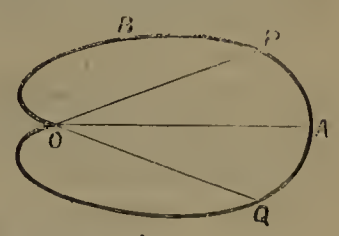
The Gergonne point (Γ) is given by
$$a\alpha\,(s-a) = b\beta\,(s-b) = c\gamma\,(s-c) \dots\dots\dots\dots (1),$$
and U by $\quad (b-c)\,\alpha + b\beta - c\gamma = 0, \quad -a\alpha + (c-a)\,\beta + c\gamma = 0,$

therefore it is given by $\quad \alpha/(s-a) = \beta/(s-b) = \gamma/(s-c) \dots\dots\dots\dots (2).$

The equation to ΓU is readily found to be
$$a\alpha\,(b-c)(s-a) + b\beta\,(c-a)(s-b) + c\gamma\,(a-b)(s-c) = 0,$$
which evidently passes through the centroid.

9724. (W. J. Greenstreet, M.A.)—O is the pole of the cardioid, $r = a\,(1 + \cos\theta)$; OP, OQ trisect the area of the cardioid; and the angle POQ is denoted by 2ϕ. Prove that $\sin\phi\,(4 + \cos\phi) = \pi - 3\phi$.

Solution by Rev. T. Galliers, M.A.; and G. G. Storr, M.A.



Since OP, OQ, trisect the area of the cardioid, $\quad$ area AOP $= \frac{1}{3}$APBO.

Now $\quad$ area APBO $= \frac{1}{2}\int_0^\pi r^2\,d\theta$

$$= \tfrac{1}{2}a^2\int_0^\pi (1 + \cos\theta)^2\,d\theta = \tfrac{3}{4}\pi a^2,$$

and $\quad$ area AOP $= \frac{1}{2}a^2\left\{\frac{3}{2}\phi + 2\sin\phi + \frac{1}{2}\sin\phi\cos\phi\right\};$

therefore $3\phi + 4\sin\phi + \sin\phi\cos\phi = \pi$, or $\sin\phi\,(4 + \cos\phi) = \pi - 3\phi$.

9586. (Professor Chakravarti, M.A.)—If the sum of the axes of an ellipse be a constant (s), show that its average area is $\frac{1}{24}\pi s^2$.

Solution by Artemas Martin, LL.D.

Let x and $s - x$ be the axes, then the area of the ellipse is $\frac{1}{4}\pi x\,(s-x)$, and the average area required is
$$\int_{\frac{1}{2}s}^{s}\tfrac{1}{4}\pi x\,(s-x)\,dx \div \int_{\frac{1}{2}s}^{s}dx = \frac{\pi}{2s}\int_{\frac{1}{2}s}^{s}x\,(s-x)\,dx = \tfrac{1}{24}\pi s^2.$$

9768. (E. Lemoine.)—Soient ABC, $A_1B_1C_1$ deux triangles. Démontrer que le lieu des points M et le lieu des points M_1, tels que AM, BM, CM soient respectivement parallèles à A_1M_1, B_1M_1, C_1M_1, sont des coniques. Le lieu de M est une conique circonscrite à ABC, celui de M_1 une autre conique circonscrite à $A_1B_1C_1$. Examiner les cas particuliers, où les côtés

de $A_1B_1C_1$ sont parallèles aux hauteurs, aux bissectrices, aux médianes, aux symédianes, aux antiparallèles, du triangle ABC.

Solution by Professor SCHOUTE.

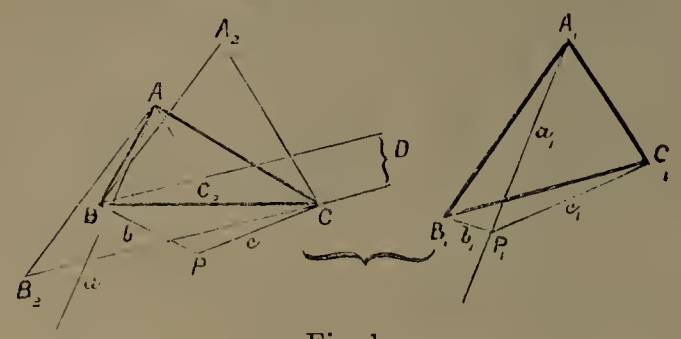


Fig. 1.

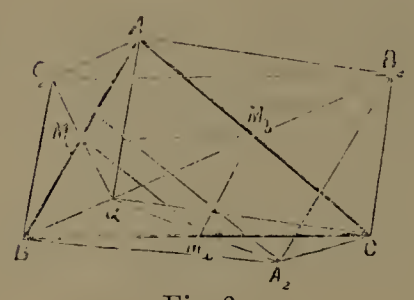


Fig. 2.

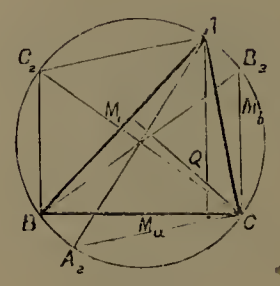


Fig. 3.

Considérons deux couples de parallèles, b et b_1 par B et B_1, c et c_1 par C et C_1 (Fig. 1). Soit P le point d'intersection de b et c, P_1 celui de b_1 et c_1. Si P_1 parcourt la droite a_1 par A_1, les deux faisceaux (b_1) et (c_1) sont liés perspectivement à l'aide de la ponctuelle (P_1) sur a_1. Donc les faisceaux (b) et (c) des droites parallèles b et c sont liés projectivement, de manière que P parcourt une conique C^2, quand P_1 décrit a_1. Quelle que soit la direction de la droite a_1 par A_1 la conique C^2 passe par quatre points, les points de base B et C, le point infiniment éloigné D de B_1C_1 (correspondant au point P_1 commun à a_1 et B_1C_1) et le point A_2 (correspondant au point A_1). [The rest in volume.]

9753. (Professor BEYENS.)—Mener une tangente à une circonférence qui passe par le point du rencontre inaccessible de deux droites données.

Solution by J. C. St. CLAIR ; SARAH MARKS, B.Sc. ; *and others.*

Let P, P′ be the polars of the given lines L, L′. The tangents at the points where the line PP′ meets the circle pass through the intersection of L, L′.

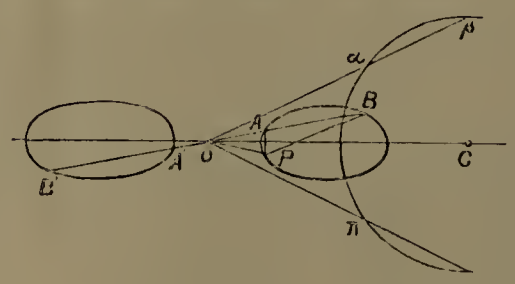
9846. (Professor GENESE, M.A.)—Prove that any fixed diameter of an oval of Cassini determines two chords which subtend angles whose difference is constant at any point of the oval.

Solution by W. J. JOHNSTON, M.A. ; EMILY PERRIN ; *and others.*

I shall assume the following theorem of M. LAISANT, viz., If O is a fixed point, and the points π, P such that we have the equipollence

$$OP = (O\pi)^{\frac{1}{2}},$$

then, if the locus of π is a circle $\alpha\beta\pi$ whose centre is C, that of P is an oval of Cassini with centre O and axis OC.



[The rest in volume.]

8342. (BELLE EASTON.) — An arithmetical, geometrical, and harmonical progression have each the same number of terms, and the same first and last terms, a and l respectively ; the sums of all the terms of the three series respectively are s_1, s_2, s_3, and their continued products are p_1, p_2, p_3 ; show that, when the number of terms is indefinitely increased,

$$\frac{s_1}{s_2} = \frac{l+a}{2(l-a)}\log_e\left(\frac{l}{a}\right),\quad \frac{s_1^2}{s_2 s_3} = \frac{(a+l)^2}{4al},\quad \text{and}\quad \frac{p_1 p_3}{p_2^2} = 1.$$

Solution by G. G. STORR, M.A., *and* Rev. T. GALLIERS, M.A.

We have $s_1 : s_2 = \frac{1}{2}n(a+l) : a\left\{\left(\frac{l}{a}\right)^{1/(1-1/n)} - 1\right\} \Big/ \left\{\left(\frac{l}{a}\right)^{1/(n-1)} - 1\right\}$

$$= \frac{l+a}{2(l-a)}\log_e\left(\frac{l}{a}\right),\quad \text{for } n = \infty$$

$$\because\ \mathrm{L}^t_{n=\infty}\, n\left\{\left(\frac{l}{a}\right)^{1/(n-1)} - 1\right\} = \log_e\left(\frac{l}{a}\right).$$

Again, the rth term of the H. P. $= la \Big/ \left\{l - \frac{r-1}{n-1}(l-a)\right\}$

therefore $\frac{3}{s_1} = \frac{2}{n(l+a)}\Sigma_{r=0}^{r=x}\, la \Big/ \left\{l - \frac{r-1}{n-1}(l-a)\right\}$

$$= \frac{2la}{n(l^2-a^2)}\int_0^1 dx \Big/ \left\{\frac{l}{l-a} - x\right\} = \frac{2la}{l^2-a^2}\log_e\left(\frac{l}{a}\right);$$

therefore $\frac{s_1^2}{s_2 s_3} = \frac{(a+l)^2}{4al}.$

Lastly, the product of the $(n-r+1)^{\text{th}}$ term of the A. P., and the rth term of the H. P. $= la$; hence $p_1 p_3 = (la)^n$. But if r be the common ratio of the G. P.,

$$p_2 = a \,.\, ar \,.\, ar^2 \ldots ar^{n-1} = a^n r^{\frac{1}{2}n(n-1)} = a^n (l/a)^{\frac{1}{2}n},\ \text{thus}\ p_1 p_3 p_2^{-2} = 1.$$

1228. (N'IMPORTE.)—A messenger M starts from A towards B (distance a) at a rate of v miles per hour ; but, before he arrives at B, a shower of rain commences at A and at all places occupying a certain distance z towards, but not reaching beyond, B, and moves at the rate of u miles an hour towards A ; if M be caught in this shower, he will be obliged to stop until it is over ; he is also to receive for his errand a number of shillings inversely proportional to the time occupied in it, at the rate of n shillings for one hour. Supposing the distance z to be unknown, as also the time at which the shower commenced, but all events to be equally probable, show that the value V of M's expectation is, in shillings,

$$V = \frac{nv}{a}\left\{\frac{1}{2} - \frac{u}{v} + \frac{u(u+v)}{v^2}\log\frac{u+v}{u}\right\}.$$

Solution by W. S. FOSTER.

Let x = distance M has gone when the shower begins ; then the time he takes getting to B $= \frac{a}{v} + \frac{z-x}{u}$, if $z > x$, and $= \frac{a}{v}$ if $z < x$; thus

$$V = n\int_0^a\left\{\int_0^x \frac{v\,dz}{a} + \int_x^a \frac{uv\,dz}{au + v(z-x)}\right\}dx \Big/ \int_0^a\int_0^a dx\,dz$$

$$= \frac{n}{a^2}\int_0^a\left\{\frac{vx}{a} + u\log\frac{a(u+v)-vx}{au}\right\}dx$$

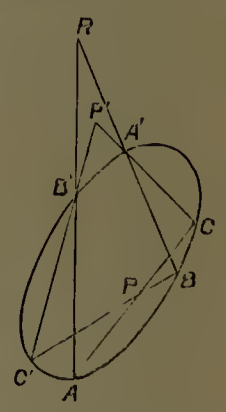
$$= \frac{n}{a^2}\left\{\frac{va}{2} - au\log au + u\int_0^a \log[a(u+v)-vx]\,dx\right\}$$

$$= \frac{n}{a^2}\left\{\frac{av}{2} - au + a(u+v)\frac{u}{v}\log\frac{u+v}{u}\right\}$$

$$= \frac{nv}{a}\left\{\frac{1}{2} - \frac{u}{v} + \frac{(u+v)\,.\,u}{v^2}\log\frac{u+v}{u}\right\}.$$

9661. (Professor WOLSTENHOLME, M.A., Se.D.)—On a conic are taken any six points A, B, C, A′, B′, C′ ; AC, BC′ meet in P ; A′C, B′C′ in P. Prove that PP′, AB′, A′B concur in one point. (If AC, B′C′ meet in Q′ A′C, BC′ in Q′, it is clear that QQ′, AB, A′B′ also meet in a point).

Solution by Profs. MADHAVARAO ; BEYENS ; *and others.*



Let B′C′ = 0 denote the equation of the line joining B′, C′. Then, since the conic circumscribes the quadrilateral B′C′BA′, its equation may be expressed by B′C′. A′B − BC′. A′B′ = 0. Since it also circumscribes B′ACA′, the same conic may be represented by AB′. A′C − AC . A′B′ = 0. Subtracting, we have

$$B'C'.\,A'B - AB'.\,A'C = A'B'\,(BC' - AC),$$

therefore B′C′. A′B − AB′. A′C, which represents a figure circumscribing the quadrilateral formed by B′C′, A′C, A′B, AB′ (*i.e.*, the figure B′P′A′R), being resolvable into two factors, represents the two diagonals. Therefore A′B′ (BC′ − AC) represents the diagonals A′B′ and P′R. Therefore BC′ − AC represents the line P′R, and it also passes through P. To show that QQ′, AB, A′B′ meet in a point, we get for the equation of the conic A′B′. BC′ = B′C′. A′B or A′C . AB = AC . A′B, from which A′B′. BC′ − A′C . AB = (B′C′ − AC) A′B, whence the required result follows.

9671. (Professor NEUBERG.)—On donne, dans un même plan, un triangle ABC et une circonférence Δ. D'un point quelconque M de Δ, on abaisse les perpendiculaires MA′, MB′, MC′ sur les côtés de ABC, et l'on construit le triangle A′B′C′. Sur une base fixe $\alpha\beta$, on construit un triangle $\alpha\beta\gamma$ semblable au triangle A′B′C′. Démontrer que, lorsque M décrit la circonférence Δ, le point γ décrit une seconde circonférence Δ′.

Solution by the PROPOSER.

Soumettons la figure à une transformation par rayons vecteurs réciproques en prenant pour pôle d'inversion le sommet C. Soient A_1, B_1, M

les inverses des points A, B, M. Les triangles semblables CMA et CA_1M_1, CMB et CB_1M_1, CA_1B_1 et CBA donnent, P étant la puissance,

$$\frac{A_1M_1}{AM} = \frac{CM_1}{CA} = \frac{CM_1 \,.\, CM}{CA \,.\, CM} = \frac{P}{CA \,.\, CM},$$

$$\frac{B_1M_1}{BM} = \frac{P}{CB \,.\, CM}, \quad \frac{A_1B_1}{AB} = \frac{P}{CA \,.\, CB},$$

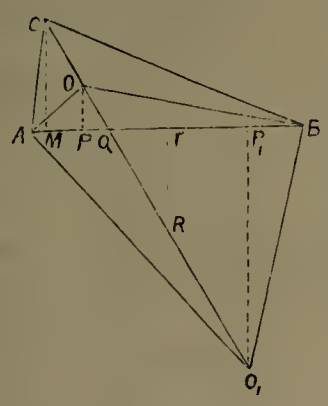
d'où $A_1M_1 : B_1M_1 : A_1B_1 = AM \,.\, CB : BM \,.\, CA : AB \,.\, CM$

$= AM \sin A : BM \sin B : CM \,.\, \sin C = B'C' : C'A' : A'B'$.

Donc le triangle $B_1A_1M_1$ est toujours semblable au triangle A'B'C'. Or, la base A_1B_1 est fixe, et les points M, M_1 décrivent deux lignes inverses; lorsque M décrit une circonférence Δ, M_1 décrit aussi une circonférence Δ' ou une droite. Le théorème est donc démontré, les points B_1 et A_1 étant les points α, β de l'énoncé.

9673. (Professor Bordage.) — Construct a triangle, knowing the centre O of the in-circle, the mid-point T of a side AB, and the point M where the perpendicular CM cuts AB.

Solution by Professor Schoute; D. Biddle; *and others.*



The centres O, O_1 of the in-circle and the ex-circle to AB are divided harmonically by C and Q; hence, when R is the mid-point of OO_1, we have $OR^2 = CR \,.\, QR$.

Now R is the centre of the circle AOBO, and its projection on AB is T. By projection on AB, we find $PT^2 = MT \,.\, QT$;

hence QT is to be a third proportional to MT and PT, etc.

QUESTIONS FOR SOLUTION.

9929. (Professor Sylvester, F.R.S.)—Integrate the equation

$$u_{x-1}(u_x^2 - u_{x+1}^2) + \sqrt{2}\, u_x^3 = 0.$$

9930. (Ch. Hermite.)—On donne les deux relations

$$\begin{vmatrix} a, & a', & x \\ b, & b', & y \\ c, & c', & z \end{vmatrix} = 0, \quad \begin{vmatrix} a, & a', & x' \\ b, & b', & y' \\ c, & c', & z' \end{vmatrix} = 0;$$

on propose d'en déduire les suivantes

$$\begin{vmatrix} a, & x, & x' \\ b, & y, & y' \\ c, & z, & z' \end{vmatrix} = 0, \quad \begin{vmatrix} a', & x, & x' \\ b', & y, & y' \\ c', & z, & z' \end{vmatrix} = 0.$$

9931. (Professor Wolstenholme, M.A., Sc.D.)—Prove that

$$\int_0^\infty \frac{x^{m-1}\,dx}{(1 + 2x\cos\alpha + x^2)^m (1 + x^n)} = \int_0^1 \frac{x^{m-1}\,dx}{(1 + 2x\cos\alpha + x^2)^m}$$

$$= \frac{1}{2^m \sin^{2m-1}\alpha} \int_0^\alpha (\cos x - \cos\alpha)^{m-1}\,dx = \frac{1}{2^m (m-1)!} \left\{\frac{1}{\sin\alpha}\frac{d}{d\alpha}\right\}^{m-1} \left(\frac{\alpha}{\sin\alpha}\right);$$

$$\int_0^\infty \frac{F\left(\dfrac{2x}{1+x^2}\right)}{1+x^n}\,\frac{dx}{x} = \int_0^{\frac{1}{2}\pi} F(\sin\theta)\,\frac{d\theta}{\sin\theta}.$$

9932. (Professor Hudson.)—If the same hyperbola be described by particles under the action of an attractive force to one focus and a repulsive force to the other, prove that the velocities are equal at the points for which the forces are equal.

9933. (Professor Sen.)—Find the curve which always intersects an ellipse at right angles (1) when it moves with its major axis along a right line, (2) when its centre moves on another ellipse with their major axes parallel.

9934. (Professor Goe.)—Si l'on transforme par inversion les cercles de Neuberg N_a, N_b, N_c du triangle ABC en plaçant le pôle d'inversion au sommet A, et que B', C' désignent les inverses des sommets B, C, l'un des cercles de Neuberg a pour transformé la droite de Lemoine du triangle AB'C'; les deux autres cercles se changent en cercles de Neuberg du triangle AB'C'.

9935. (Professor Schoute.)—To show that the diameters of a general quadratic complex (Plücker, "Neue Geometrie des Raumes," p. 228) form a congruency (2, 1).

9936. (Professor Neuberg.)—Une droite de longueur donnée a se meut en s'appuyant par ses extrémités sur deux droites données OX, OY. Quelle est la probabilité que l'aire comprise entre cette droite, OX et OY soit moindre qu'un carréonné l^2?

9937. (Professor Déprez.)—La base BC d'un triangle est fixe, et l'angle au sommet A est constant. Démontrer que la droite qui joint les pieds des symédianes issues de B et C enveloppe une conique.

9938. (Professor Matz.)—The two points of suspension, supposed in the same horizontal line, are lowered over a horizontal table, until a length z of the chain, the whole length of which is l, is in contact with the table; prove that, if b be the height above the plane of the points of suspension, the horizontal tension is equal to the weight of a length

$$\frac{1}{8}\,\frac{(l-z)^2}{b} - \frac{b}{2} \text{ of the chain.}$$

9939. (Professor Fouché.)—On donne un cercle O, une corde fixe AB, et une corde CD de longueur constante, mais de position variable. On trace AC et BD, qui se coupent en S. Démontrer que le lieu du point S, et celui du centre du cercle circonscrit au triangle SCD, sont deux figures égales.

9940. (Professor De Wachter.)—Determine a point in the plane of a given ellipse, such that the moment of inertia of the ellipse shall be constant for any axis passing through that point *and lying in the same plane.*

9941. (Professor Madhavarao.)—Two conics ACBD, GEFH have double contact at A and B. CD is the polar of a point in AB with regard to the first conic. If right lines ACE, ADF, BCG, BDH be drawn, show that the lines CD, EF, GH concur in a fixed point.

9942. (Professor De Longchamps.)—Sommer la série convergente $(\alpha n^2 + \beta n + \gamma)/n!$ quand on suppose $2\alpha + \beta + \gamma = 0$.

9943. (Professor Bordage.)—If a, b, c are the terms of rank m, n, p of (1) an arithmetic progression, (2) a geometric progression, prove that

$$a(n-p) + b(p-m) + c(m-n) = 0, \quad a^{n-p} \times b^{p-m} \times c^{m-n} = 0.$$

9944. (Professor Morel.)—Un diamètre quelconque du cercle circonscrit à un triangle ABC coupe les côtés BC, CA, AB en A', B', C'; soient A_1, B_1, C_1 les symétriques de A', B', C' par rapport au centre O du cercle. Démontrer que les droites AA_1, BB_1, CC_1 sont concourantes.

9945. (Professor Ignacio Beyens.)—Si du centre de la sphère inscrite à un tétraèdre on mène des plans parallèles aux faces; on forme ainsi des autres quatre tétraèdres semblables au donné, et désignant par (r_1), (r_2), (r_3), (r_4) les rapports de similitude de ces tétraèdres au donné; on aura

$$r_1 + r_2 + r_3 + r_4 = 1.$$

9946. (Professor Genese, M.A.)—Through a point within a parallelogram four circles are described containing the sides as chords. If any two of these circles be equal all four are.

9947. (The Editor.)—The ordinate of a point in a conic measured from the axis, is produced till the whole line bears a given ratio to the focal distance of the point: find the locus of the end of the line.

9948. (W. S. M'Cay, M.A.)—A, B, C, D are four points on a circle. Omitting each point in turn, we have four triangles; prove that the sixteen centres of the circles touching the sides of these triangles lie in fours on four parallel lines and also in fours on four perpendicular lines, and that the two sets of lines are parallel to the bisectors of the angles between AC and BD.

9949. (Hugh W. Segar.)—PN is an ordinate of a parabola. NQ, NR are two lines drawn from N so that angles QNP, RNP are equal. Show that SQ . SR − AS . (SQ + SR) is constant for all values of the equal angles.

9950. (R. Tucker, M.A.)—Calling the point (3) [see Question 9875] Σ, prove (1) Σ, K, O collinear (a property due to M. E. Van Aubel); (2) $D\sigma_1$, $E\sigma_2$, $E\sigma_3$ cointersect in a point Π ($\alpha \cos A / a^2 = \ldots = \ldots$), the inverse of β_1 (see xlii. of "the 'cosine' orthocentres of a triangle"), whence show that Π, O, the circumcentre and centroid of ABC, are collinear, and the line passes through $\alpha \sec 2A = \ldots = \ldots$; (3) the join of Π, Σ, is

$$bc \cos A \cos 2A \sin(B - C)\,\alpha + \ldots + \ldots = 0;$$

(4) the equation to circum-Brocardal-axis of DEF is

$$\alpha \cos A \tan(B - C) + \ldots + \ldots = 0,$$

whence this and the corresponding line of ABC intersect in β,

$$\alpha / \sin 2A \cos(B - C) = \ldots = \ldots;$$

(5) DB, $D\sigma_2$, DA, $D\sigma_3$, and corresponding lines for the other angles, are harmonic pencils; (6) the Brocard-points of DEF are

$$\frac{\alpha \cos A}{\sin 2C\,(\sin^2 2A + \sin 2B \sin 2C)} = \ldots = \ldots,$$

$$\frac{\alpha \cos A}{\sin 2B\,(\sin^2 2A + \sin 2B \sin 2C)} = \ldots = \ldots;$$

(7) if G' is the centroid of DEF, then Π, G', and K are collinear.

9951. (D. Biddle.)—Required that function of x, which, when x is replaced by 1, 2, 3, 4, yields respectively 0, $\frac{2}{9}$, $\frac{17}{36}$, $\frac{61}{900}$.

9952. (B. H. Steede, B.A.)—Describe a circle of a given coaxal system (of either species) cutting a given circle at a given angle.

9953. (J. O'Byrne Croke, M.A.)—Regarding the position of a point P as completely defined by the vectoral equation, $\rho = a + b(-1)^{\frac{1}{2}}$, in which a and b are the rectangular coordinates of P, and $(-1)^{\frac{1}{2}}$ is to be regarded as a symbol denoting transference round a right angle, show how far the convention to be employed in passing from vectors to lines will enable us to give thence a satisfactory demonstration of De Moivre's Theorem.

9954. (F. R. J. Hervey.)—A celestial globe being fixed in any position, there are, at any instant, two opposite points of its surface, whose central vectors aim truly at the corresponding points of the Celestial Sphere. Show that, as the Earth rotates, the variable points of coincidence (as they may be called) describe great circles of their respective spheres.

9955. (Artemas Martin, LL.D.)—Two points are taken at random in the arc of a semicircle, and a third point anywhere in its base. Find the probability that the triangle formed by joining them is acute.

9956. (B. F. Finkel.)—Find the volume removed by boring an inch hole diagonally through a 10-inch cube?

9957. (W. J. Greenstreet, B.A.)—AB is the diameter, C the middle point of the arc of a semicircle; D is middle point of chord BC; let AD be produced to cut circle in E, EF is perpendicular to BC; show that CF = 3EF.

9958. (R. H. W. Whapham.)—ABC is a given triangle, P any point in BC; find points Q and R in CA and AB respectively, such that the centroid of the triangle PQR may coincide with that of the triangle ABC.

9959. (E. M. Langley, M.A.)—Prove geometrically, without using transversals, that the lines joining the points of contact of the in-circle with the sides to the opposite angles are concurrent.

9960. (E. Lemoine.)—On circonscrit à toutes les ellipses homofocales de foyers F et F′ des *rectangles* dont les directions des côtés sont données; démontrer que tous les points de contact, quelle que soit l'ellipse à laquelle est circonscrit un rectangle, appartiennent à une même hyperbole équilatère qui passe par F et par F′, qui a pour asymptotes les parallèles aux côtés des rectangles menées par le centre des ellipses. Le lieu des sommets de ces hyperboles équilatères, quand la direction des côtés des rectangles varie, est une lemniscate de Bernoulli.

9961. (J. Villademoros.)—Trouver un nombre entier qui soit égal à la somme des chiffres de son cube.

9962. (J. Gillet.)—La conique A′B′C′DE étant remplacée par le cercle A′B′C′, et le point O parcourant la circonférence ABC, trouver le lieu décrit par O′.

9963. (R. Knowles, B.A.)—A circle touches a conic in a point P, and cuts it again in Q, R; M, N are the points of contact on the conic of the two real common tangents meeting in T; prove that (1) the lines MN, QR and the tangent at P are concurrent; (2) if K be the pole of QR with respect to the conic, the points P, T, K are collinear.

9964. (Capitaine de Rocquigny.)—Trouver des solutions entières de l'équation $x^m + y^m - 1 = \mathrm{M}\,.\,(xy)$.

9965. (S. Tebay, B.A.)—Find positive integral values of a_1, a_2, a_3, a_4 such that $a_1a_2 + a_3a_4$, $a_1a_3 + a_2a_4$, $a_1a_4 + a_2a_3$, and

$a_1a_2 + a_3a_4 + a_1a_3 + a_2a_4 + a_1a_4 + a_2a_3$ shall be squares.

9966. (R. A. Roberts, M.A.)—Show that the focus of the cubic $y^3 - px^2 = 0$ is given by $27x = 8p\cos\omega$, $27y = 4p(1 + 2\cos 2\omega)$, where ω is the angle between the axes of coordinates.

9967. (G. Niewenglowski.)—Décomposer le produit $13 \times 37 \times 61$ en une somme de deux carrés, de quatre manières différentes.

9968. (Maurice d'Ocagne.)—Si deux triangles sont symétriques par rapport à un point, les transversales réciproques des côtés de l'un par rapport à l'autre sont concourantes.

9969. (J. Brill, M.A.)—A family of equipotential curves is drawn on a plane, and the locus of the points of contact of a system of parallel tangents is drawn. Prove that the loci corresponding to different directions of these parallel tangents form an equipotential family.

9970. (A. Russell.)—Prove that the area of a polygon inscribed in a circle of radius R is

$$\mathrm{R}^2 \Sigma \frac{a_{r-1}\,a_r \sin \mathrm{A}_r - \frac{1}{2}\,a_{r-1}^2 \sin 2\mathrm{A}_r}{a_{r-1}^2 + a_r^2 - 2a_{r-1}\,a_r \cos \mathrm{A}_r}.$$

9971. (H. L. Orchard, M.A., B.Sc.)—An inelastic rod, nine feet long, is placed with its upper end upon a rough vertical plane, and its lower end upon a smooth horizontal plane, and so that it makes an angle of 45° with each plane. It is now let go, and strikes against a smooth sphere, of one foot diameter, placed in contact with the two planes. Find the subsequent motion.

9972. (A. E. Jolliffe)—If two quadrilaterals have a common diagonal, and are circumscribed to the same conic, prove (1) that the remaining eight vertices which do not lie on this diagonal lie on a conic; and hence (2) deduce the locus of the foci of all conics inscribed in a parallelogram.

9973. (D. Edwardes, B.A.)—Prove that

$$(1)\ \frac{1-q}{1+q} - \frac{1}{2}\,\frac{1-q^2}{1+q^2} + \frac{1}{3}\,\frac{1-q^3}{1+q^3} - \frac{1}{4}\,\frac{1-q^4}{1+q^4} + \&c. = \frac{1}{2}\log k + \frac{1}{4}\,\frac{\pi \mathrm{K}'}{\mathrm{K}},$$

$$(2)\ \frac{1-q}{1+q} - 2\,\frac{1-q^2}{1+q^2} + 3\,\frac{1-q^3}{1+q^3} - 4\,\frac{1-q^4}{1+q^4} + \&c. = \frac{\mathrm{K}^2 k'^2}{\pi^2},$$

and verify for the limiting values of the modulus k.

9974. (V. Jamet.)—Intégrer l'équation aux dérivées partielles

$$\frac{dz}{dx}\cdot\frac{dz}{dy} = z\,\frac{d^2z}{dx\,dy}.$$

NOTICE TO CORRESPONDENTS.

Correspondents should be careful (*a*) to write each Question and each Solution on a *separate* paper (otherwise, when used for printing, the Editor has the labour of entirely *re-writing* such articles); (*b*) to make their Solutions as short as possible; (*c*) to send all Questions *early in the month*, but not to send Solutions till their Questions have been published; (*d*) to write their names at the *top* of *each* paper; (*e*) to *prepay* the postage in *full*; and (*f*) to send all communications to

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NOTICE.—Volume XLIX. of the "Mathematical Reprint" is now ready, and may be had of the Publisher, Francis Hodgson, *89 Farringdon Street, E.C. Price, to Subscribers, 5s.; to Non-Subscribers, 6s. 6d.*

LONDON MATHEMATICAL SOCIETY.

Thursday, December 13th.—J. J. Walker, F.R.S., President, in the Chair. C. W. C. Barlow, B.A., St. Peter's College; H. F. Baker, B.A., St. John's College; W. N. Roseveare, B.A., St. John's College, Cambridge; Margaret T. Meyer, Mathematical Lecturer, Girton College, Cambridge; and Major D. O'Callaghan, R.A., Woolwich, were elected Members.

"A Geometrical Note," by H. M. Taylor, M.A., was communicated by Dr. Glaisher, F.R.S.; A. E. H. Love, M.A., read a paper on the "Equilibrium of a thin Elastic Spherical Bowl." An abstract of a paper by J. Brill, M.A., on "A Method of Transformation with the aid of Congruences of a particular type," was read by the Secretary. The President (Professor Greenhill, F.R.S., in the Chair), communicated some notes and illustrations of a former paper "On a Method in the Analysis of Ternary Forms."

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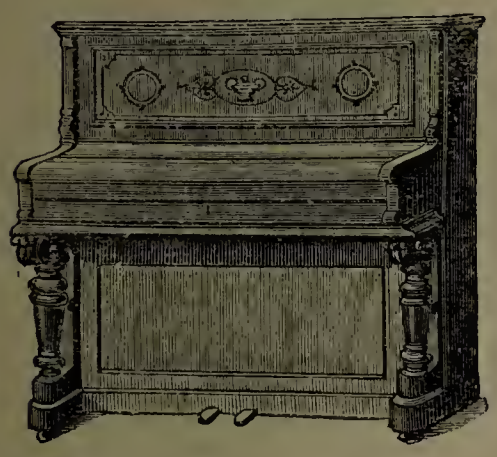

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The Educational Times.

COLLEGE OF PRECEPTORS.—HALF-YEARLY GENERAL MEETING.

The Half-yearly General Meeting of the members of the Corporation was held at the College, Bloomsbury Square, on Wednesday, the 23rd January.

The Secretary having read the advertisement convening the meeting, the Rev. Dr. T. W. Jex-Blake, President of the Council, was appointed Chairman.

The Report of the Council was laid before the meeting, and was taken as read, a copy having been sent to every member. It was as follows:—

The Council beg leave to lay the following Report of the proceedings of the past half-year before the Members of the Corporation:—

1. Though the Council are not in a position to report the usual increase in the number of candidates entered for the Christmas Examination for Certificates, the large total of 9,620 does not show any material falling off as compared with that of last year, when the number (9,784) exceeded that at any previous Examination conducted by the College; while the opening of a number of new centres, and the addition of some 200 new schools, indicate a wider extension of the field of operations, and give promise of a further advance in the number of examinees: the number examined for Certificates at the four Examinations held during the year, in March, June, September, and December, was 15,400. On this occasion candidates were examined for the first time for Certificates of Proficiency in Mercantile subjects. The Examination embraced Mercantile Arithmetic, Book-keeping, Shorthand, Commercial Correspondence, and Précis-writing, as well as Commercial French and German, including a test of colloquial facility in the use of these languages. The holding of this first Examination has necessarily been somewhat of an experiment; it was only to be expected that the number of candidates would be insignificant until the nature of the requirements in the various subjects was known, and schools had had time to direct their teaching towards their fulfilment. The experience thus gained will serve as a guide in perfecting the arrangements for the next Examination, which will take place in the first week in June. The Public Distribution of Prizes and Certificates to the successful candidates at the last Midsummer Examination took place in the College Lecture Hall, on the 27th of July, when the chair was taken by Sir A. K. Rollit, M.P. Due notice will be given of the time and place of the forthcoming Distribution.

2. In framing the scheme of an Examination for youths about to enter on mercantile life, the Council have been guided to a considerable extent by the opinions expressed by men of business as to the kind of knowledge in which they found candidates for employment in their counting-houses to be specially deficient; and the standard the Council have set up is one which implies such proficiency as would enable the holder of the Certificate at once to undertake useful work in an office without the necessity of undergoing a long course of preliminary training. The Council are anxious, in their endeavour to make these Examinations thoroughly practical, to have the advantage of the co-operation of men distinguished in the ranks of commerce; and they have therefore welcomed a proposal recently made to them by the London Chamber of Commerce, to work with them in carrying out a comprehensive scheme for examining and certificating candidates according to a scheme of commercial education which has been drawn up by the Metropolitan Chamber and has received the approval of the Associated Chambers of Commerce, representing the great mercantile interests in different parts of the country.

3. In addition to the general Examination for Certificates in December, the Preliminary Examination for intending medical students was held in September last, and was attended by 270 candidates.

4. For the Christmas Examination of Teachers for the College Diplomas, 105 candidates have entered their names. This Examination will be held in London, and also at several local centres in various parts of the country, and it is hoped that this arrangement, when it becomes more widely known, may have the effect of considerably increasing the number of candidates.

5. In addition to their own Examinations of Pupils and Teachers, the Council have conducted, as usual, during the past half-year, the Preliminary Examinations of the Royal Veterinary College and of the Pharmaceutical Society of Great Britain.

6. The Fifteenth Annual Series of Lectures to Teachers on the Science and Art of Education, which commenced in February last, was brought to a close on the 13th of December by the last of a Course of Twelve Lectures on the Practice of Education, by the Rev. Canon Daniel, M.A., Principal of the Battersea Training College. The Council are happy to report that this Course has been more numerously attended than for several years past. In addition to these Lectures on the Theory and Practice of Education, the Council intend during the year 1889, to make arrangements for the delivery of special courses of Lectures on some of the ordinary subjects of instruction, by men distinguished as teachers in their respective departments; and they believe that such lectures will be found to usefully supplement and illustrate the lectures on method, which aim at dealing with general principles applicable to the whole field of education, without entering minutely into details.

7. The usual Monthly Evening Meetings of the Members have been held during the half-year, at which the following Papers have been read:—

October 17th.—"Why Teachers should study the History of Education," by Dr. James Sully, M.A.

November 21st.—"On Right and Wrong Methods of Teaching Physical Science in Schools," by J. Angell, F.C.S., F.I.C.

December 12th.—"On Manual Instruction in Schools, with special reference to the Swedish Slöjd System," by Miss E. P. Hughes, Principal of the Cambridge Training College for Women Teachers.

The Papers, and the discussions on them, have been published, as usual, in the *Educational Times*.

8. The Council have much satisfaction in reporting that they have been enabled, out of the surplus funds accruing from the regular operations of the College, to place a further sum of £300 to the credit of the Benevolent Fund (out of which grants have been made during the year to distressed members to the amount of £70), and also to carry a sum of £500 to the credit of the Teachers' Training Fund, which now amounts to £1000.

9. During the past half-year the Diploma of Licentiate has been conferred on three candidates, and that of Associate on eighteen, who had passed the required examination. Thirty-six new members have been elected, while notice has been received of the withdrawal of five. The Council regret to have to report the death of Mr. J. Brook-Smith, Miss V. L. Isitt, and Mr. Gustave Masson.

Mr. Stewart drew attention to the paragraph in the Report relating to the Mercantile Examination, and to the steps that had been taken to meet the demand for recognising the position of commercial subjects in the school curriculum.

Dr. Bell also expressed his entire concurrence with the action of the Council, and his desire to see the study of subjects which were directly related to the future avocations of the pupils placed on a par with literary studies.

With regard to the Statement of Accounts accompanying the Report,

Dr. Hiron suggested whether, in view of the largely increased operations of the College, as compared with those of earlier years, it would not be advisable to supplement the work of the elected auditors by calling in the assistance of a professional accountant.

Mr. Moon approved of the suggestion, and stated that the course recommended would be in accordance with the practice of other similar institutions.

Mr. Swift contended that the present auditors could not be regarded as persons unskilled in the examination of accounts, and that, having a direct interest in the College, they were better fitted to look after the interest of the members than outsiders who had no concern in the welfare of the institution.

Mr. Southee pointed out how, as he thought, improvements might be made in the form in which these accounts were submitted to the members.

Mr. Rule pointed out that the accounts were thoroughly examined by the Finance Committee of the Council before they were submitted to the auditors, who conducted an independent investigation of them and certified to their correctness.

Mr Pinches explained how the Council were entirely uncon-

nected with the auditors, who were appointed by the general body, and whose duty it was to ascertain that the securities for the trust funds were in the possession of the bankers, through whom alone the investment of such funds was effected, by the direction of the Council. Of course, if the members desired it, the Council would be perfectly willing to engage the services of professional men to assist the auditors in their work, if the auditors required such assistance; but the charter required that the auditors themselves, who were alone responsible for the correctness of the financial statement, should be members of the College and should be appointed by the general body.

The Report of the Council and the accompanying Abstract of Accounts were then adopted unanimously.

The meeting then proceeded to the election of twelve members of Council to fill the places of the twelve retiring by rotation, and three auditors.

The Chairman having appointed Mr. Brunwin and Mr. Howard to act as scrutators, the voting papers were distributed, and the election was proceeded with. On the scrutators presenting their report, the Chairman announced that the following had been duly elected:—

MEMBERS OF THE COUNCIL.

E. M. Dillon, Esq., M.A., LL.D., Ivanhoe, Clapham Common.
H. W. Eve, Esq., M.A., University College School, W.C.
Rev. G. Frost, LL.D., 69 Warwick Road, Earl's Court, S.W.
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Rev. T. Mitcheson, B.A., L.C.P., Clairville, Pelham Road, Wimbledon.
Jas. Swift, Esq., 229 New Cross Road, S.E.

The Dean presented his Report, which had been printed and distributed among the members present, and which was as follows:—

THE DEAN'S REPORT.

A general statement of the Examination work of the College during the past half-year, has been given in the report of the Council, and I have now to submit to you, in detail, the statistics and the results of the various examinations.

The Christmas Examination of Pupils took place on the 4th to 7th December, and was held at 118 Local Centres, and 131 Schools, in all parts of the country. In London there were nine Sub-centres—two for boys, and seven for girls. The Provincial Centres were Aberystwith, Axminster, Aylesbury, Barnstaple, Bath, Bedford, Biggleswade, Birmingham, Bodmin, Bognor, Bolton, Boston, Bournemouth, Brighton, Bristol, Burnley, Bury St. Edmunds, Buxton, Cardiff, Carmarthen, Cheltenham, Chester, Chesterfield, Clacton, Croydon, Darlington, Derby, Durham, Devizes, Dewsbury, Ealing, Eastbourne, Exeter, Farnham, Folkestone, Gillingham, Grimsby, Guildford, Gunnersbury, Halifax, Harrogate, Hastings, Hereford, Hornsea, Huddersfield, Hull, Ilfracombe, Isle of Man, Isle of Wight, Jersey, Keighley, Kidderminster, King's Lynn, Leamington, Leeds, Leicester, Lincoln, Liskeard, Liverpool, Llanelly, Loughton, Maidstone, Manchester, Margate, Matlock, Midhurst, Newbury, Newcastle-on-Tyne, Newcastle-under-Lyme, Newport (Mon.), Northampton, Norwich, Nottingham, Ongar, Oswestry, Paignton, Plymouth, Portsea, Portsmouth, Ramsgate, Reading, Richmond (Surrey), Saffron Walden, Salisbury, Saltburn, Scarborough, Sheffield, Sherborne, Shrewsbury, Snettisham, Southampton, Southend, Southport, South Shields, Stamford, St. Anne's, St. Asaph, Stockton, Sunderland, Swindon, Taunton, Torquay, Totnes, Tregoney, Tunbridge Wells, Wellingborough, Wellington (Salop), Weston-super-Mare, Weymouth, Whitchurch (Salop), Whitstable, Wincanton, Windsor, Wisbech, Wolverhampton, Yarm, Yarmouth, and York.

The total number of candidates examined was 9,437, of whom 4,514 were boys and 4,923 girls. Of these there were examined:—

	Boys.	Girls.
At the London Centres	721	900
At the Provincial Centres ...	2,754	3,030
At their own Schools	1,039	993
	4,514	4,923

Taking the Midsummer and Christmas Examinations together, the total number of candidates examined for Certificates during the year (not including those who presented themselves at the Professional Preliminary Examinations in March and September), was 14,748.

The following table shows the proportion of candidates who have obtained certificates at the Pupils' Examinations held during the past five years:—

Year ending	Entered.	Passed.	Percentage.
Christmas, 1884	13,279	10,235	77·0
,, 1885	13,895	10,477	75·4
,, 1886	14,513	11,638	80·2
,, 1887	14,961	11,265	75·3
,, 1888	14,748	11,209	76·0

The number of passes in the above table includes a considerable number of candidates who failed to obtain a certificate of the class for which they were entered, but were entitled under our rules to receive a certificate of a lower class. The actual proportion of passes to entries, in the case of boys and girls respectively, in the class for which the candidates were entered, at the recent Christmas Examination is as follows:—

Boys.	Entered.	Passed.	Percentage.
Entered for First Class	227 ...	128	56
Entered for Second Class	1,844 ...	740	40
Entered for Third Class	2,443 ...	1,764	72
GIRLS.			
Entered for First Class	351 ...	174	50
Entered for Second Class	1,711 ...	869	51
Entered for Third Class	2,861 ...	2,242	78

It will be seen from a comparison of the above figures that, taking the three classes together, the results in the case of the boys do not differ materially from those of the girls' examination, though the passes are somewhat unequally distributed between the classes. It will also be seen that the effect of the alteration in the regulations for passing in the First Class, which came into operation in 1887, has not, now that the conditions are fully appreciated, resulted in the large reduction in the number of girl candidates that had been anticipated by some; but that notwithstanding the raising of the total of marks required for a Certificate, and the restriction in the choice of obligatory subjects, the girl candidates show almost as good a percentage of passes as the boys.

The number of candidates who presented themselves at the Christmas Examination for Certificates of Proficiency in Mercantile Subjects was 20, of whom nine obtain Certificates, four of them with distinction. This result for a first examination must be regarded as satisfactory.

At the Supplementary Examination for First and Second Class Certificates, which was held on the 4th to 6th September, in London and at five Provincial Centres—Birmingham, Bristol, Leeds, Liverpool, and Jersey—270 candidates presented themselves. The number of candidates examined at these Supplementary Examinations during the year was 551.

The Christmas Examination of Teachers for the College Diplomas took place on the 1st of January and three following days, and was attended by 91 candidates, of whom 54 were men and 37 women. The subjects of examination included the Theory and Practice of Education, Scripture History, English Language, English History, Geography, Arithmetic, Algebra, Euclid, Trigonometry, Analytical Geometry, Latin, Greek, French, German, Natural Philosophy, Experimental Physics, Animal Physiology, Zoology, Geology, Chemistry, Drawing, and Music. On the results of this examination, 2 candidates have obtained the Diploma of Licentiate and 28 that of Associate. The Doreck Scholarship of £20 has been awarded, as well as the following prizes: £10 for the best candidate in Theory and Practice of Education, and £5 for Mathematics.

The Preliminary Literary Examinations of the Royal Veterinary College and of the Pharmaceutical Society have been held, as usual, at the times appointed by those bodies. For the Royal Veterinary College 67 candidates have been examined during the past year, and for the Pharmaceutical Society 1,391.

H. W. EVE.

Mr. SOUTHEE, referring to the Mercantile Examination, said that he fully appreciated the difficulty of starting such an examination, and was glad to see, from the results, that the papers set had not been found too difficult for the average run of candidates.

Mr. STEWART suggested whether it would not be expedient for the Council to consider the advisability of abrogating the rule by which candidates who failed to pass in the class for which they were entered, were allowed to pass in a lower class.

Mr. W. BROWN said that there had been some controversy with respect to the First Class History paper set for the recent examination. For himself, he regarded such a paper as unsuitable for the general run of candidates, however good it might be for those who had made a special study of the subject. The Dean would, no doubt, take account of the criticism that the paper had evoked, and do what might seem to him necessary to secure a fair and reasonable test adapted to the state of instruction that might be looked for in the great majority of efficient schools.

Mr. RULE thought that free and open discussion of the

character of the examination papers was a good thing in itself, and should be encouraged. The examinations of the College had undoubtedly risen in public estimation for many years past, and he would be glad if the Council would take steps to secure the recognition of their Certificates by the Education Department, as they were recognised by the Medical and Legal Councils.

Mr. G. Brown remarked that he was strongly impelled to join the protest of many teachers against such papers as that to which attention had been called. He also thought it somewhat anomalous that the Council, at the very time when they were instituting examinations in commercial subjects, should have increased the number of marks assigned to Latin.

The Rev. G. A. Gayfer was of opinion that the conditions of the First Class examination should be still further relaxed by allowing greater liberty in the choice of obligatory subjects. The four English subjects were obligatory for the Third Class, and the same four subjects were absolutely required of Second Class candidates. Whatever might be said in favour of this plan in the case of the lower certificates, for which a certain uniformity in the lines of instruction might be looked for, he considered that in the highest class of the school, opportunity should be afforded for greater selection of subjects, and the regulations for the First Class certificates thould be modified accordingly.

Mr. Hamilton, reverting to the matter of the First Class History paper, complained that some of the questions that had been objected to were what he would call questions of historical gossip;—the nicknames of certain Parliaments were really of no more importance to the student of history than the nicknames given to certain politicians.

The Rev. A. B. Beaven agreed that the question about the Parliaments referred to by the last speaker was open to exception, but he might mention that a similar question had appeared in a recent Cambridge Local Examination paper. With regard to the questions on the special period of only 26 years, which had also been commented on, he would only remark that, from the performance of many of the candidates, it seemed to be taken for granted that the knowledge to be acquired by getting up ten pages of Collier's History would be sufficient for passing in the subject.

Mr. Charles said that, as one of the examiners in History, though not responsible for the particular paper in question, he wished to say a word as to the state of the instruction given in English History in a great many schools, as shown by the answering of a large proportion of the candidates. Such answering might truly be described in a great number of cases as the merest historical gossip. The ignorance displayed was not that of details, but of the most elementary and leading facts in the history of our country. It appeared to him that this unfortunate result was mainly due to the use of inadequate text-books. It was not that candidates failed merely from defective knowledge, from having forgotten what they had been taught; but from having been taught wrongly, or not at all. As a rule, these failures were not of isolated individuals, but of groups evidently from particular schools. Some miserable compilation of dates and gossip had evidently been the sole source of information to which these unfortunate candidates had had access. He would suggest that the Council should draw up a list of proper text-books, and books of reference for the teacher, that might be fairly recommended, and should instruct the examiners in the main to follow these books in setting their papers. As to the paper that had been the object of so much adverse criticism, he wished to say that he had never seen more suggestive papers in history than those set by the examiner in question; and it should be borne in mind that the object of an examination was not merely to see that the candidates knew this or that, but to furnish hints to the teachers, and point the way to improvements in the method of instruction. He was, he confessed, one of those who were proud of his connection with the College, which he believed had a great future before it; but in order to exert its proper influence on the education of the country it was necessary that it should not be content to wait on outside opinion, but should take the lead in promoting every good work for the advancement of the great cause that all teachers had at heart.

The Rev. Dr. Hiron thought it would be a matter of regret if the eccentricities of any individual examiner should have the result of unduly fettering the discretion of Examiners. According to his own experience, which had been a pretty extensive one, there was no subject in the whole school curriculum that was, as a rule, worse taught than English history, and ludicrous indeed were the blunders perpetrated by examinees. Examiners were thankful to receive intelligent criticism of their work, and to profit by suggestions. They should also bear in mind that the most successful reformers, whether Examiners or otherwise, were those who were careful not to go too far ahead of those whom it was their desire to reform.

The Rev. Canon Daniel observed that, in judging of examination papers, it should be remembered that the object of an examination was not merely to ascertain what the candidates knew, but to direct the attention of both pupils and teachers to what ought to be studied. It was also to be noted that the study of history had made great advances of late years, and that text-books in which little or no account was taken of this progress were out of date and unserviceable.

The Dean said that there seemed to be little for him to reply to after what had been said on one side and the other with reference to the history paper. With regard to the remark of one of the speakers as to the relative value of liberal and commercial subjects, he would observe that he thought that as a rule men of business would prefer to engage as a clerk a youth with a good general education rather than one who was an expert book-keeper but whose general education was defective. It was for parents and teachers to consider very carefully whether the pupil's general education might not suffer if he were led away too early to the study of technical subjects.

The Report of the Dean was then adopted.

A vote of thanks to the Chairman, proposed by Dr. Wormell and seconded by Sir Philip Magnus, having been carried by acclamation,

The Chairman expressed the great pleasure it had afforded him to preside over the proceedings, and regretted that circumstances made it difficult for him to attend more frequently the meetings of the Council and of the general body.

After the meeting, the following members and officials of the College dined together at the Holborn Restaurant, under the presidency of the Rev. Dr. Jex-Blake:—Rev. R. Alliott, Mr. Barlet, Rev. A. B. Beaven, Mr. Benzemaker, Mr. F. Bidlake, Mr. Brown, Mr. Browning, Mr. Bruce, Miss Buss, Mr. Charles, Rev. Dr. Colles, Dr. Dillon, Mr. Eve, Rev. A. Gayfer, Mr. Heppel, Rev. Dr. Hiron, Mr. Hodgson, Mr. Howard, Mr. Lee, Mr. Leriche, Mr. Milne, Rev. J. Mitcheson, Mr. Nasmith, Mr. E. Pinches, Mr. W. B. Pinches, Miss Pohler, Mr. Robinson, Mr. Rule, Mr. Schreiner, Miss Snudden, Mr. Southee, Mr. Stewart, Mr. Stokes, Miss Sturton, Mr. Swift, Mr. Thomas, Mr. Tidy, Dr. Wormell. Several friends of members were also among the guests. The proceedings were agreeably diversified by music and recitations by several of those present.

ADJOURNED MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

An adjourned meeting of the Council was held at the College on Wednesday, the 23rd ult. President:—The Rev. T. W. Jex-Blake, President, in the chair; Rev. R. Alliott, Miss Bailey, Rev. J. O. Bevan, Mr. Brown, Rev. Canon Daniel, Dr. Dillon, Mr. Eve, Rev. Dr. Hiron, Miss Jebb, Sir Philip Magnus, Mr. Pinches, Mr. Robinson, Mr. Stewart, and Dr. White.

Diplomas were granted to the following, who had completed their subjects at the Christmas Examination of Teachers:—Licentiateship—W. A. Beanland, Miss S. G. Toplis; Associateship—H. H. Abdy, Miss G. E. Basford, A. T. Baxter, Miss M. J. Bromley, Miss M. Davis, J. A. Dobbs, T. Dickinson, C. E. Elworthy, A. E. Farley, A. W. Gibb, G. Holland, Miss C. A. Hudson, F. S. Jago, J. C. Jones, Miss A. E. Leetham, Miss H. A. Martin, H. Neale, H. F. Reynolds, J. S. Ross, H. Salt, F. H. Shoosmith, W. B. Sleeman, J. Smith, Miss L. Slade, C. P. Stewart, J. T. Topham, G. W. Webb, Miss E. A. Wonnacott. The Doreck Scholarship of £20 was awarded to Miss S. G. Toplis; and the prize of £10 for Theory and Practice of Education, as well as the prize of £5 for Mathematics, to Mr. J. S. Ross.

TEACHERS' DIPLOMA EXAMINATION.—PASS LIST.

January, 1889.

Theory and Practice of Education.

LICENTIATESHIP.

Beanland, W. A.
Ross, J. S.
Toplis, Miss S. G.

ASSOCIATESHIP.

Abdy, H. H.
Basford, Miss G. E.
Baxter, A. T.
Blakey, J. H.
Davis, Miss M.
Dickinson, T.
Dodds, J. A.
Elworthy, C. E.
Gibb, A. W.
Holland, G.
Hudson, Miss C. A.
Jago, F. S.
Jones, J. C.

Leggett, Miss C.
Martin, Miss H. A.
Mullins, J. C.
Neale, H.
Powell, E. T.
Readman, Miss B. K.
Reynolds, H. F.
Salt, H.
Shoosmith, F. H.
Slade, Miss L.
Smith, J.
Sowter, Miss E. J.
Stewart, C. P.
Topham, J. T.
Tremain, Miss C. P.
Webb, G. W.
Yelland, Miss A.

Scripture History.
Brake, Miss M. S. R.
Reynolds, H. F. (*hon.*)
Tremain, Miss C. P.
Winterbottom, H.

English Language.
Butler, S.
Cohen, Miss R.
Garrod, Miss A. A.
Harrison, Miss E.
Harvey, H.
Hepher, J.
Jarvis, Miss R.
Johnson, E. S.
Leggett, Miss C.
Mullins, J. C.
Mushet, Miss E.
Neale, H.
Payne, W. H.
Powell, E. T.
Reynolds, H. F.
Roberts, Miss E. F. M.
Topham, J. T.
Tremain, Miss C. P.
Watson, G. P.
Winterbottom, H.

English History.
Brake, Miss M. S. R.
Burrows, Miss S.
Butler, S.
Bygrave, Miss K. S.
Dunlop, Miss J.
Harvey, H. (*hon.*)
Harvey, M.
Hepher, J.
Holmden, Miss E.
Jarvis, Miss R.
Meadows, H.
Neale, H.
Payne, W. H.
Powell, E. T.
Reynolds, H. F.
Rowswell, W. J.
Sowter, Miss E. J.
Topham, J. T.
Tremain, Miss C. P.
Winterbottom, H.

Geography.
Brake, Miss M. S. R. (*hon.*)
Butler, S.
Dunlop, Miss J.
Evans, P. E.
Garrod, Miss A. A.
Harvey, H.
Harvey, M.
Hepher, J.
Hewett, R. W. T. C.
Mushet, Miss E.
Neale, H.
Payne, W. H.
Powell, E. T. (*hon.*)
Reynolds, H. F. (*hon.*)
Rowswell, W. J.
Tabor, Miss E. E.
Topham, J. T.
Tremain, Miss C. P.
Winterbottom, H.

Arithmetic.
Bromley, Miss M. J.
Butler, S.
Garrod, Miss A. A.
Harrison, Miss E.
Harvey, H.
Harvey, M.
Hepher, J. (*hon.*)
Hewett, R. W. T. C.
Hudson, Miss C. A.
Leetham, Miss A. E.
Meadows, H.
Mullins, J. C.
Neale, H.
Payne, W. H.
Powell, E. T.
Reynolds, H. F. (*hon.*)
Rowswell, W. J.
Sleeman, W. B.
Topham, J. T.
Winterbottom, H.
Wise, J.
Wonnacott, Miss E. A.

Algebra. LICENTIATESHIP.
Spellman, J. J.
Ross, J. S.

ASSOCIATESHIP.
Douthwaite, A.
Harvey, H.
Harvey, M.
Reynolds, H. F. (*hon.*)
Rowswell, W. J.
Topham, J. T.

Euclid. LICENTIATESHIP.
Battle, G. E.
Ross, J. S. (*hon.*)
Spellman, J. J.

ASSOCIATESHIP.
Evans, P. E.
Farley, A. E.
Harvey, H.
Johnson, E. S.
Topham, J. T.
Reynolds, H. F.

Trigonometry.
LICENTIATESHIP.
Ross, J. S. (*hon.*)

Analytical Geometry.
LICENTIATESHIP.
Ross, J. S.

Natural Philosophy.
LICENTIATESHIP.
Ross, J. S. (*hon.*)

ASSOCIATESHIP.
Farley, A. E.
Treasure, H. G.

French. LICENTIATESHIP.
Funke, O.
Nichols, Miss H.

ASSOCIATESHIP.
Brake, Miss M. S. R.
Dunlop, Miss J.
Grant, Miss A.
Harrison, Miss E.
Hepher, J.
MacGregor, Miss I. E. C.
Neale, H.
Sowter, Miss E. J.
Wonnacott, Miss E. A.

German. LICENTIATESHIP.
Funke, O. (*hon.*)

ASSOCIATESHIP.
MacGregor, Miss I. E. C. (*hon.*)
Tremain, Miss E. P.

Latin. ASSOCIATESHIP.
Reynolds, H. F.

Greek. LICENTIATESHIP.
Miles, G. C.

Experimental Physics.
LICENTIATESHIP.
Spellman, J. J.

Chemistry. LICENTIATESHIP.
Schindler, C. A.

Animal Physiology.
LICENTIATESHIP.
Nichols, Miss H.
Ross, J. S. (*hon.*)
Schindler, C. A.

ASSOCIATESHIP.
Gilley, Miss A. M.
Miles, G. C.
Tremain, Miss C. P.

Zoology. LICENTIATESHIP.
Schindler, C. A. (*hon.*)

Drawing.
Cazalet, Miss J. M.
Meadows, H. (*hon.*)
Sowter, Miss E. J. (*hon.*)

PLAY.

The attention now given to *play* as a necessary adjunct to *work* is one of the most satisfactory signs of the reality of our progress in sound education. When first the ideal "schoolmaster was abroad" the improvement of what he was pleased to call our minds was to be carried on in a most one-sided fashion; a mere change of occupation, always with a view to utility of the most obtrusive kind, was enough for the recreation of any intelligent being. It is most true that utility should never be lost sight of, but the test question, Useful for what? must be asked in a more comprehensive spirit. It is needless now to urge that, as, regards the training of the young, the reply must have direct reference to the development of the faculties in the due order which Nature points out. The healthy infant first begins to take notice in a very indiscriminate way of its own, and is led on to distinguish differences in forms, size, and color; then to put things together and find out by practice that the square peg does not fit into the round hole, and that less than three straight lines will not enclose a space, which space will always have three corners in it, so that when he wants a name for these familiar forms he has a very clear notion of what a triangle means—and so on.

Is this work or play? If the two words are put in exclusive opposition to each other we may strive in vain to draw any line of distinction between them. But the natural faculties born with us crave for appropriate exercise; to satisfy this instinct gives pleasure, to repress it causes disappointment. As long as this activity is purely spontaneous it will, as a rule, be rightly called *play*, and the skill of the teacher is shown in calling forth this spontaneity by helpful suggestions, so that the steps towards the heights of Parnassus shall not be too great a strain upon the nascent powers of the young pilgrim. The stimulus thus afforded calls forth exertion of a more severe kind before a new idea can be realised and become part of the stock of intelligence which comes spontaneously into use. Play has merged into work during the process, and may be made to do so without any loss of the sense of pleasure which is naturally associated with healthful exercise, for the habit of exertion becomes in itself pleasurable. Here we come to a danger of another kind. Exertion, though voluntary and delightful, may yet be made in excess of the powers given by Nature. They may be not the less over-stimulated because they are willingly self-stimulated; but their action ceases to be truly spontaneous, and we must fall back upon play to restore the balance.

This is but an outline. There are many practical difficulties. In the mixed classes of a school, what is hard work to some may be mere play to others, and this last will be the case not only with those who are more ready-witted, but with those also whose intelligence is more superficial and more readily satisfied. Moreover, this play to them soon becomes monotonous, and tends to idleness or even the far worse vice of laziness. There are others, on the contrary, who are always on the look-out for difficulties, and even the most excellent virtue of thoroughness has the "defect of its quality." Though such workers will often go far in the long run, they waste much time in labour prematurely misapplied, and miss golden opportunities through their tardiness. They may feel bitterly humiliated by the success of others whose work they know to be on a lower standard than their own, and even lose heart altogether from their isolation.

There are minds of both these extreme types who would do better by receiving more individual and special instruction than can be well afforded to them in a large class; but in many ways boys, and especially boys trained under the influences which govern a good public school, teach each other more effectually in their play than a master can do by more direct and formal methods. They are wonderfully acute in finding out shams, and take the conceit more thoroughly out of them by acclamation, while their very forcible irony brings home to the unready the useful truth that "to hesitate is to be lost." When anything has to be done nothing is worse than to stand agape like a fool. A youth is told, perhaps, that he "oughtn't to think" and that he "ought to think" almost in the same breath, which no doubt sounds confusing, but practical illustrations afford a practical interpretation. The little world of the playground is in some respects a better preparation for the actual work of life than the school—or let us say rather of the class room—for the school should include both. A boy is taught there that he has to find his own place, that he must be of some use in the games of the school, or he will be left out of them altogether. Some studious

lads, and more especially those who are home-bred, are very slow to get a hold of this practical truth. They are praised for their docility in learning, perhaps justly so, but they never get out of leading-strings. They go into the world, expecting to find that this in actual life is the whole duty of man, and that it is the special duty of their superiors to give them lessons. It is most true that every one who is in any sense an employer should be ready and willing to help on those who are working under him, but for their own sakes it must be done in a different manner. Only those can be helped who can learn how to help themselves, and the only sense in which a man can be said honestly and independently to help himself is by rendering acceptable service to those from whom he in return receives his support. It is, indeed, something for a man to be able to do correctly just what he is told to do, but he cannot expect to be told too much or too often. And more than this is required from every one who would fit himself for anything higher than the most mechanical routine: every advance upon this requires the capacity to undertake more or less of individual responsibility. Even changes in detail from one kind of routine to another require that each one must learn for himself and find out how to make the most of the help which other busy workers can afford to give him. Even the most benevolent of travellers cannot count as on the strength of their party those who want to be carried to their destination, however ready they may be—and ought to be—to support those who fall out of their ranks by misadventure. The habit of independence which is taught in the class room may be most effectually realised in the playground, and both are connoted as spheres for the appropriate action of the schoolmaster who would be a true trainer of men.

Happily for us, the habits of our English boys have in them, in a pre-eminent degree, the essentials requisite for developing this branch of education. A lad who can merely spin a top or show skill in "knuckling down at taw," gets the small modicum of credit which is due to such merely personal accomplishments; the lively interest of the rising generation centres in cricket and in football, and in such organised games as imply much more than these. Each one must work for his side, and for the honour of his school. He is taught to feel that he plays a very mean and shabby part when he plays only for his own hand. He must go where the captain of his eleven, or of his fifteen, tells him he ought to go, to make the best of the team of which he is a member. If he wants to bowl when some one else can bowl more effectually, he is properly snubbed,—possibly he may have been right, but he learns to bide his time, and that is a useful lesson for himself and his companions also, which should stand them in good stead for the rest of their lives. He must be alert at his post, though it may be one he does not like, and prompt to "back up" and guard against any possible mischance. Discipline of this kind effectually takes a lad out of himself. If inclined to dreaming it impels him to sustained attention; the excuse will never be received that he did not expect anything to come his way. It does come his way, and he is caught napping. The theory formally taught comes home to him with a very personal application when he finds that he cannot get on anywhere unless he minds what he is about.

The playground, no doubt, has to be watched constantly and with the most judicious care; but many most important truths can be most effectually brought home when the master can lay aside for a while the weight of his authority and identify himself more fully with his pupils. Cheating of all kinds is more keenly felt to be mean, detestable, and a common nuisance when it is seen that it spoils even every game that is worth playing. And the finer shades of honour and fair dealing are instinctively recognised when the master can say with all his heart that we, not you or I, but *we*, have little cause to boast of a success which has been gained by a mere *fluke*, or by some chance weakness on the other side—when he can draw his young companions with him to acknowledge without envy the merits of their opponents, and show them something of the true grace of courtesy, and the unostentatious self-respect which springs from it. He can show here, perhaps even better than in the schoolroom, that defeat in a well-fought contest is not degradation, and talk more freely over what *we* did, or left undone, that might have led to a different result; and that while mistakes may be amended or retrieved, sticking to them with our eyes shut is folly without excuse. The child is father of the man, and the best lessons of life are learned in the world which is most real to him.

If one word of suggestion may be added to the teacher on this aspect of his life's work it would be this:—Bear ever in mind that your object is not to do yourself, but to inspire others to do; encourage independence of action wherever it is genuinely shown. You need not on this side be "cock of the school" on all occasions: let the young birds try their wings. They will not forget the authority of the master because they have found him to be more than a master—their friend and their counsellor who can understand their difficulties and upon whose ready sympathy they can ever rely.

Still, though these weighty considerations are involved, play must be real play. The law of the intermittence of activity runs through all Nature. Play must be truly a recreation (but not a dissipation) of our energies.

> The string o'erstretchèd breaks, and music flies;
> The string o'erslack is dumb, and music dies."

The degree of tension which yields harmony lies between the two extremes.

Moreover, it is the genuine spontaneity of play which makes it so valid a test of the qualities which go to the formation of character, and will most strongly tend to govern conduct in after life.

The inability to play must be accounted a great defect and misfortune—though it must be admitted that in maturity especially, men will take their play in very different ways. But few powerful minds have been without a keen sense of humour; many have possessed it in a marked degree; and this quality is a sure sign that the capacity was not wanting in them. Of a very different type is the being of portentous gravity who looks as though he dared not shake his head for fear of disarranging his ideas. A good game of play would be kill or cure for him, and only in our reckless moments could we suggest so desperate a remedy. He must serve rather as a warning to learn how to play in good time and never afterwards to lose the habit. How much work has been marred by exclusively regarding a subject till the mind works into a narrow groove of its own, and loses all sense of proportion. A little real play would have given new energy to the faculties overstrained, and brought them into harmony with others probably in a distressing state of half-repressed irritation from the want of a due modicum of exercise. The worker returning refreshed to his subject, if not able to see all sides of it, at all events finds that he observes many more of them than he had ever seen before.

The saddest of all the aspects of our civilisation cannot be altogether passed over. There are many to whom real work and play are alike unknown. It would seem to be in the very nature of things that the two must go together, and each one must be made the fitting counterpart of the other. Much as those of us who work with our brains find the need of some bodily exercise to keep us in good working order all round, so those whose work draws heavily on their bodily strength, show that they require something more than mere rest from their toil, and the unsatisfied want for amusement and recreation too often finds an outlet in reckless dissipation, alike fatal to work and to play. It is a true and wise instinct which has brought agencies of both kinds to bear against this great national evil. We want play for the workshop as well as for the schoolroom.

There has been some discussion lately about the dangerous nature of our games. Football has been especially the subject of animadversion. It would not be quite safe to take the word of the boys about it, for, of all things, they fear the bare suspicion that they could *funk* anything. But the opinion of young men who have not lost touch of boyhood, and especially of those who have acquired some sense of responsibility in the higher classes of our public shools, is more to be trusted than that of their grandmothers. The necessity of vigilant and intelligent supervision is admitted, in order to check thoughtless abuses which are sufficiently obvious. But are all games which call for strenuous exertion to be discouraged and kept in leading-strings? Against the risks and accidents, of which we hear so much, must be set the far larger and more general gain which results from such manly training. The quick eye, the sure foot, the body well balanced so as to give full play to the internal organs, and the best and promptest use of every limb; the self-control and presence of mind in the face of sudden danger—are not all these, and such as these, elements of safety both to those who possess them, and those who may be aided by the possessors. Strength may be overtaxed or unwisely used, and we must do our best to guard against excess; but it is far worse to induce an artificial weakness and delicacy that falls an easy prey to the inevitable accidents to which we are constantly liable.

A miserable, morbid sentiment too often finds expression that pain is the greatest of evils, that hardships are degrading,

and physical strength essentially brutal. Humanity suffers far more from the apathy of the weak than from the vigour of well-trained strength. It is no more true that such strength despises physical weakness than that weakness habitually envies strength. Both evils are possible, but neither are characteristic; and both are equally under the control of sound and righteous education. Let the weak rejoice in the joy of the strong man in his strength, and recognise in it one great element of the national greatness in which he shares and to which he in other ways may contribute. Let us get rid utterly of the absurdity that mind and body are adversely in opposition. All activity, whether termed mental or bodily, depends equally on the brain, and is associated and correlated there in ways more subtle than we can determine. We acknowledge the differences which exist in the individual, and, while in early life our aim is so to develop the weaker faculties that none should be wholly wanting, we strive in maturer years to give full effect to those powers which justly claim predominance; so that each and all of us may best serve his God and his country with the best members which he has. R. H.

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

A supplementary B.A. pass-list (Colonial) has been issued, showing that one candidate has obtained the degree at Hong Kong and another at Toronto; each passes in the First Division.

The pass-list of the Intermediate Examination in Music, due before our last number was issued, has since been published, and it appears that eleven of the fourteen candidates are successful; three of these are already graduates in Arts (B.A.), and one is a D.Sc. The only candidate at the Intermediate D. Mus. Examination has also passed, and in the First Division.

During January the whole series of examinations in Laws have been held, also the half-yearly Matriculation Examination and the Preliminary and Intermediate Examinations in Medicine; but only the pass-lists of the Intermediate Examination in Laws and the LL.B. Examination have been published. The former shows 29 names (22 in the First Division), and the latter 17 (only 4 in the First Division).

A meeting of Convocation was held on January 22nd. The heads of business on the agenda-paper were few and unimportant. Some proposals for making the University a coaching institution and a mutual improvement society were vigorously snuffed out; but a resolution approving of the formation of a debating society was passed. It is only to be hoped that applications for such approval for projects which are still in the clouds, and with which Convocation as such has nothing to do, will not become the fashion. Some resolutions suggesting that the mathematical papers should be set on the earlier days of certain examinations were also passed; but it seems to us that the reasons urged in favour of the suggestion might be urged with oqual force in regard to papers in other subjects.

A reference was made by the Chairman (Dr. Wood) to a matter of another character, but of more immediate interest. It may not be generally known that, in 1887, a movement was set on foot for commemorating both the Jubilee of the Queen and that of the University, which fell in the same year. Contributions were made by the Senate, the graduates, and some examiners, amounting in all to above £700. The Managing Committee resolved, if the sum at their disposal allowed, to set up within the University building a statue of the Queen; and Mr. Boehm, having been approached on the subject, kindly undertook to execute a statue for a sum not exceeding that in the hands of the committee. Her Majesty's Board of Works undertook the mounting of the statue; and Dr. Wood announced that there is good ground for expecting that the work may be completed by Presentation Day of the current year (May 15th).

Oxford.

Mr. C. H. Thompson, B.A., Queen's College, is the Senior Mathematical Scholar for 1889; Mr. A. E. Jolliffe, Scholar of Balliol College, the Junior Scholar, and Mr. S. A. F. White, Scholar of Wadham College, the Junior Exhibitioner.

The Vacation, though it has not teemed with incident, has not been entirely uneventful. The sword which for long weeks hung suspended over the Warden of Merton's head has been removed. The sentences which had been thought to rival the utterances of Mr. O'Brien, were declared on affidavit to be jokes. The trouble is over, the cloud has passed harmlessly away.

The beginning of Term brings the usual wrangle over lecture-lists; some have more than they want of what they do not need, and none have all of what they want. Ths Camden Professor of Ancient History will lecture on the same subject and at the same time as the Reader in Ancient History.

The lectures at Wycliffe Hall this term will consist of the following courses:—(1) Elements of Christian Doctrine, Articles xi., &c.; (2) The Historical Books of the Old Testament (Joshua—Esther); (3) The Psalms, cxx—cl.; (4) Hints on the preparation of Sermons; (5) Hebrew. There will be eight addresses in the hall, open to ladies and gentlemen, on Wednesdays, at 3 p.m., beginning January 23rd; subject—Elements in the Christian Life.

The Professor of Music will deliver a lecture on "The Ancient Forms of Dance Music in England," with illustrations on the pianoforte, in the Sheldonian Threatre, on Wednesday, March 6th, at two o'clock.

Sir Charles E. Bernard, K.C.S.I., will give a course of six Lectures, by appointment of the Delegates of the Common University Fund, on "The Land Revenue System of India."

Mr. F. M. West, a blind gentleman, has obtained a second class in honours in the History School. Mr. West was educated in the Blind College, Worcester.

Cambridge.

At a Congregation held on the morning of January 10th, Dr. Taylor, Master of St. John's College, formally vacated the office of Vice-Chancellor by delivering up the maces and seals of office to Dr. Searle, Master of Pembroke College, who was elected his successor in November last. In his valedictory address the retiring Vice-Chancellor reviewed the chief events of the past academical year, foremost in exceptional interest being the royal visit on the 9th of June, when the Prince and Princess of Wales and the Princesses Louise, Victoria, and Maud of Wales honoured the University with their presence, on the occasion of the admission of His Royal Highness Prince Albert Victor Christian Edward of Wales to the degree of Doctor of Law *honoris causa*. After referring to the obituary for the year, Dr. Taylor intimated that the application for a reduction of the sums contributable by the colleges to the Common University Fund in the next three years had been carefully considered by him and granted. The subject for the Yorke Prize, 1889, is "An historical sketch of the equitable jurisdiction of the Court of Chancery." The prize is of the value of £100, and is open to graduates of the University who are not more than seven years' standing from admission to their first degree on December 1st, 1889, on or before which day the essays are to be sent in to the Vice-Chancellor.

The Slade Professorship of Fine Art is vacant. The Professor is elected for a period of three years, but may be re-elected. The election will take place on Friday, February 22nd.

Professor Stokes, M.P. for the University, and President of the Royal Society, has been appointed to the office of Sir Robert Rede's lecturer for the present year.

The election of a Hulsean Lecturer will take place on Saturday, February 16th. Candidates must be of the age of 30 years or upwards, and in holy orders, and they must be Masters of Arts or of some higher degree in the University of Cambridge. The Lecturer receives a stipend of about £70, and holds office for one year only; but may be re-elected after an interval of five years. He is required to preach at least four sermons during his year of office, at times prescribed by the authority of the University, but is not required to print or publish his sermons. Candidates must send their names to the Vice-Chancellor.

The managers of the Craven fund are prepared to receive applications from graduates of the University, of not more than five years' standing from the completion of their first degree, who desire to be elected to a Craven studentship. The object of the studentship is the furtherance of advanced study or research, away from Cambridge, in the language, literature, history, archæology, or art of Ancient Greece or Rome, or the comparative philology of the Indo-European languages. The emolument of the studentship is £200 a year.

Examinations for Scholarships at Downing, Clare, and Corpus Christi Colleges are announced.

Other Universities, Colleges, and Schools.

Two new professorships have been created at the University of Durham. The first of them, surgery, has been assigned to Dr. Heath, Newcastle; and the second, physiology, to Dr. Oliver. The Senate in taking this step have doubtless been moved by consideration of the importance of rendering the medical school of the University as complete as possible.

Mr. Andrew Lang, Gifford Lecturer for St. Andrews University, delivered his introductory address at St. Andrews on the afternoon of January 17, to a large audience of students and general public. Principal Donaldson presided.

Professor Sylvanus P. Thompson has written to the *Times* regretting that the Parliamentary Session should have been allowed to close without some protest at the way in which, after the intimation given early last year by the Right Hon. the Chancellor of the Exchequer, the interests of the provincial University Colleges are still neglected. He points out that whereas the Irish Universities and University Colleges, the Scottish and the Welsh Colleges receive adequate provision, the eleven English University Colleges are denied all Imperial support; and urges the Parliamentary representatives of large towns which contain University Colleges to unite, and by drafting a special Bill, and introducing it early next Session, to hasten the dilatory hand of the Government and save the weaker Colleges from bankruptcy, which stares them in the face.

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THE EDUCATIONAL TIMES.

LONDON, FEBRUARY 1, 1889.

OUR attention has been called to a remarkable feature in the list of scholarships recently gained by the boys of St. Paul's School. All the athletic leaders are named in the list. It is, fortunately, not unfrequently found that the captains of the various teams of a school figure in the list of University honours, but here we find them all together. Many persons who admit that play is a necessary adjunct to work look upon the two as to some extent antagonistic, or at least as rival claimants for the time of the student, one of which must necessarily give way to the other. A practical illustration to the contrary, such as that furnished by the list before us,* is worth pages of assertion.

The relation of play to work suggested by such lists as this is fully discussed in another column, and it is there shown how the former assists the latter. Not only is it true that boys teach each other in their play lessons which it would be difficult to teach in the class-room, and that the playground furnishes a preparation for the actual world of work which cannot be acquired elsewhere; but it is further true that the habit of independence, and other lessons which may be taught within the school, can be realised only in the playground. There the selfish and self-regarding attitudes which the modern system of competitive examination encourages, may be corrected, for there the competitor throws his own score into the general total of his team, and shares the glory of success with his comrades. The growth and development of English society has been affected, and we think greatly benefited, by the custom which has caused boys of families and of professions the most widely diverse to be thrown together, and to be taught to realise each other's worth as they shout for the victory of their school in the cricket field or playground.

It is true that school games involve danger and often cause pain, but we cannot condemn too emphatically the "miserable, morbid sentiment" which teaches that pain is an evil. The wilful and unnecessary infliction of pain is, of course, to be condemned as brutalising to the agent, but at the same time the fear of pain is a form of cowardice which education should remove. There is no life altogether free from pain, and we should have to alter all our notions of the objects of education if we accepted the view that every path must be avoided in which pain may be encountered. The aim of physical training

* St. Paul's School.—H. N. Bate, Captain of Fives Club, Scholar of Trinity, Oxford; W. Thomas, Captain of Football Club, Scholar of Christ's, Cambridge; L. Tubbs, Captain of Cricket Club, Scholar of Caius, Cambridge; A. L. Wood, Captain of Rowing Club, Scholar of Caius, Cambridge; Ryr, winner of the Mile, Brackenbury Scholarship, Balliol College, Oxford. City Middle Class School.—R. C. Chevalier (16), Leader of Athletic Club, Foundation Scholar, St. John's, Cambridge (Dec. 1889); and others.

is to produce health, vigour, and activity; yet it is to train to patient endurance as well as hardy strength. No doubt, here as everywhere, we must guard against excess. Boys must not be allowed to sacrifice everything to cricket, or even to devote to it a number of hours or an amount of enthusiasm out of all proportion. They must neither be allowed to play with their work nor labour over their play; the two are in close correlation, but the benefits of both are lost if the methods of the one are confounded with those of the other. But they should never be taught the absurdity that mind and body are in opposition. It is sometimes said, with a sneer at athletics, that they encourage the attainment of purely corporeal or animal attributes; but, when play and work at school and at home are properly adjusted, while they make our boys good animals, they may at the same time make them good and thoughtful men.

There is no country in the world in which more liberal public provision is made for education than in the United States of America, and yet not even in England, whose higher education owes so little to the State, has private munificence been more active in modern times in founding institutions for the cultivation of the higher studies. It is true, a wealthy American is not exposed to the temptation of using or abusing his wealth in the acquisition and support of hereditary rank. The far-seeing framers of the United States Constitution took care to provide that no hereditary titles should be recognised among American citizens. Hence the desire for posthumous fame in America must satisfy itself in some form, which, if not essentially more magnanimous, is not seldom more widely utilitarian than founding and endowing a title.

The latest example of private munificence for an educational object, from the other side of the Atlantic, is not more remarkable from the proportions of the gift than on account of the singular character of the institution which it is to call into existence.

It is announced that Senator Standford, a Californian millionaire, has allocated a sum of two millions sterling for the founding of a University which is to bear its founder's name. This University is to be no pale imitation of any previously existing one, whether in the Old World or in the New. In comprehensiveness of curriculum it will leave nothing to desire. Education from the Kindergarten stage up to the highest stage to which it can be carried is to be provided within its schools and faculties. Nor will the means of recreation, and those inspiriting influences which come from breathing the free air of field and forest, be wanting. Seven thousand acres in the valley of San José are now being laid out with the design of forming a surrounding forest and garden to the new buildings. The plans for the whole structure are complete, and they show an intention of providing the means of scientific research and instruction for large numbers of students in the central building; provision is also to be made for out-of-doors instruction, and, most singular of all, for the formation in association with the University "of a community instructively representative of attractive and wholesome conditions, social and domestic."

Whatever we may think of this ideal of a University, it is difficult, for those who know the history of our own great Universities and their colleges, to believe that it is an ideal capable of realisation. The late Rector of Lincoln College, Oxford, in his "Suggestions for Academical Organisation," tells us,—"The colleges were in their origin endowments not for the elements of a general liberal education, but for the prolonged study of special and professional faculties by men of riper age. The Universities embraced both these objects. The colleges, while they incidentally aided in elementary education, were specially devoted to the highest learning. This was the theory of the Middle-Age University, and the design of collegiate foundations in their origin. Time and circumstances have brought about a total change. The colleges no longer promote the researches of science or direct professional study. Here and there, college walls may shelter an occasional student, but not in larger proportions than may be found in private life. Elementary teaching of youths under twenty is now the only function performed by the University, and almost the only object of college endowments. Colleges were homes for the life-study of the highest and most abstruse parts of knowledge. They have become boarding schools in which the elements of the learned languages are taught to youths." An unrelenting fate may have a like chequered history, leading up to a like impotent conclusion in store for the Standford University. Instead of becoming a "boarding school" for youths, it may become a huge Kindergarten. Trial alone can decide what measure of success this singular experiment in University-making may achieve. The Cornell University has not failed through its "eccentric" provision that each of its students must earn his living by the labour of his hands. We note one feature of this endowment with satisfaction, viz., its liberal character. The higher education has suffered much in the United States by the multiplication of poorly endowed Universities. Competition among these may assume either the form of rivalry in educational excellence, or a lowering of the standard of proficiency to win the greatest possible number of candidates for degrees. It is hardly realised in this country that the number of local and denominational colleges in the States with full University powers is very large. To add to the number of these at present would not advance by very much the higher education in America. But the Standford University will not be dependent for its subsistence on the power of granting degrees. Its professors will have no other duty cast upon them than that of working emulously to increase the merit and renown of their chairs, to realise the ideal of the founder of their University, regardless of ways and means. Educationists on this side of the Atlantic should watch with interest this new departure. We in this country are too apt to narrow the limits of what is possible in education, to think that all that is best and wisest in reference thereto has been long ago discovered, and to exaggerate the power of the past over the present and future.

The present slack period of the dailies is being taken up principally with educational topics. The questions of Juvenile Punishment, Easter Holidays, and University Local Examinations, have been discussed *ad nauseam* through the medium of the press.

There is no room for doubt as to the general issue of the discussion on juvenile punishment. If school discipline is to be maintained, some form of corporal punishment must be resorted to. It is an effective way of dealing with

offenders of either sex, with whom milder methods fail, and, since such a class of offenders is small, corporal punishment must of necessity be rare. The schoolmaster who takes a brutal delight in inflicting pain is a monster rarely seen in these days, though not infrequently met with half a century ago. Corporal punishment as connected with such a man is altogether out of our consideration here. Where it is advisable to resort to it, it should never be inflicted in anger, and should be hedged about with such precautions against abuse as are found in well-known and good schools. In this matter, philanthropists, and men of common sense, and practical teachers are of one mind.

The subject of the Easter Holidays in schools originated in the motion of Mr. Welldon, the Headmaster of Harrow School, which was passed at the Headmasters' Conference at Winchester. The proposal of this gentleman was that the Easter Holidays should always begin either in the first or in the second week of April, as the Committee of the Conference may determine. The adoption of this plan would entail upon masters and boys the necessity of working through the Holy Week occasionally. Opinions differ as to the advisability of making such a restriction, but, as a result of the passing of the motion at the Conference, a notice will be issued to headmasters, probably at some time before the end of the year.

One daily paper has opened its columns to the discussion of a supposed abuse in the local examinations of Oxford and Cambridge, and of the College of Preceptors. The letters which have been published seem to imply that it is no unusual thing for a boy or girl under 16 years of age to have to undergo the immense strain of nine or ten hours of examination in a day, beginning at 9.30 a.m. and ending at 9 p.m. If this were so, of course such a strain would be unjustifiable; and the sooner the syndicate thought fit to revise time-tables which no physician could be found to defend, the better would it be for parents and teachers. But many of those who have written on the subject have exaggerated the circumstances from ignorance, and we regret to say that a few who really know better have followed the lead of the ignorant. Their argument is an illustration of the *fallacia compositionis.* In each of the above-mentioned examinations there is a choice of subjects, and no candidate can take up much more than one-half of the whole number. The time-tables are, as far as possible, arranged to distribute the work of all the candidates evenly through the period of examination; only under very rare circumstances indeed will a candidate be compelled to spend more than six or seven hours a day in the examination room, and then the reason will lie in the unusual combination of subjects which he has chosen. The same applies to the examination of students in training colleges. The Committee of Council has recently allowed students to take up groups of subjects, the total number of subjects being nearly double the number any candidate is allowed to take. For instance, the following subjects for the second year are formed into groups: (*a*) School Management, (*b*) English, (*c*) Geography and History, (*d*) Arithmetic, Algebra, Mensuration, and Geometry, (*e*) Science, (*f*) Languages, (*g*) *two of the following: one Language, one Science, Economy.* All candidates must take (*a*) and (*b*), and may take two other groups, but no more. To prevent the period of examination being unduly prolonged by this arrangement, there are three examination papers allotted for each day; but, except in very exceptional cases, no candidate is required to take more than two of them, and if by chance an unexpected combination of subjects causes a student to have to appear three times in one day, there will be a compensation by his having a whole holiday on the next.

In the current number of the *Edinburgh Review* there is a discriminating, but on the whole appreciative, criticism of François Rabelais and his works, which students of educational theories no less than students of literature will find well worth reading.

Rabelais is a voluminous and discursive author, and so the study of his works in the original or in a translation (he is one of the most difficult of authors to translate) is a long business. But that is not all. It is only too true, as the Edinburgh Reviewer says, that "No writer, ancient or modern, can rival Rabelais for the volume of the torrent which he pours forth of undisguised, unadulterated, and elaborate filth." Our obligations, then, are all the deeper to the student of literature who performs for us the office of moral filter to this polluted and polluting flood, and gives us all that is pure and nutritive mentally and morally in a manageable potion.

It is not possible to grasp the full significance of what Rabelais has written on education if we do not keep in mind his standpoint as thinker, reformer, humourist, and satirist, in an age moved in turn by the scientific and humanistic impulses of the Renaissance, the moral ferment of the Protestant Reformation, and the disillusioning which led to the Catholic reaction. He is, indeed, a unique figure in French literature, and in the world's literature there are only two others who take rank beside him—Lucian and our own Swift. That he is more destructive than constructive is due to the social environment in which he found himself, as much as to temperament. A Franciscan friar and physician, with a thirst for knowledge and a mental bent towards scientific investigation, it was to be expected that he would be in violent revolt against the sanctified torpor, ignorance, and dirt of the monkish system. To dissolve this system by destructive criticism was the service that Rabelais rendered to his age, but that he was capable of constructive work is evidenced by his sketch of the education of Gargantua.

It is to that sketch that we must here confine ourselves, and agreeing as we do with the Edinburgh Reviewer, that Pantagruel, in which it is contained, must be a sealed book to the majority "because of its terrific indecency," we will borrow his bowdlerised presentation of the matter. Gargantua, the son of Grandgousier, is brought up in the licentious atmosphere of a court. He is taught to read by a tutor who consumes five years and three months in the task. At the end of that time, he can say his alphabet as well backwards as forwards. Next, he is exercised in logical and grammatical gymnastics which destroy thought in order to preserve its forms. He learns by heart, and word for word, antiquated treatises and obsolete text-books of the twelfth century. In this way he spends thirty-five years and five months.

His body is as neglected as his mind. He is told that it is waste of time for him to wash or clean himself; consequently he only smooths his hair with the German comb (that is with his fingers and thumb). Gargantua learns his lessons perfectly, studies hard and satisfies his tutors and

examiners, yet every day he becomes more "foolish, doited, and blockish."

Now, although this was written nearly four centuries ago, are we quite sure that the satire has lost all point for us? We think not. The years spent in preparing to enter the portals of knowledge, the labour expended in slowly sapping and mining the outworks of grammar and analysis and exercises that bar the entrance to the obsolete text, is not unknown in our schools.

The result of such elaborate preparation dissatisfied Gargantua's father, and a friend recommended that the new learning should be tried. The description of this new training is a remarkable proof of how saturated Rabelais was with what we should now call the modern spirit. He insists that the mind and the body are to be developed by intellectual and physical exercises. Instruction is to be combined with amusement. The pupil is to be taught to observe and note things for himself.

The details of the new training we will not transcribe here; they are sufficiently given in the review to which we have been referring. The botanising of the pupil with his tutor in the fields, and the visits to the workshops of the different trades, remind us of the scientific and technical training which are supposed to be the exclusive inheritance of our own time.

It is difficult to trace the influence of Rabelais in English education. The two of our writers who have been most influenced by him are Swift and Sterne, and they have exercised no direct influence on school practice. The truth is that, as our law is mainly an indigenous system, so also, and for the like reasons, is our education. The advantage we derive from this fact is, that a comparison of our educational practice with that obtaining on the Continent is far more fruitful in ideas, than when these continental systems are compared with each other. And if our age gives birth to a true philosophy of education, it will be in no small degree owing to the facility we now possess of examining systems of education that grew up under different influences and sought to attain like ends by different methods.

REVIEWS, NOTICES, &c.

Memoir of William Ellis, and an Account of his Conduct-teaching. By Ethel E. Ellis. (*Longmans, Green, & Co.*)

There have appeared lately evidences that a Memoir of William Ellis is already needed, for several reasons. His great influence was personal and direct, and was exerted only to a small extent through the medium of his writings; the excellence of his teaching lay in its oral character, and only imperfectly appears in his works; and although the lessons he taught are as important now, or more important in our day than in his, and although many of them have been so learned that they will never be forgotten, yet, through the personal modesty of their author, their association with his name and memory is weak. Hence the manner and method of William Ellis as a teacher are not as well known as they ought to be.

This interesting Memoir by his grand-daughter is an excellent beginning. Miss Ellis is well qualified to give his personal and family history. She is an able expounder of the essence of his system, she has command of his books and correspondence, and has performed her task with excellent judgment and great ability; yet those who sat as his disciples, and have the deepest reverence for his memory, will feel that this Memoir is inadequate and imperfect. As Socrates is known only from the records furnished by his affectionate disciples Plato and Xenophon, so also Philo Socrates can be fully known only by his acts and discourses as they may be handed down to us by those who received his teaching. The modern Plato and Xenophon, however, have not yet appeared.

The first two chapters give an account of his parentage, early life, and marr age. He was born in 1800, and died in 1881. He was directly descended from one of the old Huguenot families of France. At the age of eighteen he made the acquaintance of James Mill, and the other members of the circle of thinkers which was gathered around old Jeremy Bentham, and then commenced a warm and lifelong friendship between William Ellis and the younger Mill. They were both members of a society which met in Threadneedle-street for the discussion of mental philosophy, logic, and psychology. When speaking of these early meetings, William Ellis said:—

"In those discussions the difference between John Mill and me was brought out very often. He was for inquiring into everything and going to the bottom of everybody's theories and ideas. I cared only for the practical value of political economy, and did not want to think deeply upon points which would have no bearing on social affairs and human conduct. This difference in mental constitution can be found throughout our works."

There was a great and real difference between William Ellis and a hard, cold political economist. In him the keenest intelligence was combined with the tenderest, kindest, and most sympathetic of dispositions. This is shown in the Memoir.

"To William Ellis the sight of misery was always acutely painful, and the refusal of alms must also have been most distressing to a nature so sympathetic and so generous." . . . "His intense sympathy for the sufferings of the destitute, together with a conviction that the larger part of those sufferings are avoidable through better education of the young, acted as spurs to his sensitive conscience, and he could not long endure the thought that he was taking his ease (*i.e.* in his vacation) while such work was left undone."

Even in his business transactions this combination of keen intelligence and emotional tenderness and consideration for others shows itself. He has been called the Father and the King of Underwriters. His counsels were often so sagacious that it seemed as if he had inquired of the oracles of God, yet few men have been more remarkable for the generosity of their dealings. For instance, a shipowner, who had insured his vessels for some years in the Indemnity, called at the office to effect sundry insurances, and mentioned that, owing to his absence from town, his clerk had omitted to renew the policy upon one of his vessels, and that she had unfortuately been lost uninsured. Mr. Ellis only asked one question, "Did you intend to offer me the renewal?" "Yes," was the reply, and before that shipowner left the office a policy for the amount was executed and endorsed for a total loss, which was immediately paid.

We, however, are more concerned with the educationalist and teacher than with the underwriter. Mr. Ellis maintained that the education of the people is the first as well as the most powerful of the instruments at our disposal for the promotion of well-being. But he also held that the education of the people must not be confounded with the mere teaching of reading, writing, and arithmetic, and that the success of the educator is to be judged by the completeness and diffusion of the knowledge of what good conduct and bad conduct really are, and by the strength and activity of the impulses to do the right and abstain from the wrong. He believed that the principal causes of destitution are removable through an improved system of education, which aims, above all things, at exalting character. We sometimes think that nothing but a national calamity, in which it will be demonstrated that men and women who can read, write, and reckon, may at the same time, be lawless and vicious, will convince our legislators that these arts may be taught, and yet the character left untrained and even debased. William Ellis insisted on the training of character as the essential part of education for persons of all classes, and spent all his leisure in teaching. He considered it as essential to general well-being that those who had wealth should be taught how to use it aright, and how to fulfil the duties and responsibilities which are inseparable from its possession, as that the labouring classes should be taught how to contribute their portion to the conditions of general well-being. He taught in all grades from the Royal Family to the ragged-school. He knew his power in that respect, and says:—

"'I believe I am to be seen at less disadvantage as a teacher (with all my deficiency of sight and hearing) than as a writer. After all, teachers are not to be formed by books alone, any more than riflemen, who, before they are led to face the enemy, get practice in the school of musketry. How enviable is the lot of the young soldier (granting the need of his

ultimate services) compared with that of the young teacher! His instructor not only knows how to aim, but what to aim at.' His teaching was purely oral, the lessons being carried on much in the manner of the Socratic Dialogues. No one who was ever present on such occasions could forget the searching questions, leading on one to another, by which the learner was irresistibly driven to convict himself of inconsistency or error. The habit of Socratic questioning was characteristic, indeed, of all William Ellis's conversation. It was a practice which he even recommended to others, as being at once more modest and more convincing than the mere announcement of opinion; he never dogmatised himself, and disliked dogmatism in others.

"Even in ordinary conversation, Mr. Ellis conveyed his opinions by means of questions. He used to tell, for instance, how a man that he spoke to in the coach one day, had informed him with a shocked voice that a certain candidate for Parliament was in reality an atheist. 'Indeed,' said Mr. Ellis gravely, 'that is very serious. Ought we not to make this generally known, in order to prevent the return of such a man?' The other admitted that it ought to be done. 'Then,' pursued Mr. Ellis, am I to understand that I have your authority for announcing wherever I go that Mr. ——— is an atheist?' 'Good God, sir, you must not do that,' replied he (showing, as Mr. Ellis slyly observed, that at any rate he was no atheist); 'I should be had up for libel!'"

He was sometimes severe in his retorts when provoked by bumptions and unreasoning dogmatism or bigotry, but he was never cruel. In this respect he differed from his father, whose keeness of wit he inherited. The following anecdote of A. E. Ellis (not in the Memoir) will serve as an illustration. On a board of directors with him was a tall, burly Scotchman, who was often opposed to Ellis, and was systematically rude to him when Ellis was a feeble old man. On a bitter cold day this director came into the board room and planted himself before the fire, stretching legs and wings, so as to screen every ray from the old man. After some minutes he said, "Excuse me, Mr. Ellis, I must thaw myself." Ellis replied, "Don't mention, it sir. Roast yourself; I hate a *raw* Scotchman."

We have but brief space for remarks on William Ellis's books. Some of these were published anonymously, and some, like "The Phenomena of Industrial Life," went through the hands and under the name of an editor. The Dean of Hereford edited this book, and of it Ellis wrote to a friend as follows:—

"Pray be careful not to connect my name with the work, which I expect will be out in a fortnight. The Dean hopes to obtain admission for it into the church training schools, and if such an ogre as I am were known to be its author, the circulation of the book might be narrowed and the Dean's influence weakened, both of which it is desirable to avoid. Will you not bestow a word of pity upon a disconsolate parent thus driven to separate from his offspring, or to see it perish before his eyes? You may think, 'Lucky fellow, to be thus relieved of an ill-favoured bantling!' but remember that I have the affections of a father, and I love and admire what I have given life to, with all its faults. In fact, some of my more sagacious friends have charged me with an incapacity to discover blemishes in my own children or beauties in other people's."

While he was particularly annoyed by all attempts to cover ignorance by means of what is called "style," or still more by the knack of glossing over bad reasoning, by attractive language, he was also conscious of his own defects as a writer. He says, for instance, "I abominate 'tangles,' and not the less when they are concealed from the common eye by a writer like Ruskin, who is pictorial, rhetorical, vituperative, and sensational." Yet the author of the Memoir with perfect impartiality, admits frankly, that—owing greatly to his want of literary ability he was quite unable through his writings to interest the public. This was a source of regret not only to himself, but to everyone who felt the strengthening power of his personal influence. To Dr. Hodgson he wrote in 1875:—

"I am deeply convinced of my own incapacity to interest the public. Whether the fault be in me or in the public, I will not venture to judge. Vanity would lead me to lay the blame on the public. Wherever it be, the effect is absence of demand. . . . If anybody could show me that I am one of the lights of the age, but that there is a dark screen between me and a public pining for light, I could but rejoice (modestly, of course), in my projected elevation, and assist the friendly hand capable of removing the screen, diffusing my light, and enlightening the public darkness."

Indeed, no one could be more keenly aware of his lack of literary ability than Mr. Ellis himself. He says:—"My pen jibs whenever I attempt to describe or narrate." Dr. Hodgson said of his friend, that "had his style been equal to his matter, he would have moved the world. To those who can look beneath the surface, they must ever be a rich storehouse of suggestive thought, and of none of his published works is this more true than of the series entitled 'Philo Socrates,' embracing elaborate discussions on education, ethics, and religion."

When Dr. Hodgson was elected President of the College of Preceptors, and member of the Council, William Ellis wrote to congratulate him on the occasion. He then said he "really believed the public mind—even that portion of it which dwells within the crania of preceptors—would be so far ripened as to be willing to listen with courtesy, perhaps even with deference, to those qualified to suggest improvements placing education more in harmony with the wants of society than it has hitherto been." We have but to read the last Report of the Council of the College to see, that in this, as in many other respects, William Ellis was a true prophet,

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Manuals of Catholic Philosophy. Moral Philosophy or Ethics, and Natural Law. By Joseph Rickaby, S.J. (Longmans, Green, & Co.)—We cannot follow the author of this book through his whole argument either to approve or to disapprove of it. To do so would land us in metaphysics, and, however important our own conclusions may be to ourselves as to first principles, we have no intention of thrusting before others our speculative opinions, when we are concerned only with the work of education. But, we may at least say this, that so impressed are we with the intellectual power shown in this Manual that we do not hesitate to say that it is in itself a book of no small educative value, in the dexterity of the arguments marshalled in support of its views, and in the striking lucidity of their statement. We would further add that the illustrations, the "put cases" of the earlier writers are unusually interesting and original. Although we do not wish to enter upon a theological, or even a metpahysical, discussion in our notice of this book, there are yet several points of interest to the educationist which may be mentioned. Mr. Rickaby strenuously maintains the importance of understanding at the outset that the existence of God has, in his view, an essential bearing on ethics. His point is, "No God, no sin." Putting aside the idea of God, he urges, there may indeed be unreasonable conduct, there may be crime against the State, but there is no sin. Hence there is no punishment for sin. "Thus to leave God wholly out of ethics and natural law is to rob moral evil of half its terrors, and of that very half which is more easily understanded of the people. A consideration for school-managers." Mr. Rickaby lays stress upon the necessity for diligently pointing out to the child the maxims of morality in the same way that we teach and explain geometry. It is not because there can be any doubt in the child's mind, when once explained, either of his duty or his geometry, but the *recognition* of both is to some extent dependent on intellectual habits, only the rudiments of which are supplied by nature. Nay, not only is education of the conscience desirable, but it is even more essential than that of other "intellectual formations" because of the "power of evil to fascinate and blind in practical issues of duty." The theory of ethics adopted is, of course, that of Aristotle and St. Thomas Aquinas. In this theoretical treatment nothing is more remarkable than the trenchant attack on the Utilitarian school of ethics. We do not wish here to take sides in the attack or the defence, but we call attention to the fact that probably this attack, while at the same time wonderfully concise and pointed in expression, is as keen as any that has been lately made on that school in philosophic literature. When Mr. Rickaby enters into the treatment of political ethics he shows ready wit in casuistry, and both his supporters and opponents cannot fail to grasp his meaning, while he also makes the ground of his convictions readily intelligible. There are chapters on the Duty of Preserving Life, Speaking the Truth, Charity, Rights, Marriage, Property, and the State. The views held are clearly derivable from his premisses, and his objections to the opposite views are clearly stated. The writer knows where he is, and where his opponents are. There is a manifest desire to clear the ground of verbiage, to reduce the points of divergence, and, stage by stage, to reach some place of meeting where the direct issues may be decided. In this connection, we will quote the argument to prove that civil power is of God:—(*a*) Civil society is necessary to human nature; (*b*) Civil power is necessary to civil society; (*c*) Civil power is naught without civil obedience; (*d*) Civil obedience is necessary to human nature; (*e*) God commands whatever is necessary to human nature; (*f*) God commands obedience to the civil power; (*g*) God commissions the civil power to rule. We notice, in conclusion, (1) The writer knows the works of his opponents and quotes them fairly; (2) He refers the reader, with care, to chapter and verse in his references. He gives at the end of each chapter interesting references to further

reading on the subject of the chapter, exactly noting the name of the book, chapter, and section to be read.

The Elements of Mental and Moral Science as applied to Teaching. By W. C. Coupland, M.A., D.Sc. (Joseph Hughes.)—This short sketch of psychology and ethics is written with evident knowledge of the subject. It is rather the work of a psychologist talking to a psychologist; and so, many terms are employed with a conciseness of definition which would be as an unknown tongue to the student who had not yet mastered a good deal of pyschology. Yet students are informed that Mr. Sully, "a lecturer of considerable experience," has written a handbook which is an "expanded" introduction to psychology. Dr. Coupland might have added, for the consolation of the student, that it is also simpler. Yet we are grateful to the writer of this book for the suggestions which he makes in reference to teaching—plain deductions from psychological science. It is pointed out, for instance, that schoolmasters do little or nothing to train the senses of taste and smell—and yet these sensations enter largely into the "legitimate pleasures of life." Other senses, too, it is easy to show, are not fully trained in present systems of education, and the scope for improved teaching in the training of association, memory, the problems of reasoning, imagination, and the will, Dr. Coupland makes very clear. In order of time, it is the first thing for teachers to learn how much more there is to be done before we reach the stage of "building a man." For hunting out our deficiencies we owe thanks to psychologists; but we shall owe still greater thanks to the constructive genius who, recognising our limitations, and the possibility rather than the potentiality of scope, suggests to us the ideal synthesis of training and the means of providing for variations from the type. Meanwhile, teachers who read this book will find much psychology in little space, newly stated, with many valuable suggestions. Sometimes, the author's opinions are too authoritatively stated. For instance, we read (page 102), "The substance of morality must be strictly human. By that I mean that the worth of actions must be determined by the consequences to man himself. . . . The discipline of the mind, at any rate, finds its terminus here." Now, this is in a book which professes to be written, not in the interest of any school of philosophy, but simply to help the teacher. Yet it is no less dogmatically stated than the passage quoted above in the notice of Father Rickaby's book on "Moral Philosophy." The two passages, it will be noticed, are diametrically opposed. When philosophers thus flatly contradict each other's opinions, what are teachers to do? We say—Go on teaching.

Encyclopædic Dictionary. (Cassell & Co.)—The Encyclopædic Dictionary, the earlier volumes of which we have noticed from time to time as they appeared, is now completed. The work has spread itself over nearly seventeen years; and, considering the colossal task, the time cannot be considered as excessive. The entire work comprises 5,629 pages, and the Dictionary contains no less than 180,000 words—a number far in excess of the contents of any other dictionary. A host of well-known men have lent their aid to Mr. Hunter in his gigantic undertaking—among the more celebrated, Prof. Huxley, Sir John Stainer, Mus. Doc., Mr. J. F. Walker, M.A., F.C.S., Lieut.-Col. Cooper King, R.M.A., and Dr. Moir, L.R.C.S. The work has, moreover, been carried on throughout the whole time of its production, that is from 1872 to 1889, under the personal supervision of Mr. John Williams, M.A. Its wide scope will at once be comprehended when it is borne in mind that even technical terms are not excluded from its columns, and that slang terms which have to some extent been sanctified, as it were, by their use in the works of standard authors, find a place. Not only are the meanings of such words given, but concise accounts are added of the things understood by such terms. With the exception of geography and biography the Encyclopædic Dictionary contains all the words found in a first-rate cyclopædia, while the dictionary proper contains not only modern English words, but a nearly exhaustive list of obsolete words from about Chaucer's time to the present, and in addition a complete vocabulary of words to be found in Scott and Burns, the most extensively read authors in Scottish literature. Semi-naturalised words and hybrid compounds, or words made from two different languages, like "inter-loper," which is half Latin and half Dutch, have, as a rule, been inserted. Illustrations have been introduced with unstinting hand, when they have seemed likely to be of use, and many quotations are given to explain more fully the use of words and their meaning. In all these cases, where it has been feasible, the authors' names have been appended, together with the chapter and verse of the works from which the quotations are taken. This has not always been possible, since the quotations are extracted not only from books, but also from daily and other papers. The pronunciation of words, explained by means of symbols whose meanings appear in foot-notes, is the current pronunciation. The history of each word, as illustrated by the changes it has from time to time undergone, is also given. Proper names do not appear in the Encyclopædic Dictionary, unless they have some special allusion or other signification or unless they are the names of any of the books in the Bible. In cases of words derived directly from proper names, a brief account of the person in question is given. As a limit for past time from which words have been selected, the close of the 12th century has been adopted. No attempt is made to introduce phonetic spelling, the current spelling being in all cases adopted, although in some cases, notably of words ending in *-our*, an alternative spelling is given. The author's aim has been to produce not only a complete dictionary of the English language, "but one in which the history of each word should be traced step by step, thus showing in successive gradations the meanings as they rose out of each other, and to illustrate each meaning by quotations from the written or printed language." Mr. Hunter is certainly to be congratulated upon his success.

German Grammars.—(1) *Krause's Deutsche Grammatik für Ausländer. Neu bearbeitet von Dr. K. Nerger. Vierte verbesserte Auflage. (Trübner & Co.)* (2) *A German Grammar for Schools. Part I.—Accidence. By Dr. Kuno Meyer. (Sonnenschein & Co.)* (3) *A Grammar of the German Language, for High Schools and Colleges. By H. C. G. Brandt. Fourth edition. (Boston: Allyn & Bacon).*—Dr. Krause has written a German Grammar for "foreigners of all nationalities," in the German language; chiefly with a view of securing uniformity of instruction in schools where there are pupils of various nationalities. The plan of teaching the grammar of any foreign language in the language itself, is a very judicious one; but three things are required in order that it should be efficient. First, a painstaking teacher who is not too lazy to use his organ of speech, or, as the Germans would say, who is not *maulfaul*; secondly, an intelligent and industrious pupil; thirdly, a short and concise grammar, written in a plain and simple style. The last condition, which seems to us essential, has not been fulfilled by Dr. Krause; his grammar is too diffuse, too complete, and the style is not simple enough for beginners. We should, however, recommend it to teachers of German, more especially to suit one whose knowledge of the language has been principally acquired from the German grammars written in English. The plan of giving the rules in Roman, and the examples in German type, is very commendable. The book is very clearly printed and prettily got up. The second Grammar in our list is by the well-known Gaelic scholar Dr. K. Meyer, of the University College, Liverpool. The author laboured under the disadvantage of having had to stretch his manual on the Procrustean bed of the "Parallel Grammar Series." We do not agree in all instances with the nomenclature adopted by the "Grammar Society;" among others, we do not approve of the omission of the conditional mood in the conjugation of verbs. The part before us purports to contain the "Accidence" of German Grammar, and we are at a loss to understand why the conjunctions, but more especially why the prepositions, should have been omitted. This omission may also be a feature of the "Parallel Grammar Series," but according to our opinion it cannot be justified, whatever ingenious reasons may be given in its defence. A book on German Accidence should certainly give all the information required, say by Second and Third Class candidates in the College of Preceptors' Examinations; but, as the papers set to these Candidates often contain, if I rightly remember, questions on the prepositions, the present manual would not be sufficient for the purpose. It would, undoubtedly, be of great advantage if something like uniformity could be established in grammatical instruction; but, in order to effect this *desideratum*, it would be necessary to secure the approbation of at least the greater majority of teachers and educational authors in this country. Dr. Meyer's explanations of German pronunciation are satisfactory, and the alphabet of German handwriting particularly good. Professor Brandt has introduced in the fourth edition of his German Grammar several improvements. The book will be found useful for the higher instruction in German, and we were greatly surprised to find on the title-page the words "Designed for Beginners."

Last Words to Girls on Life in School and after School. By Mrs. William Grey. (Rivingtons).—The farewell volume of Mrs. Maria Grey is dedicated to the pupils of the Girls' Public Day

School Company and the other school with which her name is associated. Though a veteran, Mrs. Grey is an enthusiastic educationist. She here impresses upon the girls the need of continuing education after school is left. "Anything that can be finished in the few short years of school life must be so poor and mean a thing that it might as well not have been begun." She tells us that these addresses have no pretensions to originality, for they are only the statement of well-known truths and principles, with their application to the everyday life of girls belonging to the educated classes, in school and after school, at the entrance of womanhood She asks and attempts to answer the questions: "Where are we going? What is the use and object of all this school work? How shall we know that we have attained the purpose for which we were sent into the world and then to school?" One part of her answer is as follows: "You are all, from the youngest to the eldest, the poorest to the richest, the dullest to the most brilliant, preparing—do not start at the word—for *service*. There are three leading ideas I would have you start with:—1st, That you are members of a body in which you have a place and work to do; 2nd, That you are intelligent and moral agents, and as such live under a supreme law of duty; 3rd, That your duty at school is to prepare yourselves for the duties of life, the bounden service you owe to your family, to society, to your country, to humanity." Part I. tells of Life in School, formation of habits, moral and intellectual, discipline, studies, religious instruction. Part II. is about Life after School, womanhood, work, play, marriage, profession, single life, women as members of society and of a nation, and their service to humanity. Such addresses to girls are admirable, but we fear that partly from the style in which they are written and partly from their subject-matter, few will read them through.

OUR LIBRARY TABLE.

Elementary Building Construction and Drawing. By Edward J. Burrell, Second Master of the People's Palace Technical Schools. (Longmans & Co.)—This is one of the Science Manuals published by Longmans, Green, & Co. to meet the requirements of the Elementary stage as laid down by the Science and Art Department, South Kensington. It has been compiled from notes of lessons delivered to the students in the day classes at the People's Palace, and is very fully illustrated. All the diagrams are carefully dimensioned, so as to form data for scale drawings. A large number of exercises are given at the end of each chapter, and the examination papers set by the Science and Art Department in Building Construction in the years 1886, 1887, and 1888 are printed at the end of the book. It is a capital text-book, and likely to be largely used.

A History of Greece. By Evelyn Abbott, M.A., LL.D. Part I. From the Earliest Times to the Ionian Revolt. (Rivingtons.) — Dr. Abbott tells us that) though we can add nothing to the existing records of Greek history, the estimate placed upon their value, and the conclusions drawn from them, are constantly changing; and for this reason the story which has been told so often will be told anew from time to time so long as it continues to have an interest for mankind. In one respect, however, there would seem to be but little change of opinion in the course of ages, for Dr. Abbott agrees with Strabo that "ancient historians record much that is fable or falsehood, and hence they frequently disagree when relating the same event." The author reminds his readers on what insecure foundations our knowledge of Ancient Greek history rests. He gives his authorities always, and sometimes the footnotes run something like the following:—"This is from A, who got it from B, who got it from C"—and so on. Discrepancies and contradictions are traced as far as possible. Dr. Abbott is not a theorist in history, and regards even the latest theory with suspicion. The work is closely critical, and is intended for readers who know something both of the Greek language and Greek history. When completed it will be a good work of reference of a size intermediate between such works as Grote's and the smaller text-books.

Practical Surveying. A Text-book for Students preparing for Examination or for Survey Work in the Colonies. By George Wm. Usill, A.M. I.C.E. (Crosby Lockwood & Son.)—A good practical book on this subject sufficiently explicit and also sufficiently concise has been wanted. Each chapter is complete in itself, and the chapters follow in progressive order. The author explains the various instruments required in surveying, their adjustment, their use and manipulation in the field. The first chapter treats of standards of measure, chains, arrows, staffs, etc. The second of reconnoitring, sketch maps, testing the chain. The third explains surveying instruments, viz.:—telescopes, clinometers and prismatic compasses, theodolites, parallel plates, the box sextant, and telemeter. The fourth chapter is devoted to a graphic treatment of trigonometry as applied to surveying, and the succeeding chapters treat of the application of the instruments and methods introduced.

Earth Knowledge. Part II. A Text-Book of Advanced Physiography. By W. Jerome Harrison, F.G.S., and H. Rowland Wakefield. (Blackie & Son.)—This volume is meant to be read in conjunction with Vol. 1, which treats of the more elementary part of the subject. It contains the usual mixture of subjects of which modern physiography is composed, viz., Light, Lenses and Telescopes, Spectrum Analysis, Astronomy, Solar System, &c., and is very clear and accurate.

A College Algebra. By G. A. Wentworth. (Boston: Ginn & Co.)—This Algebra in arrangement, style, printing, binding, has all the superiority which characterises American text-books. The book is bound with a leather back. It looks as if it were meant to be well used, and it deserves to be.

The Art Student's Second Grade Geometry. By John Lowres. Revised and partly re-written by George Brown. (Moffatt & Paige.)—This is a useful book for those preparing for the Second Grade Art Examination in Practical Geometry. The work is carefully written and printed. At the end of each section some useful problems are given for exercise, and, in an appendix, sixty-four others of a more difficult and general description are supplied to test the student's success in mastering the subject.

An Elementary Text-Book of Physiology. By J. M. Gregor-Robertson, M.A., M.B., C.M. (Blackie and Son.)—In this text-book the essential facts and principles of physiology are presented, not in a series of disconnected paragraphs, but woven into a continuous story, so that their meanings and connection may be readily apprehended. At the same time the requirements of candidates for the examinations of the Science and Art Department, and of the Local Examination Boards of the Universities, are steadily kept in view.

Manual of Confirmation, consisting of Addresses delivered to Preparation Classes. Francis Pigou, D.D. (James Nisbet and Co.)—These addresses were written for the purpose of conveying suggestions for conduct on the day of Confirmation, during the service, and after Confirmation. Remembering how evanescent are the best impressions, and how soon the reaction after any season of stirred religious emotion sets in, the author has endeavoured to deepen these impressions by means of addresses delivered to those who have been recently confirmed.

Latin-English Dictionary. By C. G. Gepp, M.A., and A. E. Haigh, M.A. (Rivingtons.)—A good concise dictionary, but very trying to the eyes.

Longmans' Junior School Grammar. By David Salmon. (Longmans & Co.)—This is an excellent introduction to the larger Grammar of Mr. Salmon which we have recently noticed.

Number Cards for Primary Schools. First Series. By Isabel Shove, George Putnam School, Boston, Mass. (Boston: Ginn & Co.) These are simple little problems involving generally numbers up to twenty, applied in the earliest rules only, drawn with very great care. They have a freshness about them which will be appreciated by teachers of young children. The authoress has evidently not been hampered by a Government Code.

The Jubilee Series of Drawing Copy Book. (Bemrose & Sons.)—This series, consisting of seventeen books, has been prepared to meet requirements of the Code in straight lines, freehand, model, geometry, drawing to scale, and shaded drawing in the Standards from I. to VII. The copies are clearly printed on good paper, and are not too difficult for the respective standards. An improvement might be made in Book VI., prepared for Standard IV., as some of the simple models are decidedly out of drawing.

New Editions.

The Elementary Geometry of Conics. By C. Taylor, D.D., Master of St. John's College, Cambridge. Fifth Edition. (Cambridge: Deighton, Bell, & Co.)—The fifth and enlarged edition of the Elementary Geometry of Conics contains a chapter on the imaginary points at infinity through which all circles in a plane pass. Attention is called in a scholum to an apparent failure of the cartesian method to shew that there are two such points only in any plane. This requires some faculty of imagination in the student, but, to those who have the faculty, is always interesting.

Lazare Hoche. "Pitt Press Series." By C. Colbeck, M.A. (University Press, Cambridge.)—With Maps, Introduction, Table of Events, and Notes.

Le Bourgeois Gentilhomme of Molière, forming one of the same series, by Rev. A. C. Clapin, M.A. With Introduction, Notes, and Grammatical Index.

Forbidden Fruit for Young Men. By Major Seton Churchill. (Jas. Nisbet & Co.)—A third edition is now published.

Practical, Plane, and Solid Geometry. By John Carrol. (Burns & Oates.)—Lessons on Areas, Orthographic Projection, and Graphic Arithmetic have been added.

Lexicon of Conversational French. By Alfred Holloway. (George Bell & Sons.)—A second edition.

On Stimulus. By A. Sidgwick, M.A. (Cambridge University Press.)—A second edition.

Xenophon's Anabasis. (Deighton, Bell, & Co.)—A new edition, in four volumes, of the work of J. F. Macmichael, revised by J. E. Melhuish, M.A. Each volume contains a life of Xenophon, well-printed text, ample notes, and maps illustrating the route of the Ten Thousand. Book I., with Introduction and Itinerary. Books II. and III., Book IV., Book V.

Vergil's Aeneid. (Deighton, Bell, & Co.) — Abridged from Prof. Conington's edition, by Professors Nettleship and Wagner, and J. S. Sheppard. In thirteen volumes. The Notes are mainly an abridgment of the larger commentary, but various explanations have been thrown into other forms, to make it more intelligible to boys.

Analecta. Passages of Greek and Latin Authors in Prose and Verse. Selected for translation by John Strachan, M.A., and A. S. Wilkins, Lit.D.,

LL.D., Professors in the Owens College, Manchester. (*Macmillan & Co.*)—For the use of classes in the College. The selections are admirably arranged in the various dialects, the date of each piece being prefixed.

The Republic of Plato. Books I.—V. By T. H. Warren, M.A., President of St. Mary Magdalen College, Oxford. (*Macmillan & Co.*)—The Notes are excellent, the Introduction complete.

Latin Prose Primer. By J. Y. Sargent, M.A. (*Clarendon Press.*)—A suitable book for beginners, being an introduction to "Easy Passages for Translation into Latin," by the same author.

Horace's Odes. Englished and Imitated by Various Hands. Selected and Arranged by Charles W. F. Cooper. (*George Bell & Sons.*)—The volume is divided into two portions; the first contains a translation of the Odes by poets of the 17th and 18th centuries. The second portion includes burlesques, political and social satires and poems, which owe their beauty of thought or felicity of expression to the direct inspiration of an Ode of Horace.

The Phædrus, Lysis, and Protagoras of Plato. Translated by J. Wright, M.A. (*Macmillan & Co.*)—Is a valuable addition to the Golden Treasury Series.

Xenophon's Œconomics.—A translation of one of the books appointed to be read by those who are preparing for the B.A. Examination of the University of London. Published at the University Correspondence College Office, Cambridge.

Plutarch's Morals. Ethical Essays. Translated by A. J. Shilleto, M.A. (*George Bell & Sons.*)—One of the series of Bohn's Classical Library, with notes and index.

La Bataille de Trafalgar and *Un Drame de la Mer.* Two small volumes published by *Hachette & Co., by A. de Lamartine and A. Dumas* respectively, *Edited by the Rev. A. C. Clapin, M.A.*, especially adapted for use in naval schools and colleges. Nautical terms and phrases abound, and have particular attention paid to them.

Montesquieu's De la Grandeur des Romains et de leur Décadence. By Paul E. E. Barbier. (*Hachette & Co.*)—With biographical notice, explanatory notes, geographical and historical index, maps and vocabulary.

Malot's Capi et sa Troupe. By F. Tarrer, M.A. (*Hachette & Co.*)—Contains an account of Malot's works, with life, notes, and vocabulary.

Zola's L'Attaque du Moulin. By F. Julien. (*Hachette & Co.*)—Excellently arranged in short paragraphs, the notes are enlarged by the addition of grammatical questions and sentences for translation into French, from points arising in the text.

A Treatise on Elementary Algebra and Algebraical Artifices. Vols. I. and II. By S. Ray, M.A. (*S. K. Lahiri & Co., Calcutta.*)—The utility and application of Algebraical Artifices are admirably brought out in these volumes. The examples for exercise are very complete.

Longmans' Junior School Arithmetic, Mental and Practical, is published with or without answers. Papers set in recent examinations are added.

Alternative Elementary Chemistry. By J. Mills, with a preface by Professor Koope. (*Sampson Low & Co.*)—A course of lessons adapted to the requirements of the new Syllabus of Chemistry recently instituted by the Science and Art Department, with examination papers.

Lessons on Elementary Mechanics. Stage I. By W. H. Griere. (*Longmans & Co.*)—Specially adapted to the requirements of the Revised New Code. Questions follow each chapter. The different types used in the printing bring out all important points boldly. The illustrations are well executed and intelligible.

Companion to Hamblin Smith's Algebra. By W. F. Pelton, M.A. (*Rivingtons.*)—The innovations come under seven headings, and the reasons for making them are given in the preface. The examples are selected from examination papers.

The English Church in the Middle Ages. By the Rev. W. Hunt, M.A. (*Longmans & Co.*)—The subject is dealt with in narrative form. The book is intended to illustrate the relations of the English Church with the Papacy and with the English state down to the revolt of Wyclif against the abuses which had gathered round the ecclesiastical system of the Middle Ages, and the great schism in the Papacy which materially affected the ideas of the whole of western Christendom. Lists are given of the Archbishops of Canterbury and of the Bishops and Archbishops of York to 1377.

The Story of Genesis. By Frances Younghusband. (*Longmans & Co.*)—Told in simple language for children.

Through Fire and Through Water. By the Rev. T. S. Millington. (*The Religious Tract Society.*)—A story of the boy who would be a sailor, the perils he encountered and the adventures he met with among pirates and Arabs, his imprisonment in Algiers and the bombardment of that town in 1816.

Garry's Elocutionist. (*Marcus Ward & Co.*)—Selections in prose and verse adapted for recitation and reading, with introduction. Many of the selections are quite new.

The Tragedy of King Lear. Shakespeare. (*Blackie & Son.*)—With notes. A reading book for upper classes, called into existence by recent changes in the education code, supplying the basis of a year's study of English, and the necessary lines for repetition.

Milton's Sonnets. (*University Correspondence College Office, Cambridge*).—This book will be a great help to those who are preparing for the forthcoming Intermediate Examination in Arts at the University of London.

A Sketch of the First Principles of Physiography. By John Douglas. With Maps, Illustrations, and Tables. (*Chapman & Hall.*)—The book is divided into four parts which deal with—I. Force; II. Constitution of the Earth; III. The work of Solar Energy; IV. The work of Secular Contraction.

Handbook to the Code of Examinations of the Teacher's "Vade Mecum" Series. Standard I. Chambers's Expressive Readers. Part I. (*Heywood.*)—Examinations and questions in Spelling, Geography, and Mental Arithmetic given by H.M. Inspectors. Large type. Neatly illustrated writing lessons on imitation blackboards are at the end of each reading lesson. Part 2 is more advanced, but is without the writing exercises.

Teaching as a Career for University Men. By J. J. Findlay, M.A. With a Prefatory Note by A. Sidgwick, M.A. (*Rivingtons.*)—The book treats of the nature of a schoolmaster's work, a system of apprenticeship, the qualifications of a schoolmaster, and the departments and grades existing in school.

History of Music for the Use of Students. By the Rev. H. G. Bonavia Hunt, Mus.D., F.R.S.E. Ninth Edition, Revised to Date. (*George Bell & Sons.*)—Since its first edition this work has received many corrections and additions, and it now forms a complete and concise history from the commencement of the Christian era to the present time.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending January 31st, 1889.

Bailey's (J.) How to Teach the Babies, cr. 8vo, 2s. 6d. cl.
Bled (V. du): Les Causeurs de la Révolution, 3fr. 50.
Bloch (I.): Inscriptions des Cimetières Israélites d'Alger, 5fr.
Bradshaw's (J. G.) A Course of Easy Arithmetical Examples, 12mo, 2s. 6d. cl.
Browning's (R.) Poetical Works, Vol. 10, 12mo, 5s. cl.
Chronicle of Henry VIII. of England, written in Spanish by an Unknown Hand, trans. by Hume, cr. 8vo. 6s. cl.
Coignet's (C.) Francis I. and his Times, translated by F. Twemlow, 8vo, 14s. cl.
Drew's (C. L.) Through the Woolwich Courses, 12mo, 3s. cl.
Dyer's (T. F. T.) The Folk-lore of Plants, cr. 8vo, 6s. cl.
English History by Contemporary Writers: The Crusade of Richard I., 1189-92, selected, &c., by T. A. Archer, 2s. cl.
Geary's (C.) In other Lands, cr. 8vo, 3s. 6d. cl.
Gosse's (E.) History of Eighteenth Century Literature (1660-1780), cr. 8vo, 7s. 6d. cl.
Graphic (The) Gallery of Shakespeare's Heroines, with Stories of the Plays by W. E. Henley, fol., 105s. leather.
Homer's Iliad Done into English Verse, by A. S. Way, Vol. 2, sm. 4to, 9s. cl.
Homer's Odyssey, Book 10, with Introduction and Notes by G. M. Edwards, 12mo, 3s. 6d. cl. (Pitt Press.)
Kaye and Malleson's History of the Indian Mutiny, 1857-8, Cabinet Edition, Vol. 2, cr. 8vo, 6s. cl.
Knox (John), Life and Times of, by Rev. R. W. Gosse, 2s. 6d. cl.
Krause (K. C. F.): Abriss der Philosophie der Geschichte, 4m.
Lang's (A.) Letters on Literature, cr. 8vo, 6s. 6d. cl.
Longmans' School Arithmetic, by F. E. Marshall and J. W. Welsford, cr. 8vo, 3s. 6d. cl.
Lucreti Cari de Rerum Natura Liber Quintus, edited, with Notes, by J. D. Duff, 12mo, 2s. cl.
Macaulay's (Lord) History of England, Popular Edition, 2 vols. 5s.
Macaulay (Lord), Life and Letters of, by the Right Hon. Sir G. O. Trevelyan, Popular Edition, cr. 8vo, 2s. 6d.
Macaulay's (Lord) Miscellaneous Writings and Speeches, Popular Edition, cr. 8vo, 2s. 6d. cl.
Morley's (H.) English Writers, Vol. 4, Bk. 1, cr. 8vo, 5s. cl.
Müller (I.): Handbuch der Klassischen Altertums-Wissenschaft, 10 Halbbd., 5m. 50.
Nauroy (C.): La Duchesse de Berry, 3fr. 50.
Oliver's (Rev. G. W.) Typical Sentences, or Aids to Latin Composition, 8vo, 2s. cl.
Paulsen (F.): System der Ethik, 2 Parts, 11m.
Plinii Cæcilii Secundi Epistolæ, &c., edited, with Notes, &c., by E. G. Hardy, 8vo, 10s. 6d. cl.
Posselt's (E. A.) Technology of Textile Designs, 4to, 28s. cl.
Pressensé (F. de): L'Irlande et l'Angleterre, 1800-88, 7fr. 50.
Short (F.) On the Making of Etchings, 4to, 5s. bds.
Smith's (C.) Solutions of the Examples in a Treatise on Algebra, cr. 8vo, 10s. 6d. cl.
Sonnenschein's Cyclopædia of Education, arranged and edited by A. E. Fletcher, roy. 8vo, 7s. 6d. cl.
Sonntag's (C. O.) Practical French Grammar, 12mo, 2s. cl.
Stock's (St. G.) Deductive Logic, 12mo, 3s. 6d. cl.
Stranahan's (C. H.) History of French Painting, roy. 8vo, 21s.
Targum on Isaiah, i.-v., with Commentary by H. S. Lewis, 5s.
Thornton's (F. Du Pré) Elementary Arabic, cr. 8vo, 3s. 6d. cl.
Whittier's (J. G.) Works, Vol. 3, cr. 8vo, 6s. cl.
Wood's (D.) Handbook of the Greek Method (of Design), 2s. 6d.
Xenophon's Agesilaos, erklärt v. O. Güthling, 1m. 50.

CORRESPONDENCE.

We have received several letters respecting recent examinations:—

From "M.A.," London:—"The third-class Euclid paper set by the College of Preceptors, December 6th, contained the following rider: 'Within the triangle ABC are two points D and E, and the lines AD, DE, EB are drawn: show that these three together are less than AC, CB together.' Is it fair to ask

boys to prove the truth of a proposition which can be as easily proved to be untrue ?" The question is certainly not clear. It is evident that the examiner's intention was to exclude re-entering angles, but the proposition requires amplification and probably a figure to make it clear.

From "Time," on the impossibility of doing the mercantile arithmetic paper in the time allowed. "Time" cannot have read the instructions at the head of the paper.

From "Conditio":—"In reference to the subject of dynamics, the candidates are allowed only 1½ hours for this usually hard paper. I have heard an Oxford M.A. say he could not finish the eight questions in the prescribed time!! This paper is, in fact, always very hard and puzzling. I, therefore, think that candidates ought to be allowed at least two hours for its working."

From "Neptune," on "Hints for Schools near the Coast," which we are obliged to reserve for want of space.

EDUCATIONAL NOTES AND SUMMARY.

The new position of Euclid in examinations was the chief subject for consideration at the fifteenth general meeting of the Association for the Improvement of Geometrical Teaching, which was held on Saturday, January 19, in the council room of University College, London, Mr. R. B. Hayward, M.A., presiding. The report of the Council, which was read by the joint-secretary, Mr. E. M. Langley, M.A., recorded the success of the Association in its efforts in this direction. The Universities of Oxford and Cambridge and the Civil Service Commissioners, it appears, now regulate their examinations so that the student need not give Euclid's proofs of his propositions, but may adopt any other geometrical proofs, provided Euclid's sequence be not departed from. Attention was also drawn in the report to some principles which are set forth in the prospectus of the Technical College, Finsbury, with reference to the entrance examinations, as an example of what may be done by an examining body in the way of encouraging sound mathematical teaching. After the report, which also indicated the work of the committees on the various branches of geometry, had been adopted, Mr. Hayward resigned the presidency, and the post was conferred on Prof. G. M. Minchin, M.A., Professor of Applied Mathematics in the Royal Indian Engineering College at Cooper's-hill. Mr. Hayward, who is a master at Harrow, has been president for 11 years past, and several members spoke warmly of his having been the life and soul of the Association. In the course of his valedictory address the retiring president remarked that, though they had not quite attained the expectations of some of their more ardent reformers, still they had met with a fair measure of success. Their influence was rather indirect than direct, and it must be expected that their advance would be, while steady, yet comparatively slow. In the place of Mr. Moulton, Q.C., Mr. Hayward has been elected a vice-president; while the other vice-presidents—the Rev. G. Richardson, M.A., of Winchester College, Mr. R. Levett, M.A., Mr. R. Tucker, M.A., and the hon. secs., Mr. E. M. Langley, Modern School, Bedford, and Mr. C. Pendlebury, St. Paul's School, retain their posts. One interesting feature in the meeting was the production of a printed work in Japanese founded on the society's book on Geometry, by D. Y. Kikuchi, Professor of Mathematics in the University of Tokio. After luncheon the new President (Professor Minchin) read an interesting paper on "The Vices of our Scientific Education." In his opinion nearly all our examinations were much too difficult—beyond the mental and physical abilities of those examined. In speaking of the excessive haste with which students are pushed on through various branches of science, he ridiculed particularly the numerous subjects set for the London Matriculation examination. He proceeded to illustrate the want of thoroughness, which he regarded as prominently characteristic of many of our elementary books on mathematical physics. What he advocated was a more thorough and leisurely study of pure mathematics before the study of physics. After having dilated at some length on some mathematical points in connexion with this, the Professor directed attention to the way in which the "cramming" of science is encouraged by examinations. In his view, however, the defects of our educational system are almost wholly due to the shortcomings either of individual examiners or of the directors of education. Instead of an examination being in itself an evil, every good examination is, he contended, in itself a good, inasmuch as it puts to the test the result of the student's study, shows him the extent to which he has command of his subjects, points out where his study of the bearing of some principle has been hasty and superficial, and where, consequently, his grasp of it is really feeble. In conclusion, the Professor noticed that both our examiners and our teachers are appointed without any guarantee as to their capacity to examine or to teach. In the course of a discussion which followed, the Rev. J. M. Wilson, Head-master of Clifton College, suggested that the society would do well to approach the London University with regard to improving its Matriculation examination. In this examination the paper on mechanics was, he said, very bad, and that on English was one of the greatest curiosities he had ever seen.

An interesting ceremony took place at the Borough Road Training College on Friday, January 18th. The newly-appointed principal, Mr. P. A. Barnett, M.A., Oxon, gave his inaugural address. He was supported on the platform by Mr. A. J. Mundella, M.P. for Sheffield, the town in which Mr. Barnett has been professor for the last six years, Dr. Abbott, in whose school Mr. Barnett was educated, Dr. Wormell, Mr. Buxton, the Hon. L. Stanley, Mr. Rowland Hamilton, Mr. West, and other members of the Committee of the British and Foreign School Society. Mr. Bourne, the Secretary, read the annual report recounting the work under difficulties which had been accomplished in the past year, referring to the appointments of principal, vice-principal (Mr. E. Barkby, B.A.), and tutor (Mr. Hugh Miller). The announcement of these names were received with great enthusiasm by the students, particularly that of Mr. Barkby, the vice-principal, which was received with continued and prolonged applause.

"The Chairman, in opening the proceedings, said they were met not only to welcome back the old students and the new men, but also to give a welcome to their new principal and new tutor. After referring to the distinguished career of these two gentlemen, the right hon. gentleman proceeded to speak of what was likely to be the future scheme of education. They must utilise the school life of their children, and have more and better teachers. He did not wish it to be thought that he accused the present staffs of any want of readiness or capacity, but he said that the great mass of teachers had not been properly trained; and, as the question which affected the training of teachers must be changed by the Legislature, there was no reason why the next code laid upon the table of the House, within six weeks at the furthest, should not prescribe that henceforth there should be great and important changes in the training for pupil teachers and the certificated teachers throughout the country. Therefore, he hoped that the next revision would be on the lines of a larger staff and a better class of teachers; and he believed that they would not be dissappointed in the hope, that those teachers who did not go through training colleges would gradually come to an end, and that all teachers henceforth should be trained. He did not say that the teachers would be trained in training colleges like the one they were then in, but that they would have day training schools to supplement the residential colleges for day students. He hoped also that they would be able to arrange for the students having a third year of study. He was sure that some of them had in their minds the system of percentages, and they were a little afraid of Her Majesty's inspectors; but he would warn them of the danger of changing King Log for King Stork. If they got rid of percentages and went entirely upon the judgment of Her Majesty's inspectors, they might tumble from the frying-pan into the fire. He hoped they would have much less mechanical, and much more trained teaching, and fewer mechanical examinations. When he tried to diminish the number of examinations he was met with great opposition; but he still held that a child under the third standard should not be subjected to an individual examination. They had tried that principle, however, in Scotland, and found that it succeeded very well. All these changes could only result in one thing—namely, a great future for the best and most successful students in all their training schools."

Mr. Barnett then delivered an interesting inaugural address on the methods of study he recommended and the lines on which he hoped to work. Dr. Abbott, Mr. L. Stanley, and Dr. Wormell then addressed the students, and the proceedings terminated with the distribution of prizes.

A sensible speech was recently delivered at Capetown by Sir Hercules Robinson, the Governor, High Commissioner, and Commander-in-Chief of Cape Colony, on the occasion of the annual distribution of prizes at the South African College. After commenting with satisfaction on the fact that the College has turned out year by year an amount of good and solid work unsurpassed by any other educational institution in South Africa, Sir Hercules remarked that when invited to be present and deliver an address, he resolved to avoid platitudes and conventional admonitions. "All that I have to offer is such friendly counsel about common things as a man who, without the advantage of a University training, has had fifty years of worldly experience may be able to give to those just entering life." He said that it was quite an exception to find

persons who can read aloud clearly and agreeably, and who write a large and distinct hand; yet these simple accomplishments, which he earnestly recommended, are easily acquired in youth, and possess undoubtedly greater value than many more pretentious items of education. The Governor proceeded next to admonish his hearers that the preservation of health is seldom valued aright by the young. Yet it is essential, he added, to sustain application in any direction, and, as a rule, to all good work. In taking exercise, moreover, the dull "constitutional" is severely denounced by Sir Hercules, who recommends to the young boating, cricket, football, or any healthy outdoor amusement. In addition to manly amusements, he advised them to create for themselves some special intellectual interests outside their professional pursuits. "I do not know anything which has more promoted my enjoyment in life than the knack of drawing, which I acquired between the ages of twelve and twenty. It helped me to carry off the prizes at Sandhurst in surveying and fortification; and by cultivating my faculties of observation it has enabled me to see, and more fully to enjoy, the beauties of Nature." "Keep a common-place book," says Sir Hercules; "I have done so for more than a third of a century, and have found it useful and interesting." It is refreshing, he adds, to look back to entries made thirty years since, some of which now appear "flabby and flatulent," but serve at least to remind their maker of the books he has read and the tracts of thought he has traversed. Perhaps the best thing about them is, however, that they help to cultivate in the young admiration and reverence, in which the present age is so lamentably deficient.

The University Students of Paris have inaugurated their new head-gear—consisting of a voluminous black velvet cap, or *béret*, which drops with more or less grace over the right ear—in a procession through the city. Six hundred young men belonging to the different faculties have paid a visit to Montmartre for the purpose of displaying the novelty to the working classes of the neighbourhood. They were escorted by a score of policemen, and conducted themselves in a gay and festive manner; but there was not the slightest disturbance, and the inhabitants of the Democratic quarter seemed flattered at the attention. The members of the different faculties are distinguished by the colour of the bands at the base of their *bérets*. Thus the law students wear one of scarlet, their pharmaceutical *confrères* a green one, science rejoices in vermilion, medicine in crimson, Fine Arts in orange, Protestant theology in blue, and the school of oriental languages in gold, while simple yellow marks the students at the faculty of letters.

In spite of the warning that the London School Board have had recently of the limitation of their functions, by the Government Auditor disallowing certain items of expenditure, the present Board seem very desirous of widening the scope of its activity. The lesson taught has not been learned with much profit if the Board are still bent on going outside their statutory powers. That some members are ever urging the Board to undertake work outside their functions the free dinner debate recently disclosed. Mr. Conybeare's motion was carried by 33 against 13, although some of the most experienced members of the Board, including Miss Davenport Hill and Dr. Gladstone, were in the minority. The great danger of the Board even indirectly helping the free dinner movement, is the unmanageable proportions to which it is only too likely to grow in a short space of time. The weakening of parental responsibility is a very ugly accompaniment of the education of the children. If free dinners are the logical sequence of free and compulsory education, free clothes must follow. The School Board would do well to attend to their plain duties, and leave to the legislature the treatment of the social problems that loom ominously in front of us, and which, if not skilfully and betimes dealt with, may imperil our social stability.

The Annual Congress of the Educational Institute of Scotland was held in the Public Hall, Albert Place, Stirling, on Thursday and Friday last. There was a large attendance of members from all parts of the country, and much interest was taken in the proceedings. Mr. Alexander Thomson, F.E.I.S., Headmaster of George Watson's College for Ladies, Edinburgh, is President of the Institute. The President and officials wore their robes of office. The President's Address was very suggestive throughout. It anticipated much of what was discussed in the subsequent papers; and looked at Code questions from the standpoint of a secondary teacher. On the subject of State Aid to Secondary Schools, the President spoke as follows:—

"Taking into consideration the provision made for primary education, it would appear that the Government has been greatly influenced by the idea that it is sufficient, or, at least, only necessary, to provide for the education of one class—represented by the working man. In doing so, it has made it barely, if at all, possible for private parties to supply the educational wants of others. Efficiency and profit cannot go hand in hand, and the consequence is that even the higher classes are less well provided with a suitable education for their children. It can hardly be denied that those who pay most of the rates for education have quite as good a right to be considered as any who are at present provided for. The education they may require for their children may be more extended and of a higher kind than that given in the primary schools; but that is no reason for excluding them from the benefits of a national system. Some think they should either take advantage of the primary schools or provide for themselves; some think that the rich have no right to send their children to these schools at all, and for them to do so is like taking advantage of a charity. The truth is that all have an equal right to take advantage of the public schools, and the more this can be done the better for all classes. It is an altogether different matter, however, to say that the children of all classes must sit on the same form and do the same work. Regard should be had to the extent to which education is to be carried, and the positions which are to be filled in after life; and it will be found that all cannot afford sufficient time to go over the ground required. It would be but simple justice to make equal provision for building and maintenance from rates and grants for all classes of children, and where higher class schools are required, let the higher education be paid for by higher fees. There could be no disgrace implied, and no jealousy need be raised, by each one choosing a school suitable to his ability to pay for his children. There is no thought of receiving charity in attending the University or the High School, although no rent is charged in either case, and both receive Government or municipal grants, not to mention grants from the rates."

Our contemporary the *Lancet* gives us less definite advice in the matter of "Juvenile Punishment" than we have a right to expect from the organ of the medical faculty. Our readers will not, we fear, be much enlightened by the following:—

"The best safe-guards against an abuse of authority should be sought for in arrangements which prohibit indiscriminate cuffing and the use of any but the lightest available instruments of punishment; care, too, must of course be taken to apply them with some regard for moderation, and at parts where no brutal harm can result. It is from no want of kind feeling that we advocate a moderate exercise of those old methods of school discipline whose efficiency experience has proved. On the contrary, it is evident that the absence of such training simply implies a surrender of our duty to the diligent and orderly, in our vain efforts to preserve the ill-conducted. Just, needful, instructive, and preventive often of greater misconduct afterwards, such timely and considerate punishment as we have described is merciful also. With some exceptions in favour of delicate or merely slow children, its general employment cannot fairly be objected to. But it is unquestionably necessary that the power of exercising such punishment should be restricted to responsible persons, and not delegated to the hands of emotional or inexperienced underlings."

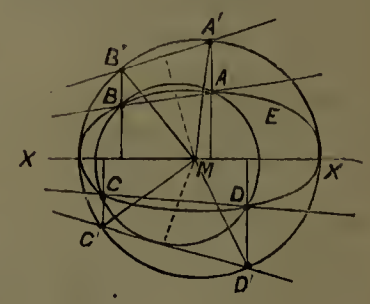
"Underlings" is hardly a happy description of the men and women who perform the work of our schools as the colleagues of headmasters or headmistresses.

Messrs. Cassell and Co. are issuing, in monthly parts, a popular edition of "The Story of the Heavens," by Sir Robert S. Ball, the Royal Astronomer of Ireland. The work, which is well printed on good paper, will be completed in eighteen parts. With Part I., which we have just received, a star map is give.

MATHEMATICS.

9892. (Professor Sylvester, F.R.S.)—Prove that, if any triangle of maximum area be inscribed in an ellipse, then the circle circumscribing it, the circles of curvature to the ellipse at its apices, and the ellipse itself will all five intersect each other in one and the same point.

Solution by Professors Schoute, Wolstenholme, *and others.*

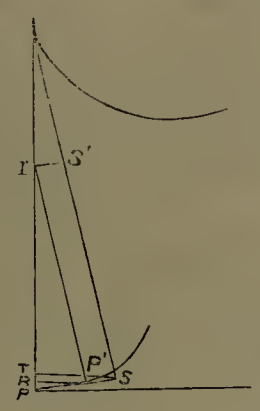


When A, B, C, D are four concyclic points of an ellipse E, the chords AB and CD are equally inclined on the arc XX. So, when E is considered as the orthogonal projection of a circle, the chords A'B' and C'D', of which AB and CD are the projections, admit the same property. This proves (see the equally inclined dotted lines that bisect the angles A'MB' and C'MD') that the sum of the eccentric angles of the four points A, B, C, D is a multiple of 2π. [The rest in volume.]

9901. (Professor WOLSTENHOLME, M.A., Sc.D.)—In a certain curve, the tangent line at a point Q is normal at P; prove that the *orthoptic locus* of the curve (locus of intersection of tangents at right angles) will touch the curve at P, and that its radius of curvature at P will be $QP^2/(QP+QI)$, where I is the centre of curvature of the curve at P. [Sign to be observed in the denominator.]

Solution by W. E. BRUNYATE; Prof. MATZ, M.A.; *and others.*

P is plainly a point on the locus. Let the consecutive tangent at Q meet the corresponding tangent at P′ in S. Then IP′ is parallel to QS. Draw P′R, ST perpendicular to PQ, and IS′ perpendicular to QS. Let $\angle PIP' = \phi$. Then in the limit S plainly moves up and lies on the tangent at P, or the locus touches the curve at P, and, if ρ be the radius of curvature,



$$\rho = \text{Lt}\,\frac{ST^2}{2PT} = \text{Lt}\,\frac{QP^2\phi^2}{2PT}.$$

But $PT = PR + RT$

$= PR + \text{projection of } IS' \text{ on } QP$

$= \frac{1}{2}PI\phi^2 + QI\phi^2,$

$$\therefore \quad \rho = \frac{PQ^2}{PI+2QI} = PQ^2/(QP+QI);$$

attention being paid to the sign of QI.

9930. (CH. HERMITE, Membre de l'Institut.)—On donne les deux relations

$$\begin{vmatrix} a, & a', & x \\ b, & b', & y \\ c, & c', & z \end{vmatrix} = 0, \quad \begin{vmatrix} a, & a', & x' \\ b, & b', & y' \\ c, & c', & z' \end{vmatrix} = 0;$$

on propose d'en déduire les suivantes

$$\begin{vmatrix} a, & x, & x' \\ b, & y, & y' \\ c, & z, & z' \end{vmatrix} = 0, \quad \begin{vmatrix} a', & x, & x' \\ b', & y, & y' \\ c', & z, & z' \end{vmatrix} = 0.$$

Solution by THOMAS MUIR, LL.D.; R. H. W. WHAPHAM, B.A.; *and others.*

$$\begin{aligned} \text{Dat.} \quad & x \mid bc' \mid + y \mid a'c \mid + z \mid ab' \mid = 0, \\ \text{dat.} \quad & x' \mid bc' \mid + y' \mid a'c \mid + z' \mid ab' \mid = 0; \\ \text{ident.} \quad & a \mid bc' \mid + b \mid a'c \mid + c \mid ab' \mid = 0; \end{aligned}$$

therefore

$$\begin{vmatrix} x, & y, & z \\ x', & y', & z' \\ a, & b, & c \end{vmatrix} = 0.$$

It is worth noting that the first two determinants and either of the others are connected by a linear relation, viz.,

$$0 = \begin{vmatrix} a, & a' \\ b, & b' \end{vmatrix} \begin{vmatrix} a, & x, & x' \\ b, & y, & y' \\ c, & z, & z' \end{vmatrix} - \begin{vmatrix} a, & x \\ b, & y \end{vmatrix} \begin{vmatrix} a, & a', & x \\ b, & b', & y \\ c, & c', & z \end{vmatrix} + \begin{vmatrix} a, & x' \\ b, & y' \end{vmatrix} \begin{vmatrix} a, & a', & x \\ b, & b', & y \\ c, & c', & z \end{vmatrix},$$

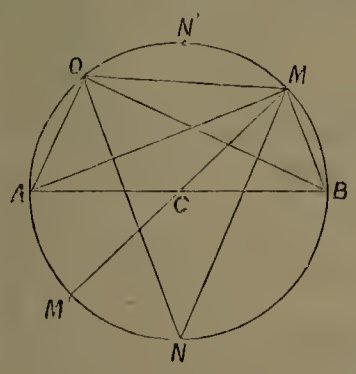
and that the required result follows from this at once when $|a, b'| \neq 0$.

[The rest in volume.]

9748. (Professor MANNHEIM.)—On donne un angle droit de sommet O. On décrit une circonférence passant par O, et l'on prend, sur cette courbe, un point M tel que les angles, compris entre les droites partant de ce point et aboutissant aux extrémités du diamètre qui contient O, aient pour bissectrices des parallèles aux côtés de l'angle donné. On demande le lieu de M, lorsqu'on fait varier la circonférence.

Solution by J. C. ST. CLAIR; BELLE EASTON; *and others.*

If the circle may vary both in size and position, there is *no* locus of the point M. For, taking *any* point M, upon OM describe a segment of a circle containing an angle = 45°. Let it meet the sides of the given angle in A, B, and the bisector in N.



Then AON = 45° = ONM,

therefore MN, which bisects AMB (since arc AN = arc BN), is parallel to OA. Therefore for *every* point M a circle may be drawn through O, so that the conditions of the problem are fulfilled.

[The rest in volume.]

8458. (W. J. GREENSTREET, B.A.)—A conic is inscribed in a triangle, and is such that the normals at the points of contact are concurrent. Find the locus of the point of concurrence, and show that the same cubic is the locus of the point of concurrence of normals drawn at the points of contact of the conic circumscribed about the triangle.

Solution by G. G. STORR, M.A.; Rev. T. GALLIERS, M.A.; *and others.*

Let $\quad L^2\alpha^2 + M^2\beta^2 + N^2\gamma^2 - 2MN\beta\gamma - 2NL\gamma\alpha - 2LM\alpha\beta = 0$.....(1)

be the equation of the inscribed conic touching BC, CA, AB in D, E, F respectively. At D, $\alpha = 0$; hence, from (1), $M\beta - N\gamma = 0$.

Let $\quad l\alpha + m\beta + n\gamma = 0$.....(2)

be the equation of the normal at D; then, since this line is perpendicular to $\alpha = 0$, $l - n\cos B - m\cos C = 0$, and since it passes through D, $mM + nN = 0$; hence

$$m : n = M : N, \quad l : n = (N\cos B - M\cos C)/N.$$

Substituting in (2), the equation of the normal at D becomes

$$M(\beta + \alpha\cos C) = N(\gamma + \alpha\cos B);$$

similarly $\quad N(\gamma + \beta\cos A) = L(\alpha + \beta\cos C)$

and $\quad L(\alpha + \gamma\cos B) = N(\beta + \gamma\cos A)$

are the equations of the normals at E and F. Eliminating L, M, and N between these three equations, the equation of the locus of concurrence becomes

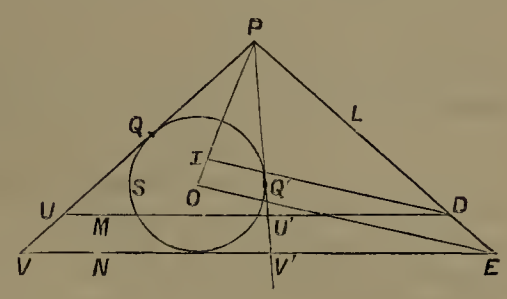
$$\alpha(\beta^2 - \gamma^2)(\cos A - \cos B\cos C) + \beta(\gamma^2 - \alpha^2)(\cos B - \cos C\cos A) + \gamma(\alpha^2 - \beta^2)(\cos C - \cos A\cos B) = 0.$$

[The rest in volume.]

9912. (J. C. MALET, F.R.S.)—L and M are two right lines and S a circle, all situated in the same plane. If from a variable point on L two tangents be drawn to S, prove that the locus of the in-centre of the triangle formed by these tangents and the line M is a right line through the intersection of L and M.

Solution by R. F. DAVIS, M.A.; *and* Prof. WOLSTENHOLME, M.A., Sc.D.

Let O be the centre of S. From any point P in L draw the tangents PQ, PQ′ meeting M in U and U′, and a tangent N (parallel to M) in V and V′ respectively. Also, let M, N meet L in D, E respectively. Then I, the in-centre of the triangle PUU′, lies on OP, and is such that



PI : PO = PU : PV = PD : PE.

[The rest in volume.]

9899. (Professor HAIN.)—Soient A′, B′, C′ les symétriques d'un point quelconque P par rapport aux trois cotés d'un triangle ABC. (1) Lorsque P coïncide avec le centre d'un cercle tangent aux trois côtés de ABC, les droites AA′, BB′, CC′ concourent en un même point. (2) Lorsque le triangle ABC est équilatéral, les droites AA′, BB′, CC′ concourent en un même point, quel que soit le point P. *Corollaire.*—Dans tout triangle équilatéral, les symétriques, par rapport aux cotés, des droites joignant les sommets opposés à un même point, concourent également en un même point.

Solution by Professor SCHOUTE.

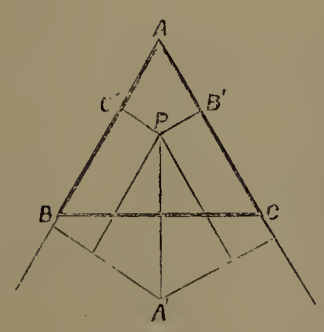


Fig. 1.

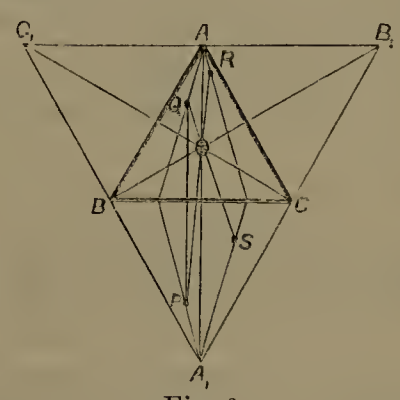


Fig. 2.

When A′ (Fig. 1) is the symmetrical point of P (x_1, y_1, z_1) with reference to BC, the normal coordinates of A′, as the figure shows, are

$$-x_1, \quad y_1 + 2x_1\cos C, \quad z_1 + 2x_1\cos B.$$

So the equation of the line AA′ is $y(z_1 + 2x_1\cos B) = z(y_1 + 2x_1\cos C)$.

[The rest in volume.]

9920. (FREDERICK PURSER, M.A.)—In a given quadrilateral is inscribed a fixed conic U, while a variable conic V is circumscribed to the same quadrilateral. Show that four of the chords of intersection of the fixed conic U with the varying conic V always touch a fixed conic S which is inscribed in the original quadrilateral.

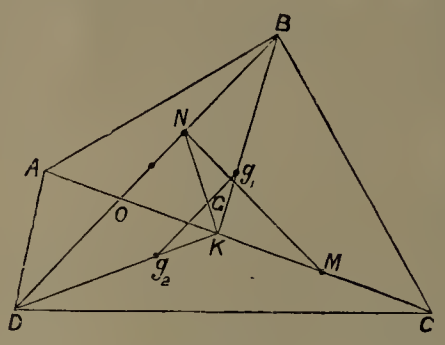
Solution by W. S. MCCAY, M.A.; *and* Prof. WOLSTENHOLME, Sc.D.

Let a variable circle pass through the foci F, F′ of a conic cutting it in two chords PP′, QQ′ parallel to the axis, and cutting the transverse axis in S, S′; the chords PQ, PQ′, P′Q, P′Q′ touch a fixed confocal. It is at once seen that those chords are equally inclined to the focal vectors from P, P′, for S′ is the middle point of the arcs FF′, QQ′ on the circle. Let y_1, y_2 be the ordinates of P, Q, and C the centre of the conic. Then

$y_1 . CS = b^2$, $y_2 . CS' = b^2$, since SP, SQ are tangent and normal, and PP′ the polar of S, therefore $y_1 y_2 = b^4/c^2$ = constant; but, for the four points F, P, F′, Q on a circle, the product of perpendiculars from PQ on FF′ is equal to the product of perpendiculars from FF′ on PQ, hence the axis minor of the confocal is fixed. [The rest in volume.]

9840. (Professor Abinash Basu.)—ABCD is a quadrilateral, and O the point of intersection of AC and BD. From CO cut off CM equal to AO, and from BO cut off BN equal to DO. Prove that the centroid of the quadrilateral coincides with that of the triangle OMN.

Solution by Rosa H. Whapham, B.A.; Sarah Marks, B.Sc.; *and others.*



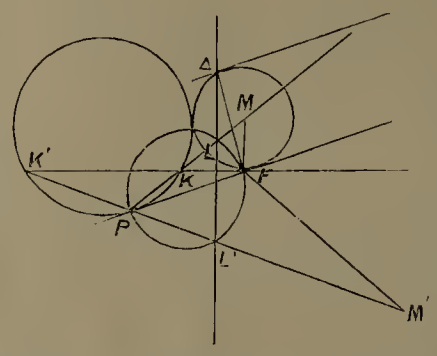
Let K be the mid-point of AC; g_1, g_2 the centroids of triangles ABC, ADC. Join $g_1 g_2$; then $g_1 g_2$ is parallel to BD. Join NK, meeting $g_1 g_2$ in G; therefore G is centroid of OMN. Now

$$g_1G = \tfrac{1}{3}BN = \tfrac{1}{3}DO,$$
$$g_2G = \tfrac{1}{3}DN = \tfrac{1}{3}BO;$$
$$\therefore g_1G : g_2G = DO : BO$$
$$= \Delta ADC : \Delta ABC,$$

therefore G is the centroid of the quadrilateral, therefore centroids of the quadrilateral and the triangle OMN coincide.

9692. (Maurice D'Ocagne.)—On donne deux points F et P, et une droite δ parallèle à FP. Si on considère une parabole variable, de foyer F, tangente à δ, les points de contact des tangentes menées de P à cette parabole sont sur un cercle fixe, passant par P.

Solution by A. Provost.



Let M and M′ be the points where the tangents from P touch the parabola; Δ, L, L′ the feet of the perpendiculars from F on the lines δ, PM, PM′. The tangent at the vertex of the parabola turns round Δ, and the axis cuts PL, PL′ at K, K′; also FK = FM and FK′ = FM′; and the similar triangles FPM and FPM′ give

$$FM : FP = FP : FM',$$
or $$FM . FM' = (FP)^2.$$

Besides, on the axis of a given parabola there are only two points, K and K′; consequently the locus of these points is the circle touching FP at P, cutting orthogonally the circle whose diameter is FP at the point where this circle itself is cut by circle whose diameter is ΔF.

But KL = ML, K′L′ = M′L′, we obtain, for the radius of the circle PKK′, $\frac{1}{2}(PF)^2/\Delta F$; and easily

$$\rho = PM = 2PL - PK = 2PF \cos\alpha - [(PF)^2/\Delta F] \sin\alpha,$$

where $\alpha = (FPM)$, and which represents the required circle.

9835. (Professor de Longchamps.)—Résoudre l'équation

$$(\alpha x + \beta)^3 + (\alpha' x + \beta')^3 + x^3 = 3(\alpha x + \beta)(\alpha' x + \beta') x.$$

Déduire de là, en supposant $\alpha = \alpha' = 0$, une méthode élémentaire pour résoudre l'équation du troisième degré.

Solution by Professors de Wachter, Beyens, *and others.*

Since $x^3 + y^3 + z^3 - 3xyz = (x + y + z)(x^2 + y^2 + z^2 - xy - yz - zx)$,

the equation $(\alpha x + \beta)^3 + (\alpha' x + \beta')^3 + x^3 - 3(\alpha x + \beta)(\alpha' x + \beta') x = 0$

reduces to $$\left[(1 + \alpha + \alpha') x + \beta + \beta'\right]$$
$$\times \left[(\alpha^2 + \alpha'^2 - \alpha\alpha' - \alpha - \alpha' + 1) x^2 + (2\alpha\beta + 2\alpha'\beta' - \alpha\beta' - \alpha'\beta - \beta - \beta') x + \beta^2 + \beta'^2 - \beta\beta'\right] = 0.$$

[The rest in volume.]

QUESTIONS FOR SOLUTION.

9975. (Professor Sylvester, F.R.S.)—Find the complete integrals of the equations in differences

$$\frac{u_{x+1} - 3u_x}{u_x - 3u_{x-1}} = \frac{u_x^3}{u_{x-1}^3}, \quad \frac{v_{x+1} + 3v_x}{v_x + 3v_{x-1}} = \frac{v_x^3}{v_{x-1}^3}.$$

9976. (Professor Sturm.)—If, on both sides from the point of contact, a given distance be set off on every tangent of a parabola, the extremities will lie on a rational curve of the sixth order which has, at a finite distance, one double point with real, and another with imaginary tangents. Its two branches, moreover, have six-pointic contact with the parabola, and eight-pointic contact with one another, at infinity.

9977. (Professor Lampe.)—Investigate formulæ for the sums of the powers of the rational numbers, and, with the notation $S^k(x) = 1^k + 2^k + \ldots + x^k$, prove, from general expressions, that

$$16S_1^5 = S_5 + 10S_7 + 5S_9, \quad 12S_2^3 = S_4 + 7S_6 + 4S_8, \quad 12S_1S_5 = -S_3 + 5S_5 + 8S_7$$
$$30S_2S_4 = -S_3 + 15S_5 + 16S_7, \quad 72S_1S_2S_3 = 3S_4 + 42S_6 + 27S_8.$$

9978. (Professor Schoute. Suggested by Quest. 9912.)—Given in the same plane two lines L, M and a circle S. Of a triangle PQR, the vertex P lies on L, the vertices Q, R lie on M, and the sides PQ and PR touch S. Examine the loci of the remarkable points of this triangle.

9979. (Professor Wolstenholme, M.A., Sc.D. Suggested by Quest. 9587, Vol. 50, p. 117).—In a triangle ABC, CC′ is the median through C, CS a chord of the circumcircle along the symmedian through C; the parabola whose focus is S and directrix CC′ will touch the side BC, the straight lines through A, B, at right angles to CA, CB, and the two bisectors of the angle C and its supplement. [The equation in trilinear coordinates seems to be

$$2(-\gamma)^{\frac{1}{2}} + [(\alpha + \beta)(\cos B + \cos A)]^{\frac{1}{2}} + [(\alpha - \beta)(\cos B - \cos A)]^{\frac{1}{2}} = 0.]$$

9980. (Professor De Longchamps.)—Soit P une parabole tangente aux droites Ox, Oy; une droite mobile δ, tangente à P, rencontre Ox en A, Oy en B. On trace le cercle Δ, circonscrit au triangle OAB, et les droites tangentes à Δ, aux points A, B. Ces droites se coupent en un point I dont on demande le lieu géométrique.

9981. (Professor Genese, M.A.)—TP, TQ, T′P′, T′Q′ are tangents to a conic (centre C, foci S, S′). Prove that T, P, Q, T′, P′, Q′ will lie on a circle, if (1) CT, CT′ be on opposite sides of SS′ and equally inclined to it, and (2) $CT . CT' = CS^2$.

9982. (Professor Steggall.)—If a circle intersect the sides of a triangle ABC in PP′, QQ′, RR′, and if AP, BQ, CR are concurrent, so also are AP′, BQ′, CR′.

9983. (Professor Ignacio Beyens.)—Si (S) désigne la somme des surfaces des cercles de Neuberg correspondantes à chacun des côtés d'un triangle ABC, (e) l'excentricité de l'ellipse de Brocard, on aura

$$S = \pi (a^2 + b^2 + c^2) e^2 / (1 - e^2).$$

9984. (Professor Gob.)—Soient N_a, N_b, N_c les centres des cercles de Neuberg du triangle ABC. Démontrer que les droites joignant A, B, C aux milieux de N_bN_c, N_cN_a, N_aN_b se coupent sur l'hyperbole de Kiepert et sur la droite joignant l'orthocentre de ABC au centre du cercle de Brocard.

9985. (Professor Neuberg.)—Les points A, B, C, chargés des masses α, β, γ, décrivent, simultanément, dans le plan ABC, les lignes AA′, BB′, CC′, et leur centre de gravité D parcourt une ligne DD′. Si l'on change les masses des points A, B, C, on obtient d'autres lignes DD′. Soit O un point fixe du plan AA′BB′. Démontrer que le lieu d'un point D tel que le secteur ODD′ a une aire constante, est une conique. (Comparer *Messenger*, 1877 et 1878, articles de MM. Leudesdorf, Kempe, et Elliot.)

9986. (Professor Déprez.)—Soit β l'angle compris entre la médiane et la symédiane issues du sommet B d'un triangle ABC, rectangle en A; soit γ l'angle compris entre la médiane et la symédiane partant de C. Démontrer la relation $\cot\beta \cot\gamma - 1 = 12(a/h)^2$, h étant la hauteur menée par A.

9987. (Professor De Wachter.)—A sphere, acted on by gravity, rolls down a surface of revolution with vertical axis. Find at which point of the generating curve the sphere will leave the surface, supposing the generatrix to be (1) a circle; (2) an ellipse; (3) a cycloid.

9988. (Professor Hudson.)—A particle is projected with a given velocity in a medium in which the resistance varies as the cube of the velocity; find the time in which it will traverse a given distance, and the velocity which it will have at the end of a given time.

9989. (Professor Abinash Chandra Basû.)—Prove that (1) the equations

$$Ax^4 + Bx^3 + Cx^2 + dx + e = 0 \quad \ldots\ldots\ldots\ldots (\alpha),$$
$$3Ax^4 + 2Bx^3 + Cx^2 - e = 0 \quad \ldots\ldots\ldots\ldots (\beta),$$

are so related that, if they have a common root, that root will be a double root of (α); (2) if the roots of (α) be a, b, c, d, show how to express the latter in the form of a determinant of the fourth order.

9990. (Professor Catalan.)—Soient, pour abréger,

$$N = (ab + cd)(ac + bd)(ad + bc),$$
$$\Delta = (-a + b + c + d)(a - b + c + d)(a + b - c + d)(a + b + c - d);$$

trouver les racines carrées des polynômes

$$LN - a^2\Delta, \quad LN - b^2\Delta, \quad LN - c^2\Delta, \quad LN - d^2\Delta.$$

9991. (Professor Bordage.)—Solve the equation

$$\frac{\sqrt{a - x}}{x^2} - \frac{\sqrt[n]{a - x}}{a^2} = \sqrt[n]{\frac{x^2}{a + x}}.$$

9992. (Professor Emmerich, Ph.D.)—Construct a triangle, having given the vertices A_1, B_1, C_1 of its first Brocard triangle.

9993. (The Editor. Connected with Question 9587.)—Investigate the form and properties of the cubic whose trilinear equation is

$$(\alpha^2 - \beta^2)\gamma + 2(\alpha \cos A - \beta \cos B)\alpha\beta = 0,$$

with respect to the triangle of reference, and trace the curve.

9994. (J. C. Malet, F.R.S.)—Through a fixed point O, in the plane of a given triangle ABC, let two right lines L and M be drawn parallel respectively to AB and AC; if now a variable triangle A′B′C′ be circumscribed to ABC so that B′ shall lie on L, C′ on M, and B′C′ pass through A, then O is always the centre of mean position of the points A′, B′, and C′, for a system of constant multiples whose ratios are required. *E.g.*, If O be situated on the median through A at a distance below BC equal to the distance above BC of the centroid of ABC, then O is always the centroid of A′B′C′.

9995. (C. L. Dodgson, M.A.)—A certain school contains not less than 90 boys nor more than 130. Latin, Greek, and French are taught, but no other languages. For every boy learning Latin, at least two learn Greek, but not French; for every three learning Greek, at least one learns French, but not Latin; and, for every two learning French, at least three learn Latin, but not Greek. Exactly half the school learn no languages. Find how many boys are learning each language.

9996. (Hugh MacColl, B.A.)—Show how to calculate the logarithm of any number to any base in a simple and direct manner without any reference to the Napierian base or any other series.

9997. (J. C. St. Clair.)—If A, B, C, D be four points on a circle, prove that (1) the four nine-points circles of the four triangles ABC, &c. pass through the same point Q; (2) the Simson-lines of each triangle with respect to the fourth point pass through Q; (3) the four orthocentres form a quadrilateral equal to ABCD, and in perspective with it at centre Q; and (4) if a fifth point be taken on the circle, the five quadrilateral Q points lie on a circle, and so on.

9998. (H. L. Orchard, M.A., B.Sc.)—Solve, by a simple quadratic method, the equation

$$x^6+12x^5+14x^4-140x^3+69x^2+128x-84=0.$$

9999. (R. H. W. Whapham, B.A.)—Two ports B and C are in the same parallel of latitude (C being west of B); their common latitude being l, and their difference of longitude 2λ. Two ships set out to sail from B to C, one due West and the other along the great circle through B and C; if they sail uniformly and both arrive at C at the same time, prove that their distance apart when they have gone half-way is

$$r\left\{\tfrac{1}{2}\pi-l-\tan^{-1}(\cot l\cos\lambda)\right\},$$

where r is the radius of the earth, and l expressed in circular measure.

10000. (J. W. Russell, M.A.)—Prove the following rule for the power of the modulus in the case of any covariant or invariant of any number of quantics in any number of variables, viz.:—Consider each variable except one of dimensions o in length, and consider the other variable to be of -1 dimensions, and take the dimensions of each coefficient to be such that each term in the quantic is of o dimensions, then the power of the modulus in the dimensions of the covariant or invariant or briefly the power of the modulus of any covariant or invariant in the *reduced* dimensions of the covariant or invariant.

10001. (A. Russell, M.A.)—If the polygon in Quest. 9913, have an even number of sides, prove that

$$R^2=\left\{\Sigma(-1)^r a_{r-1}a_r\sin(A_r+\theta)\right\}/\Sigma(-1)^r\sin(2A_r+\theta),$$

where θ may have any value.

10002. (Artemas Martin, LL.D.)—A speaks the truth x times out of y. We do not know the values of either x or y, but x may be 0, 1, 2, 3, 4, 5, ... y; and y may be 1, 2, 3, 4, ... n. A asserts the occurrence of an event about which we know nothing; find the probability of the truth of A's statement.

10003. (E. Lemoine.)—Appelons, avec M. Neuberg, triangle *semi-conjugué* ou *semi-autopolaire* par rapport à une conique, le triangle aAa', où a et a' sont les intersections de la polaire de A avec cette conique; on a le théorème: *Deux triangles semi-conjugués par rapport à une conique sont inscriptibles à une autre conique et circonscriptibles à une troisième.*

10004. (Hugh W. Segar.)—Given the lengths of six lines supposed to be drawn from any point within a six-sided figure, which is such that its opposite sides are equal and parallel, and also the length of any one side, construct the figure.

10005. (R. Lachlan, M.A.)—If SY be the perpendicular from the focus S of an ellipse on the tangent at the point P, find the position of P when the area of the triangle SPY is a maximum.

10006. (Rev. T. P. Kirkman, M.A., F.R.S.)—Write down, in six sets of four, 24 triplets made with four elements a, b, c, d; all of the form $a^pb^qc^r$, carrying each the same indices p, q, r; so that the six fours shall be the values of a six-valued function $F=A+B+C+D$; and so that each of the six values shall be invariable by any substitution of a group G made with the elements a, b, c, d. And prove that this G is the only one of order below $\frac{1}{2}\pi n$ made with n elements which has the like relation to all the values of a function of those n elements.

10007. (R. Tucker, M.A.)—The sides of ABC are cut in D, D′; E, E′; F, F′, so that BD : DD′ : D′C = cot C : cot A : cot B, &c.; prove that (1) DE′, EF′, FD′ cointersect in π (the Symmedian-point of the Δ formed by parallels through A, B, C to the opposite sides); (2) $\Delta DEF = D'E'F' = ABC\tan^2\omega$; (3) if ED, FE, DF make angles ϕ_1, ϕ_2, ϕ_3 with BC, CA, AB, and F′D′, D′E′, E′F′ make angles ϕ_1', ϕ_2', ϕ_3' with the same sides, then (α) $\cot\phi_1\cot\phi_1'=\cot^2\omega$, and ($\beta$) $\cot\phi_1\cot\phi_2\cot\phi_3=\cot^3\omega=\cot\phi_1'\cot\phi_2'\cot\phi_3'$; (4) $D\pi\,.\,E\pi\,.\,F\pi=D'\pi\,.\,E'\pi\,.\,F'\pi$; (5) if DE, D′F′ intersect in p, EF, E′D′ in q, and FD, F′E′ in r, then Ap, Bq, Cr cointersect in $a^3\alpha=b^3\beta=c^3\gamma\,(\pi_1)$; (6) if EF, E′F′ intersect in p_1, FD, F′D′ in q_1, DE, D′E′ in r_1, then Ap_1, Bq_1, Cr_1 cointersect in $a^3\sec^2 A\,\alpha=b^3\sec^2 B\,\beta=c^3\sec^2 C\,\gamma\,(\pi_2)$, and the join of $\pi_1\pi_2$ passes through the centroid (G) of ABC; (7) if O, K, H are the circumcentre, S-point, and orthocentre of ABC, and if πO, HK produced meet in L, then G is the centroid of HπL; and (8) find the equations to the circles DEF, D′E′F′.

[In the above, if BD : DD′ : D′C = cot B : cot A : cot C, a unique circle (the cosine circle) passes round DD′EE′FF′. Other properties of the above figure are given in "The Symmedian-point Axis," &c., *Quarterly Journal*, Vol. xx., No. 78.]

10008. (D. Biddle.)—Prove that

$$\frac{1}{10^2}+\frac{1+3}{(10+5)^2}+\frac{1+3+4}{(10+5+6)^2}+\frac{1+3+4+5}{(10+5+6+7)^2}+\ldots=\frac{1}{4}.$$

10009. (Rev. W. T. Wellacott, M.A.)—Prove, geometrically, that the sum of the perpendiculars on the sides of a triangle from its circumcentre is equal to the sum of the radii of the in-circle and circum-circle.

10010. (R. W. D. Christie.)—In any right-angled triangle, where a, b, c are the sides, and x, y, z the medians, prove that

$$4(x^2+2z^2)=3b^2+4y^2+5c^2.$$

10011. (G. G. Storr, M.A.) — From a point T on the ellipse $b^2x^2+a^2y^2=4a^2b^2$, tangents TP, TQ are drawn to the ellipse $b^2x^2+a^2y^2=a^2b^2$; prove that $\Delta TPQ=\frac{3}{4}\sqrt{3}\,.\,ab$.

10012. (W. J. Greenstreet, M.A.)—Find the loci of the vertices and foci of concentric and similar ellipses passing through a fixed point.

10013. (E. M. Langley, M.A.) — Prove, geometrically, that the symmedian point of a triangle is the centroid of its projections on the sides.

10014. (Capitaine de Rocquigny.)—On forme le tableau suivant:

1, 2, 3, 4, 3, 4, 5, 6, 7	Démontrer que la somme des termes d'une horizontale est un carré impair.

10015. (F. R. J. Hervey.)—If B be the triangle formed by perpendiculars to the sides of a given triangle A at their intersections with any transversal T, prove that (1) the circumcircles (X, Y) of A, B are orthogonal; (2) the distance beween their orthocentres is bisected by T; (3) to a given orthogonal circle Y correspond two transversals T, S, each of which, if the centre (P) of Y describe a circle of radius k about that of X, envelopes a three-cusped hypocycloid the locus of whose centre, when k varies, is the straight line which bisects at right angles the distance between the circumcentre and orthocentre of A; (4) if P describe any curve, the intersection of S, T describes an orthogonal projection of a similar curve.

10016. (A. E. Jolliffe)—O is a point on the directrix of a parabola and S the focus. A circle with centre O passes through S, and cuts the parabola in P and Q. The tangents at P to the circle and parabola meet the parabola and circle respectively in M and N. Show by pure geometry that MN is a common tangent to both curves.

10017. (R. Knowles, B.A.)—The circle of curvature is drawn at a point P of a conic, M is the mid-point of the common chord; the diameter of the conic through M meets the normal at P in Q; the normal meets the transverse axis in N; O is the centre of curvature at P. Prove that QN : NP = OQ : OM.

10018. (J. Lemaire.)—Soit O le centre du cercle circonscrit à un triangle ABC. Lieu de la projection du point O sur la symédiane relative au sommet A quand le triangle se déforme de manière que l'angle A demeure constant, les sommets B et C restant fixes.

10019. (Syamadas Mukhopadhyay, B.A.)—ACB′, AC′B are two lines such that AC = AC′, AB = AB′; BC, B′C′ intersect at O; AO meets CC′, BB′ at P, Q; D is the mid-point of BC; DP intersects AC, B′C′ at E, E′; QD intersects AB, B′C′ at F, F′. Prove (1) that DE′ : DP = DP : DE, and DF′ : QD = QD : DF; and hence (2) that B′C′ is the inverse of the "nine-point circle" of ABC, D being the centre and $\frac{1}{2}(AB-AC)$ the radius of inversion.

10020. (Sarah Marks, B.Sc.)—If D, E, F are the points of contact of the inscribed circle with the sides BC, CA, AB respectively, show that, if the squares of AD, BE, CF are in arithmetical progression, then the sides of the triangle are in harmonical progression.

10021. (L. Bénézech.)—Trouver un nombre premier supérieur à 3, tel que son carré diminué d'une unité, divisé par 8, donne pour quotient un nombre premier.

10022. (R. Soreau.)—Si un nombre entier a, terminé par 1 ou par 6, est multiple de 3, plus 1, l'expression $(a-1)(a^2-a)(a^3-4a)$ est divisible par 43200.

10023. (P. Brasseur.)—Tout nombre composé de 3^n chiffres 1 est un multiple de 3^n.

10024. (J. Cirilli.)—Étant donnés un cercle et une droite, déterminer une seconde droite parallèle à la première de façon qu'une tangente quelconque au cercle coupe les deux droites en deux points dont le rapport des distances au centre du cercle soit constant.

NOTICE TO CORRESPONDENTS.

Correspondents should be careful (*a*) to write each Question and each Solution on a *separate* paper (otherwise, when used for printing, the Editor has the labour of entirely *re-writing* such articles); (*b*) to make their Solutions as short as possible; (*c*) to send all Questions *early in the month*, but not to send Solutions till their Questions have been published; (*d*) to write their names at the *top* of *each* paper; (*e*) to *prepay* the postage in *full*; and (*f*) to send all communications to

W. J. C. Miller, The Paragon, Richmond-on-Thames.

NOTICE.—Volume XLIX. of the "Mathematical Reprint" is now ready, and may be had of the Publisher, Francis Hodgson, *89 Farringdon Street, E.C. Price, to Subscribers, 5s.; to Non-Subscribers, 6s. 6d.*

LONDON MATHEMATICAL SOCIETY.

Thursday, January 10th.—J. J. Walker, F.R.S., President, in the Chair. Messrs. G. H. Bryan, B.A., Scholar of St. Peter's College, Cambridge, and W. W. Taylor, M.A., late Scholar of Queen's College, Oxford, were elected Members, and Miss M. T. Meyer was admitted into the Society.

Mr. A. B. Basset, M.A., made a few remarks on "The Steady Motion and Stability of Dynamical Systems." Dr. Glaisher, F.R.S., gave several forms of expression of Bernoulli's Numbers, derived from the consideration of Lemniscate Functions. The President (Sir J. Cockle, F.R.S., in the Chair) read a paper on "Results of Ternary Quadric Operators on Products of Forms of any Orders." Mr. M. Jenkins, M.A., communicated a note by Mr. R.W. D. Christie, on "A Theorem in Combinations."

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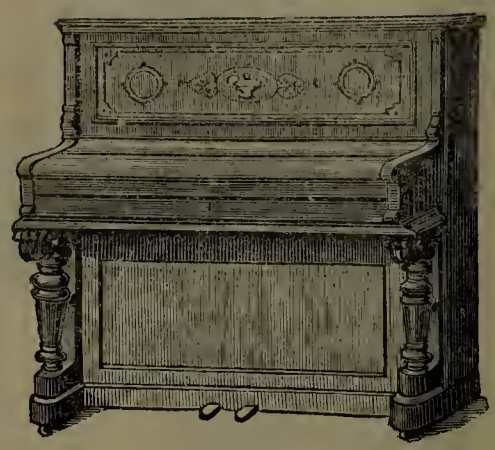

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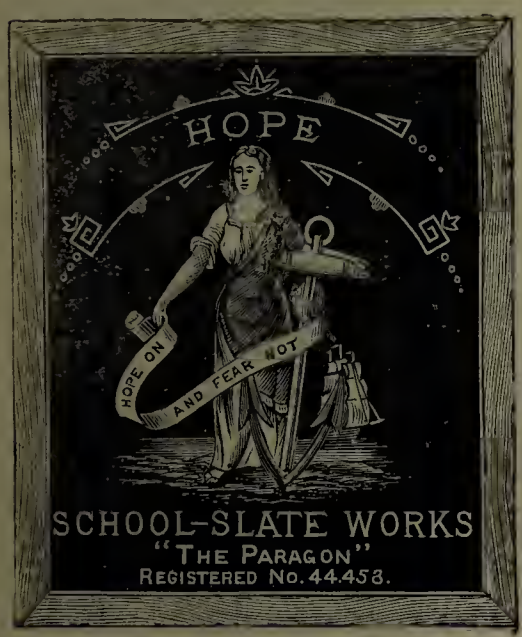

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2. Styles, R. — Mr. Stranger, Harleigh House, Bodmin.
   Thomas, W. G. — Mr. Bayley, Wellington College, Salop.

French.

1. Griffiths, Miss F. — Miss Theedam, Haddo House School, Scarborough.
   Kirby, Miss A. — Miss Bowen, Red Maids' School, Bristol.
   Steel, Miss E. M. — Miss Death, 22 Hatter Street, Bury St. Edmunds.

German.

1. Disteli, Miss M. — Miss Willoughby, Queen's College, Wood Green, N.
2. Smith, Miss M. S. — Private study.
   Zimmermann, F. — Mr. Baumann, Anglo-German School, Brixton.

Italian.

1. Smith, Miss M. C. M. — The Misses McCallum, Clarence House, Filey.
   Vaughan, A. S. — Mr. Cuffe, 4 Michel Place, Richmond, S.W.

Spanish.

1. Carver, Miss E. M. — The Misses Thomson & Spragge, Mecklenburg House, Putney.
2. Delgado, D. — Mr. Leach Lewis, The College, Margate.

Latin.

1. Smithwhite, J. H. — Private tuition.
2. Mills, H. W. — Rev. W. W. Hopwood, King Edward VI. Grammar School, Louth, Lincs.
   Porter, J. F. — Mr. Johnson, Elmfield College, York.

Greek.

1. Porter, J. F. — Mr. Johnson, Elmfield College, York.
   Pring, H. W. — Mr. Hooson, Bourne College, Birmingham.

Experimental Physics.

1. Grylls, G. — Rev. J. Thompson, Hart House School, Tregoney.
2. Ilott, C. H. — Mr. Wheeler, Paragon House School, Norwich.

Chemistry.

1. Berresford, J. A. — Mr. Voules, Chesterfield Grammar School.
   Taggart, J. S. — Mr. Scotson, Central Board School, Manchester.
   Welpton, W. P. — Mr. Barker, Leeds Modern School.

Natural History.

1. Pritchard, Miss L. — Miss Mills, Park House School, Manchester.
2. Gibson, Miss C. P. — Mrs. Milne, Girls' High School, Bridgwater.

Drawing.

1. Andrew, E. W. — Dr. Groezinger, International College, Rochester.
   Campbell, A. F. T. — Private tuition.

Music.

1. Littlewood, Miss A. — Mrs. Bottom, Eton House School, Sheffield.
   West, Miss M. H. — The Misses Bath and Benfield, Portway College, Reading.

Political Economy.

1. Kirby, Miss A. — Miss Bowen, Red Maids' School Bristol
2. Martifee, Miss E. A. — Miss Bowen, Red Maids' School, Bristol

GENERAL CLASS LIST—BOYS.

N.B.—In the following lists, the small italic letters denote that the Candidate to whose name they are attached obtained a Special Certificate in the following subjects respectively:

a. = Arithmetic.	*e.* = English.	*ger.* = German.	*ms.* = Mensuration.	*s.* = Scripture.
al. = Algebra.	*eu.* = Euclid.	*h.* = History.	*mu.* = Music.	*sp.* = Spanish.
bk. = Bookkeeping.	*f.* = French.	*i.* = Italian.	*nat.* = Natural History.	*tr.* = Trigonometry.
ch. = Chemistry.	*g.* = Geography.	*l.* = Latin.	*p.* = Political Economy.	
d. = Drawing.	*gr.* = Greek	*m.* = Mechanics.	*ph.* = Physics.	

First Class.—Honours Division.

Raymer, R. R. Paignton School, Paignton. *a. al. eu. ms.*
Smith, J. C. Elmfield College, York. *a. al. eu. m. l. ph.*
Hott, C. H. Paragon House S., Norwich. *a. al. eu. tr. m. ph.*
Bradburn, H. *a.al.eu.m.f.* Grammar School, Eccles.
Porter, J. F. *a.al.eu.d.ch.* Elmfield College, York.
Little, J. A. *a.al.eu.d.* East Cornwall Coll., Liskeard.
Cobb, J. W. Leeds Modern School. *a. al. eu. m. ph. ch.*
Welpton, W. P. *al.eu.ph.ch.* Leeds Modern School.
Cross, G. H. *a.m.ch.* Elmfield College, York.
Smith, A. C. *a.mu.* St. Martin's Gram. S., Scarboro'.
Harland, W. H. *eu.d.* Grammar School, Eccles.
Pring, H. W. *l. ph.* Bourne College, Birmingham.
Thomas, W. G. *al.ms.f.* Wellington Coll., Salop.
Chidley, G. W. *a.ms.* Darfield College, East Acton.
Fearnley, P. H. *a.al.eu.* The Grammar S., Bolton.
Walker, F. M. *ch.ms.* Barton School, Wisbech.
Browne, H. Guildhall Middle S., Bury St. Eds. *a. eu. f. d. mu.*
Robertson, W. O. Boys' Coll. & High S., S'hampton *a. m. ch.*
Hillier, H. W. *h.* Hastings Grammar School.
Roberts, W. J. *a.* Elmfield College, York.
Eatock, J. A. *a.bk.ch.* Farnworth Gram. S., Widnes.
Askey, S. A. *ph. ch.* Bourne College, Birmingham.
Hornsby, T. Elmfield College, York.
Richardson, A. W. *al.* Private tuition.
Rendell, H. T. *a.f.* Erme Ho., Mutley, Plymouth.
McNaught, H. St. Martin's Gram. S., Scarboro'. *a. ch. d.*
Ashford, W. *a.* Mount Radford School, Exeter.
Fowler, J. *a. eu. d.* Sidcot School, Weston-s.-Mare.
Anstey, A. *s.* Elmhurst S., Kingston-on-Th.
Bamber, W. E. *a. d.* High School for Boys, Bolton.
Sibthorp, S. *ms.* Catholic Coll. Inst., Manchester.
Hobbs, E. R. Tollington Park College, N.
Jones, S. M. Wellington College, Salop.
Welsh, H. C. *a. al.* Forest Hill Mid. Class S., S.E.
Heslop, W. *a. ch.* Elmfield College, York.
Haskew, W. H. *ms.d.* Wellington College, Salop.
Collier, E. E. *ch.* University School, Southport.
Ashton, P. R. T. Dudley Middle Class School.
Perrett, W. Dr. Morgan's S., Bridgwater.
Squibbs, W. Dr. Morgan's S., Bridgwater.
Ascough, H. N. *a.* The Southern Coll., Pannal Ash.
Winter, E. C. *ms.d.* Wellington College, Salop.

First Class.—Pass Division.

Beer, H. L. Mount Radford School, Exeter.
Buckley, C. A. *ch.* University School, Southport.
Watson, J. W. *al.eu.m.* King James I. S., Bp. Auckland.
Harvey-Jellie, B. *al.* Boys' Coll. & High S., S'hampton.
Feltham, C. A. *a.* Brunswick House S., Windsor.
Cook, P. Catholic Coll. Inst., Manchester.
Mackay, R. G. Cambridge House S., Margate.
Bowes, M. H. *a.* Ellesmere School, Harrogate.
Cook, G. T. *a. ch.* Maidstone Grammar School.
Ashby, C. E. *d.* Sidcot School, Weston-s.-Mare.
Stevens, A. E. Private tuition.
Wimpory, F. Grammar School, Eccles.
Caley, M. C. Mount Radford School, Exeter.
Toyer, S. *a.* Norton College, Luton.
Nicholls, F. *d.* Boys' Coll. & High S., S'hampton.
St. Cedd, O. W. *m.* Private study.
Warner, S. M. Belmont House School, Lee.
Round, E. W. Dudley Middle Class School.
Nunn, J. H. F. Lynton House School, Witney.
Styles, R. *ms.* Harleigh House, Bodmin.
Belling, J. *a.* The Grammar S., Bewdley.
Marshall, A. *a.* Middleton School, Bognor.
Bean, S. The Grange School, Halstead.
Green, H. A. *h.* Halesowen Grammar School.
Blake, J. H. Sidcot School, Weston-s.-Mare.
Harrison, J. B. *ch.* Elmfield College, York.
Taylor, J. *a.* Collegiate School, Accrington.
Goaman, T. A. Grammar School, Bideford.
Hueffer, F. H. M. Praetoria House, Folkestone.
Goolden, W. H. L. *l.* Maida Vale School, W.
Godwin, C. E. *a.ms.* The High School, Hungerford.
Haigh, F. E. Redland Grove School, Clifton.
Fillingham, A. L. Bayville, Bournemouth.
Merchant, H. J. *a.* Lynton House School, Witney.
Watson, F. B. King James I. S., Bp. Auckland. *a. al. eu.*
Clarke, A. E. Middle Cl. S., Weston-s.-Mare.
Williamson, H. J. Sutton Park School, Surrey.
Franklin, T. E. *ch.* Farnworth Gram. S., Widnes.
Kitts, J. V. The Avenue Gram. S., Sunderland
Rothwell, T. A. Grammar School, Eccles.
Cooper, C. M. *a.* The College, Weston-s.-Mare.
Miller, E. J. Elmfield College, York.
Yeo, H. F. *d.* Erme Ho., Mutley, Plymouth.
Stewart, W. C. Vermont College, Clapton.
Fowler, H. T. *d.* Sidcot School, Weston-s.-Mare.
Dottridge, S. S. Stranraer School, Bournemouth.
Black, J. S. St. John's Coll., Finsbury Park.
Pattrick, R. P. Hull and East Riding College.
Worts, C. The Grange School, Halstead.
Griffiths, W. E. M. Moore Park Grammar S., S.W.
Standing, W. A. *d.* Friends' S., Saffron Walden.
Tallents, E. F. *d.* High School, Barnsley.
Walmsley, H. C. *d.* St. Asaph Grammar School.
Clibborn, J. W. Farnworth Grammar S., Widnes.
Vaughan, A. S. *a.* 4 Michel Place, Richmond, S.W.
Arundel, C. E. Sidcot School, Weston-s.-Mare.
Corbin, H. E. *d.* Taunton's Trade S., S'hampton.
Cottrell, J. *ch.* Bourne College, Birmingham.
Robarts, F. D. Mead House S., Biggleswade.
Sessions, F. L. *ch.d.* Sidcot School, Weston-s.-Mare.
Fawcett, R. The Commercial College, York.
Grimshaw, F. W. *d.* Sidcot School, Weston-s.-Mare.
Tomlinson, G. N. Sutton Park School, Surrey.
Daniels, E. Thanet College, Margate.
Pleines, J. *ger.* Praetoria House, Folkestone.
Fawcett, E. P. Bickerton House S., Birkdale.
Sola, A. Stranraer School, Bournemouth.
Bowe, W. H. L. Elmfield College, York.
Garnham, E. W. *a.d.* Vermont College, Clapton.
Lewis, J. A. Eversley, Clifton, Bristol.
Hickie, B. *f.* St. Francis Xavier's Coll., Bruges.
Shackleton, W. Mount Radford School, Exeter.
Miller, W. G. D. Private tuition.
Veness, R. E. Hastings Grammar School.
Woor, G. *a.* Sidcot School, Weston-s.-Mare.
Beaumont, F. W. Brunswick House S., Windsor.
Gillies, J. M. *a.* Vermont College, Clapton.
Gray, F. S. St. John's Coll., Finsbury Park.
Jacob, E. Chandos School, Hereford.
Kilcoyne, J. J. 146 St. George's Road, Bolton.
Crompton, R. *ch.* Central Board S., Manchester.
Wilshaw, R. H. Elmfield College, York.

Second Class.—1st Division.

Fish, A. M. *a.* The Grammar School, Midhurst.
Watson, O. Newcastle Mod. S., New'tle-on-T.
Jackson, W. F. *ch.* Central Board S., Manchester.
Suart, A. B. Wellington College, Salop.
Auld, J. T. *ch.* Grammar School, Burnley.
Brookes, A. E. Wellington College, Salop.
Booth, A. L. Wellington College, Salop.
Hanson, H. H. University School, Hastings.
Appleyard, F. *ch. d.* St. Martin's Gram. S., Scarborough.
Beer, A. *mu.* Nelson College, Lee.
Wellings, A. W. *ms.* Wellington College, Salop.
Kitton, J. E. The College, Weston-s.-Mare.
Andrew, E. W. *d.* International College, Rochester.
Chapman, H. Great Ealing School, W.
Howard, A. *d.* Wellington College, Salop.
Taggart, J. S. *ph.ch.* Central Board S., Manchester.
Anderton, W. B. *ch.* University School, Southport.
Capsey, J. C. *ms. d.* Wellington College, Salop.
Beesley, F. A. Grammar School, Wirksworth.
Peters, G. B. Brunswick House, Maidstone.
Harcombe, R. A. The Grammar School, Bewdley.
Gartrell, J. H. East Cornwall College, Liskeard.
Bekenn, G. H. E. *d.* Wellington College, Salop.
Belcher, A. R. *a.* Brunswick House, Maidstone.
Lord, Z. M. *d.* Grammar School, Eccles.
Barnard, W. E. *d.* Mayall College, Herne Hill.
Barton, W. J. F. *ch.* Elmfield College, York.
Dobson, H. A. *d.* Wellington College, Salop.
Lee, C. B. St. John's College, Finsbury Park.
Hambly, R. Plymouth College.
Barritt, A. *d.* Friends' School, Saffron Walden.
Berresford, J. A. *ch.* Chesterfield Grammar School.
Hankey, J. T. *d.* Belmont House School, Bexley.
Morris, F. R. Clytha College, Newport, Mon.
Gunton, H. C. *d.* Victoria Park S., Manchester.
Ibbs, H. E. Lonsbury College, Upper Clapton.
Pershouse, F. Private tuition.
Richards, T. W. Fowey Grammar School.
Preston, A. East Hardwick S., Pontefract.
Tuffin, A. H. Gillingham Grammar School.
Marriott, H. O. Lynton House School, Witney.
Whillier, E. G. St. Helen's College, Southsea.
Bunford, J. H. Dolgelly Grammar School.
Golding, R. A. Lonsbury College, Upper Clapton.
Collier, E. P. *ch.* University School, Southport.
Greene, A. E. Wellington College, Salop.
Inskip, C. H. Mead House School, Biggleswade.
Andrews, M. C. *d.* K. Charles I. Gram. S., Kidderm'r.
Eaton, T. W. Kendrick Middle School, Reading.
Hughes, E. A. Chandos School, Hereford.
Cox, C. H. Paignton School, Paignton.
Davis, W. G. P. Huntingdon House S., Teddington.
Hunter, R. Hastings Grammar School.
MacKenzie, H. D. Ascham College, Clacton-on-Sea.
Pavillet, L. J. L. D. Maida Vale School, W.
West, R. A. Grove House S., Tunbridge Wells.
Jackson, H. W. Scarborough Grammar School.
Camphell, A. F. T. *d.* Private tuition.
Chapman, J. W. St. Martin's Gram. S., Scarborough.
Cohen, S. H. Compton House S., Brighton.
Couch, B. Y. *a.* Fowey Grammar School.
Reason, H. Brighton Grammar School.
Sumner, P. Mercers' School, E.C.
Robinson, A. *ch.* Bourne College, Birmingham.
Stephenson, B. Hull and East Riding College.
Farnfield, W. W. Hastings Grammar School.
Warcup, H. Herrick Foundation S., Lewisham.
Willcocks, F. A. Collegiate School, Hythe.
Hadfield, J. *d.* Catholic Coll. Inst., Manchester.
Pinkney, E. B. *a.* Private tuition.
Smith, P. *d.* Hart House School, Tregoney.
Jones, J. H. *ch.* Sidcot School, Weston-s.-Mare.
Dixon, C. E. *d.* Fowey Grammar School.
Griffiths, J. T. Farnworth Grammar S., Widnes.
Jennings, W. C. *ch.* Parish Church Mid. Cl. S., Leeds.
Nicholas, W. H. Bourne College, Birmingham.
Barnett, P. Beaufort College, St. Leonards.
Crawford, F. H. Elmfield College, York.
Hastings, R. W. Holloway College, N.
Ledgard, W. G. *ch.* Parish Church Mid. Cl. S., Leeds.
Munro, H. M. Mercers' School, E.C.
Shannon, J. C. 98 Hall Rd., Handsworth.
Atwood, H. Eastbourne Old School.
Collins, W. E. K. Ed. VI. Gram. S., Southampton.
Coop, E. J. E. Private tuition.
Dinenage, F. S. Queen Mary's Lower S., Walsall.
Wallworth, N. J. Westbourne Park College, W.
White, H. C. Sidcot School, Weston.-s.-Mare.
Thompson, S. C. Brighton Grammar School.
Davidson, W. A. G. *d.* Cromartie House School, Acton.
Greaves, A. E. The Academy, Crewe.
Dunstan, P. M. *ger.* High School, Maidenhead.
Flook, H. S. St. Ethelbert's School, Hampstead.
Bennett, L. H. *d.* Sidcot School, Weston-s.-Mare.
Irvine, J. B. Schönberg Collegiate S., Ventnor.
Kempe, W. H. C. Brighton Grammar School.
Marler, H. Hart House School, Tregoney.
Bonwell, A. The Western College, Harrogate.
Bunch, C. S. Dudley Middle Class School.
Glover, J. H. The Grammar School, Bewdley.
Le Riche, A. J. P. *a.* Burleigh House, Jersey.
Saunders, H. Elgin College, Maida Vale, W.
Clark, J. Royal Gram. S., New'tle-on-Tyne.
Heath, J. H. Elmfield College, York.
Kühler, A. M. Finsbury Park College, N.
Palmer, A. P. Grammar School, Chard.
Temple, E. B. Grammar School, Chard.
Greene, W. M. Lynton House School, Witney.
Guillemin, E. A. Farnham Grammar School.
Hill, T. H. Bourne College, Birmingham.
Hooper, C. S. All Saints' School, Clifton.
Ince, W. H. Hayle Grammar S., Cornwall.
Robson, R. Royal Gram. S., N'castle-on-Tyne.
Burgoyne, C. St. Bede's College, Manchester.
Dales, E. K. Edward VI. Gram. S., Louth.
Goodliffe, A. D. University School, Southport.
Longley, A. H. High School, Barnsley.
Martin, W. E. Mercers' School, E.C.
Bond, W. High School, Crewe.
Kent, C. The Grammar School, Midhurst.
Truscott, E. W. Harleigh House, Bodmin.
Bateman, W. R. Thanet College, Margate.
Holt, J. J. H. Private study.
Southey, H. W. Private study.
Tennant, W. A. Elmfield College, York.
Yates, R. H. Cambridge House S., Margate.
Barnfather, E. Berkeley School, Hull.
Bowen, C. B. Park House School, Buxton.
Hall, E. C. J. Private tuition.
Masters, W. J. *d.* Hazelcroft, Weston-s.-Mare.
Nightingale, F. M. Queen Mary's Lower S., Walsall.
Riddle, J. R. *d.* Avenue House S., Sevenoaks.
Watts, F. W. Private tuition.
Williams, J. H. Athenæum School, Llanelly.

BOYS, SECOND CLASS—*Continued.*

Coleman, B. L.	St. Augustine's College, Ramsgate.
Godwin, A. J.	Leytonstone College.
Heath, A.	Whitworth School, Derby.
Lloyd, T. W.	Collegiate School, Aldershot.
McCormick, E. B	7 Sussex Square, Brighton.
Sidebotham, H.	Chatham Institute, Liverpool.
Woodhead, E.	Elmfield College, York.
Woodward, H. R. K. *d.ms.*	Private study.
Bennett, W. R.	Apsley House, Margate.
Coventry, A. B.	Eagle House, St. Leonards.
Coward, T. D.	Wellington College, Salop,
Gillmore, T. P.	Hazelcroft, Weston-super-Mare.
Hare, J. S.	Hull and East Riding College.
Harrod, A.	Friends' School, Saffron Walden.
Haslam, A. C.	Brighton Grammar School.
Heinke, J. L.	Royal Masonic Inst., Wood Green,
Kirby, W. J. A.	Private tuition.
Orchard, E. A.	Heavitree Collegiate S., Exeter.
Windeatt, F. K.	The Grammar School, Totnes.
Beilby, A.	The Southern College, Pannal Ash.
Coleman, W. A. *s.h.*	Leamington Collegiate School.
Cullin, G. R.	Blundell's School, Tiverton.
Ferris, T. H. S.	Middle Class S., Weston-s.-Mare.
Perrett, H. J.	Middle Class S., Weston-s.-Mare
Allison, S.	Huntingdon House S., Teddington.
Benson, J.	Newcastle Mod. S., N'castle-on.-T.
Lewis, L. E.	Dolgelly Grammar School.
Musgrave, C. F.	The Grammar School, Bolton.
Preston, W. A.	Grammar School, Burnley.
Read, E. H.	3 Warfelton Terrace, Saltash.
Spencer, E. J.	Beaumont House School, Jersey.
Squire, L. L.	Anerley High School.
Barnett, J. M.	Park House School, Uxbridge.
Belilios, R. A.	Maida Vale School, W.
Berry, R. G.	Rhodes House School, Manchester.
Bun, G.	Vermont College, Clapton.
Cook, W. H.	Argyle House School, Sunderland.
Keen, P.	Portway High School, Bath.
Ludlow, H. W.	Bickerton House S., Birkdale.
Mount, J. B.	Kendrick Middle School, Reading.
Pollard, A.	Friends' School, Saffron Walden.
Redfern, G. W.	Private tuition.
Simmons, T. H. J.	Marlborough Coll. S., Up. Holloway
Trethewy, H. J.	East Cornwall College, Liskeard.
Webster, F. *d.*	Sidcot School, Weston-super-Mare.
Baker, J. C.	Belle Vue House S., E. Greenwich.
Bygate, T. H.	The Commercial College, York.
McDonell, C.	Mercers' School, E.C.
Mills, H. W. *l.*	King Edward VI. Gram. S., Louth.
Morris, F. W.	Wellingborough Grammar School.
Skinner, A. E.	St. Helen's College, Southsea.
Tappenden, L. B. *d.*	Gunnersbury College, W.
Waterhouse, H. C.	East Hardwick S., Pontefract.
Barter, E.	Grammar School, Ashford,
Brimicombe, W. B.	Hill House School, Totnes.
Farquhar, R.	Taunton's Trade S., Southampton.
Reynolds, H. C.	Sidcot School, Weston-super-Mare.
Sammes, W.	Swindon High School.
Walker, G. L.	University School, Southport.
Bleasdale, R.	Hindley Grammar School.
Bollans, R. W.	St. Martin's School, York.
Chaplin, A.	E. Anglian S., Bury, St. Edmunds.
Rothar, C. R.	New College, Margate.
Smith, F. L.	Wellingborough Grammar School.
Wahnsley, G. E.	Grammar School, Eccles.
Windeatt, A. M.	The Grammar School, Totnes.
Wooldridge, G. H.	The Grammar School, Bewdley.
Adams, E. W.	Eton House Comm. S., Sheffield.
Bennison, R.	Thanet College, Margate.
Carey, F. C.	Lonsbury College, Upper Clapton.
Hall, H.	Scarborough Grammar School.
Kaberry, W. T.	Rochdale Grammar School.
Kay, R. J.	Oxenford House School, Jersey.
Pawley, E. *bk.*	Avenue House School, Sevenoaks.
Pollard, H. B. *d.*	Sidcot School, Weston-super-Mare.
Purcell, G. H.	Fowey Grammar School.
Beringer, F. J. A.	Central Hill College, Up. Norwood.
Chatt, A. J.	Kendrick Middle School, Reading.
Cooper, E. T.	The College, Weston-super-Mare.
Edwards, H. H.	Chandos School, Hereford.
Glasgow, J. G.	The Western College, Harrogate.
Grattidge, J.	Portway High School, Bath.
Lichfield, G. F.	Leytonstone College.
Norris, R. J.	Private tuition.
Raven, W. F.	Belmont House School, Lee.
Sultzberger, C.	Brixton High School, S.W.
Vaughan, W.	Chetwynd Gro. S., Newport, Salop.
Wilmot, A. H.	Brunswick House S., Windsor.
Wilson, L.	Parish Church Mid. Cl. S., Leeds.
Gudgeon, J. H.	Glenwood Ho. S., Winchmore Hill.
McLean, D.	Brighton Grammar School.
Swete, H. H. W.	Norton College, Luton.
Symonds, O.	Private tuition.
Walker, F.	Friends' School, Saffron Walden.
Albu, A.	Beaufort College, St. Leonards.
Brownscombe, E.	Brunswick House, Maidstone.
Cox, W. A. *d.*	Independent College, Taunton.
Elliott, J. L.	Elmfield College, York.
Long, J. E.	Farnham Grammar School.
Martin, A. R.	83 Montpellier Road, Brighton.
Welshman, F. H. *d.*	Sidcot School, Weston-s.-Mare.
Amber, H. C.	Grammar School, Chard.
Bellows, W.	Bussage House, Stroud.
Edwards, W. H.	Cavendish College, Southampton.
Gardiner, A. P.	Brighton House School, Clifton.
Hartley, J. V.	Collegiate School, Wakefield.
Hayward, J. W. *d.*	Sidcot School, Weston-s.-Mare.
Jones, A.	Dolgelly Grammar School.
Pearman, C. F. A.	Wilsford House School, Devizes.
Stabler, C. E.	Foster's Grammar S., Sherborne.
Bannerman, J.	Bickerton House S., Birkdale.
Duce, A.	St. Martin's School, York.
Evans, J. F.	Grammar School, Wirksworth.
Gundry, J. T.	Harleigh House, Bodmin.
Price, J.	High School, Shrewsbury.
Taplin, E. W.	Mercers' School, E.C.

SECOND CLASS.—2ND DIVISION.

Bates, E.	Vermont College, Clapton.
Cuff, S.	Cowley College, New Barnet.
Fremantle, H. D.	New College, Margate.
Hueffer, O. F. M.	Practoria House, Folkestone.
Mitchell, J. C.	Topcliffe Grammar S., Thirsk.
Moore, E. S.	Middle Class S., Weston-s.-Mare.
Williams, E. L.	Grammar School, Eccles.
Donovan, G. T. W.	Private tuition.
Thorp, J. S.	University School, Southport.
Ware, R. C.	Ilfracombe Grammar School.
Watson, W.	Parish Ch. Mid. Class S., Leeds.
Almond, J.	Church Institute, Bolton.
Barford, H. G.	Bourne College, Birmingham.
Budd, W. J.	Hill House School, Totnes.
Cannell, E. K.	Private study.
Dixon, F.	Bickerton House School, Birkdale.
Platts, H.	Parish Ch. Middle Class S., Leeds.
Price, B.	Southdown College, Eastbourne.
Silcox, M. Ll.	Emwell House S., Warminster.
Tuffin, A. S.	Foster's Grammar S., Sherborne.
Williams, M.	High School, New Brighton.
Antill, G. C.	Finsbury Park College, N.
Drake, J. F.	St. Helen's College, Southsea.
Gudgeon, H. H.	Glenwood Ho. S., Winchmore Hill.
Heywood, S.	The Commercial College, York.
How, J. S.	Grammar School, Bideford.
Riseley, C. W.	Hall's Grammar S., Snettisham.
Stokes, F. J.	Huntingdon Grammar School.
Stratton, W.	The College, Gildersome.
Walpole, H.	Middle Class School, Barnstaple.
Benians, J. E.	Private study.
Butler, H. G.	Thanet College, Margate.
Cain, T. W.	High School, Douglas, Isle of Man.
Horton, A. J.	Brunswick House, Maidstone.
Lambert, E.	Brighton Grammar School.
Love, P.	Chatham Institute, Liverpool.
Lowry, H. M.	Queen's College, Taunton.
Northwood, S.	Dudley Middle Class School.
Pretty, W.	Wellingborough Grammar School.
Still, S. H.	Emwell House S., Warminster.
Trengrouse, H. W.	Castle Hill School, Reading.
Imeson, T. F.	Scarborough Grammar School.
Langrish, W. G.	Collegiate School, Aldershot.
Lee, F. E.	Ascham College, Clacton-on-Sea.
Leicester, H. A. *ch.*	University School, Southport.
Peacock, W. H. R.	Highbury Coll., Brownswood Rd., N
Perry, W.	Halesowen Grammar School.
Scoble, H. T. *ger.*	Lewisham Park School, S.E.
Sherriff, G. W.	Vermont College, Clapton.
Smith, J. E.	Southport Grammar School.
Waterhouse, S. H. O. *d.*	High S., Queen's Coll., B'ham.
Westropp, W.	Grammar School, Chard.
Goodman, P. T.	Hartley Institute, Southampton.
Hayes, W.	Farnham Grammar School.
Simpson, G. S.	Brighton Grammar School.
Williams, T.	Lewis's Endowed S., Gelligaer.
Baumon, B. D.	Gunnersbury College, W.
Bennett, T. P.	Laurel Bank School, Manchester.
Blackburn, J. H.	The Commercial College, York.
Forward, E. L.	Grammar School, Chard.
Grylls, G.	Hart House School, Tregoney.
Keighley, G.	Grammar School, Burnley.
Lees, T.	Longwood Gram. S., Huddersfield.
Marchant, E. W.	Avenue House School, Sevenoaks.
Piper, H. F.	Whitworth School, Derby.
Searfe, R.	E. Anglian S., Bury-St.-Edmunds.
Smith, H. M.	Brighton Proprietary School.
Wright, P. F.	Brighton Grammar School.
Distin, H. S.	Hill House School, Totnes.
Harvey, H.	Vickery's, Southsea.
Hindley, J. C.	Grammar School, Eccles.
Lewty, H. A.	Parish Ch. Middle Class S., Leeds.
Mytton, R. P.	Chetwynd Gro. S., Newport, Salop.
Ormrod, J.	High School for Boys, Bolton.
Payen-Payne, R. S. H.	Private tuition.
Soddy, T. E.	Stanley House School, Eastbourne.
Arbuthnot, K. W.	Private tuition.
Cadman, C. T.	Colfe Grammar S., Lewisham Hill.
Gardiner, A. L.	Dane Hill School, Margate.
Greasley, F.	Parish Ch. Middle Class S., Leeds.
Newman, A.	Broughton School, Hr. Broughton.
Pitt-Taylor, B. W.	Chatham Institute, Liverpool.
Spencer, A. H.	Oxenford House School, Jersey.
Whitfield, J.	The College, Weston-s.-Mare.
Clark, J. T.	Parish Ch. Middle Class S., Leeds.
Crabbe, J. S.	Waverley House S., Southport.
Dobson, A. A. G. *d.*	Private study.
Le Brocq, H. J.	Oxenford House School, Jersey.
MacMahon, M. F.	Victoria Coll., Douglas, I. of Man.
Marsh, H. H.	Buxton College, Stratford.
Moon, R. H.	Ousegate School, Selby.
Nutt, J. A.	Hull and East Riding College.
Ogden, H. B.	The Grammar School, Bolton.
Timmins, H.	Dudley Middle Class School.
Tonkin, A.	Salway House School, Leyton.
Axworthy, G. H.	Beverley House School, Barnes.
Hargreaves, H. J.	Waverley School, Liverpool.
Mathews, J. H.	Chetwynd Gro. S., Newport, Salop.
Mell, A. N.	New College, Margate.
Moon, H. E. K.	Brighton Grammar School.
Simmons, W. E.	Belle Vue House S., E. Greenwich.
Atkins, H. C.	Grammar School, Newbury.
Hotten, H.	Hart House School, Tregoney.
Bullmore, C. C.	Probus School, Probus.
Collins, W.	Dane Hill School, Margate.
Fraser, D. H.	Private tuition.
Gillison, J.	The Manse, Tattenhall.
Isaacs, E.	Great Ealing School, W.
Killick, A. W.	The High School, Hungerford.
Lucas, H. F.	Bourne College, Birmingham.
Marsh, A. J.	Merton House S., Brooklands.
Moffat, H. J.	Middle Class S., Weston-s.-Mare.
Olver, A. H.	Harleigh House, Bodmin.
Thomas, W. M.	Chandos School, Hereford.
Valpy, J. H.	Oxenford House School, Jersey.
Ware, W. F.	Thanet College, Margate.
Conlton, A. W.	Kendrick Middle School, Reading.
England, C. F.	Belvoir Road School, Bristol.
Mordecai, E.	Great Ealing School, W.
Oliver, H. M.	Lynton House School, Witney.
Owen-Snow, C. E. F.	Private tuition.
Phillips, S.	Farnham Grammar School.
Reynolds, A. P.	Sidcot School, Weston-s.-Mare.
Webb, W. S.	Private tuition.
Abell, W. O.	Whitworth School, Derby.
Bolt, F. E.	The Huish School, Taunton.
Landsberg, J.	Beaufort College, St. Leonards.
Taylor, A. H. E.	Woodside House School, Sutton.
Brooks, J. B.	Grammar School, Wallingford.
Coleman, J. A. S.	Anglo-French Coll., Finchley Rd.
Harding, G. R. C.	Dane Hill School, Margate.
Manby, V. B.	The Grammar School, Totnes.
Rogers, E. M.	Chetwynd Gro. S., Newport, Salop.
Smith, E.	K. Charles I. Gram. S., Kidderminr.
Stubbs, W. T.	K. Edward VI. Gr. S., Southampton.
Wilkinson, A. B.	Harleigh House, Bodmin.
Williams, E.	Hart House School, Tregoney.
Baskerville, F. L.	Rhodes House S., Manchester.
Bastin, R. S.	Paradise H. S., Stoke Newington.
Carter, E. O.	K. Edward VI. Gr. S., Southampton.
Clark, F. P.	Handel College, Southampton.
Cooke, C. D.	Thanet College, Margate.
Du Val, J.	Oxenford House School, Jersey.
Hamond, C. F. B.	Winton House, Folkestone.
Hayward, A. H.	Kelly College, Tavistock.
Hodge, W. J.	Royal Masonic Inst., Wood Green.
Martin, J.	Collegiate School, Wakefield.
Pearson, G.	Grammar School, Eccles.
Quinton, F. P.	Modern School, Woking.
Sedgwick, P. G.	Honton House, St. Leonards.
Skeats, E. W.	Handel College, Southampton.
Walker, C. S.	Private tuition.
Adamson, C. P.	Yarm Grammar School.
Balls, A.	Hendon School, Hendon.
Berry, H. O. W.	St. George's College, Wimbledon.
Bles, S. D.	Laurel Bank School, Manchester.
Cancellor, E. V.	Hall's Grammar S., Snettisham.
Harrison, W. C.	Queen Mary's Lower S., Walsall,
Heyland, W. A.	Hazelcroft, Weston-s.-Mare.
Mather, H. T.	2 St. Philip's Road, Surbiton.
Norman, H. D. *d.*	Brighton Grammar School.
Suale, F. A.	Manchester Commercial School.
Taylor, R. A. W.	The Academy, Whitchurch.
Wade, W. C.	Milton Villa S., Bexley Heath.
Westermann, P.	Paradise Ho. S., Stoke Newington.
Crosse, F. H.	Private study.
Fry, S. H.	Sidcot School, Weston-s.-Mare.
Roberts, W. H.	Oxenford House School, Jersey.
Swain, F. *bk.*	Caversham House S., Reading.
Wilson, R. J.	Farnham Grammar School.
Barker, S.	Bickerton House School, Birkdale.
Beare, A. T.	Thornton Heath School.
Heselton, J. M.	Commercial School, Bridlington.
Hunter, E. S.	Waterloo High S., Blundellsands.
Parker, F. J.	Thanet College, Margate.
Purcell, S. V.	Fowey Grammar School.
Straker, H.	Oxford House, Brighton.
Taylor, H. L.	Beauvoir College, St. Leonards.
Bakewell, J.	Whitworth School, Derby.
Duncan, J. F.	Boys' Coll. & High S., S'hampton.
Edleston, R. S. C.	Irvine House, Derby.
Ellis, A. E.	St. Asaph Grammar School.
Hastings, J. D.	St. Oswald's College, Tynemouth.
Hignett, J.	Chatham Institute, Liverpool.
Jay, W. H.	Cambridge House S., Margate.
Leach, M.	Immanuel Coll., Streatham Com.
Martin, W. H.	Emwell House S., Warminster.
Read, A.	Brighton Grammar School.
Rudin, M. R.	Anglo-German School, Brixton.
Say, H. J.	Lewisham Ho., Weston-s.-Mare.
Shingleton, A. W.	D'Eresby House S., Ealing Com.
Swaffin, J. P.	Hill House School, Totnes.
Taylor, E. A.	Modern School, Woking.
Tweddle, H. W.	Waverley School, Liverpool.
Wiglesworth, J.	Liverpool Institute.
Baker, R.	Belle Vue House S., E. Greenwich.
Barnard, H.	Great Ealing School, W.
Gerrish, E.	Lewisham H., Weston-s.-Mare.
Harding, P.	Portway High School, Bath.
Kemp, W. M.	The Huish School, Taunton.
McLaren, W.	Parish Ch. Middle Cl. S., Leeds.
Moffatt, G. G.	Henley House S., St. John's Wood.
Rhind, T.	Private tuition.
Scrivener, P. R. *mu.*	Kendrick Middle S., Reading.
Sutherland, S. A.	St. Oswald's College, Tynemouth.
Thompson, H. F.	K. Charles I. Gram. S., Kidderm'r.
Williams, W. P.	St. Asaph Grammar School.
Beresford, P. W.	7 Sussex Square, Brighton.
Burrage, P. C.	Private tuition.
Byrne, E. G.	Grosvenor School, Twickenham.
Derham, C. E.	The Huish School, Taunton.
Dyer, F. E.	Grammar School, Wallingford.
Fricker, J.	Grammar School, Wallingford.
Hale, F. T. *d.*	Victoria Park S., Manchester.
Lambert, J. *d.*	Brighton Grammar School.
Mayall, W. H.	Coll. and Comm. School, Oldham.
Tongue, C. R.	Salway House School, Leyton.
Walters, W. S.	Ellesmere School, Harrogate.
Deacon, G. G.	Swindon High School.
Deverell, L. C.	Stanley House, Margate.
Lee, M. B.	Great Ealing School, W.
Phillips, S. P.	Victoria College, Stroud Green.

BOYS, SECOND CLASS—*Continued.*

Pring, N. B.	Anglo-French Coll., Finchley Rd.
Atlee, A.	Sydenham College, S.E.
Best, L. W. *d.*	Mercers' School, E.C.
Black, W. R.	St. Martin's School, York.
Cooke, P. V.	Oxenford House School, Jersey.
Dunn, E. A.	The Douglas Coll. S., Cheltenham.
Sharpe, R. W.	Blenheim House S., Fareham.
Smith, F.	Waverley School, Liverpool.
Weare, F.	Gillingham Grammar School.
Winter, C. W.	Holmwood, Bexhill.
Bayly, W.	Grongar House, Margate.
Crosby, M. H.	East Devon County S., Tiverton.
Henshaw, A. H.	Waterloo High S., Blundellsands.
Riley, J. T.	Wellingborough Grammar School.
Sayers, H. J. I.	Dane Hill School, Margate.
VanderBen, W. G.	Grammar School, Chard.
Abrahams, S.	Warlingham School, Surrey.
Bache, W. J.	Sidcot School, Weston-s.-Mare.
Campbell, W.	Paignton School, Paignton.
Hodgkinson, F. B. *d.*	Bickerton House S., Birkdale.
Mandiola, R.	St. Bede's College, Manchester.
Martin, R.	Bussage House, Stroud.
Wilson, B. L.	The Middle S., Liverpool College.
Banks, E. R.	Dane Hill School, Margate.
Broad, C. G.	Dunheved College, Launceston.
Chopping, A.	Trinity House Coll., Colchester.
Edwards, J. H.	Leytonstone College.
Eve, J. O.	Apsley House, Margate.
Harmsworth, H.	Castle School, Guildford.
Hayes, J. H.	Kersal Glen S., Hr. Broughton.
Hissett, F. E.	Exmouth H. S., Stoke, Devonport.
Jones, R. P.	St. Asaph Grammar School.
Moseley, L.	Beaufort College, St. Leonards.
Palsgrave, E. P.	Warwick House School, Southsea.
Toole, F. A. W.	K. Edward VI. Gr. S., S'hampton.
Barrett, W. S. K.	Upton School, Slough.
Croot, L.	Middle Class School, Barnstaple.
Hardwick, A.	High S., Springfield Mount, Leeds.
Hewett, G. A.	Farnham Grammar School.
Naish, H.	Grammar School, Chard.
Telford, E. D.	The Grammar School, Withington.
Waugh, T. C.	The College, Broadstairs,

SECOND CLASS.—3RD DIVISION.

Bishop, C. T.	Brighton Grammar School.
Clarke, A. W.	St. George's College, Wimbledon.
Crow, W. B.	The Commercial College, York.
Hayne, G. B.	Handel College, Southampton.
Lloyd, P. C.	Middleton School, Bognor.
Lyne, W. H.	Dunheved College, Launceston.
Mills, G. E.	High School, Barnsley.
Morris, H.	Lynton House School, Witney.
Rowe, H. B.	Private tuition.
Stanley, P.	Manor House, Clapham.
Strong, A. J. S.	East Cornwall College, Liskeard.
Travers, T. R.	Montgomery College, Sheffield.
Compton, H. W.	Middleton School, Bognor.
Fernie, A. F.	Wellingborough Grammar School.
Langman, J. A. *d.*	K. Ed. VI. Gram. S., Southampton.
Souter, W. E.	Elmfield College, York.
Wilding, J.	Quernmore, Bromley, Kent.
Coates, F. A.	Belvoir Road School, Bristol.
Low, H. V.	Private tuition.
Rodway, R. H.	Lewisham House, Weston-s.-Mare.
Appleby-Harrison, S.	T. W. Cliftonville Coll., Margate.
Ball, W. S.	Collett House, Bournemouth.
Bennett, W. F. C.	Royal Grammar School, Sheffield.
Bindley, J. H.	Mead House S., Biggleswade.
Bloom, F.	E. Anglian S., Bury-St. Edmunds.
Crabtree, P.	Grammar School, Burnley.
Hopkins, H. J.	Gillingham Grammar School.
Messervy, P. C.	St. Martin's Commercial S., Jersey.
Darke, M.	Darfield College, East Acton.
Price, A. A.	Thorne Hill School, Blackheath.
Blair, H. H.	Private tuition.
Geere, H. J. V.	K. Ed. VI. Gram. S., Southampton.
Henderson, F.	Royal Gram. S., New'tle-on-Tyne.
Horne, E. R.	Private tuition.
Morter, A. W.	Private tuition.
Moss, G. B.	Royal Grammar School, Sheffield.
Pfahl, H.	Hillmartin Coll., Camden Rd., N.W.
Phillips, J.	St. Clear's Gram. S., Carmarthen.
Wheeling, W.	Catholic Coll. Inst., Manchester.
Charlesworth, J.	Parkgate Avenue School, Hull.
Cullingworth, H. E.	University School, Southport.
Darby, H. J.	Mercers' School, E.C.
Hayter, W. G.	Bourne College, Birmingham.
Hudson, J. W.	College House, Eastbourne.
Jacobs, J. M. C.	High School, Shrewsbury.
Roberts, C.	Haileybury College.
Shelford, E. J.	Brighton Grammar School.
Tailby, M. C.	Chiswick Collegiate School.
Thelwall, R. de C.	Private tuition.
Baker, J. E.	St. Oswald's College, Tynemouth.
Bendy, R. H.	Nelson College, Lee.
Cordingley, W. E.	Royal Masonic Inst., Wood Green.
Cutler, H. S.	Moore Park Grammar School, S.W.
Gladwell, L. V.	Upton School, Slough.
Glover, W. C.	Pomfret College, Pontefract.
Jeffery, C.	Apsley House, Margate.
Lee, W. W.	Askern College, Doncaster.
Newbold, W. C.	Brixton Collegiate School, S.W.
Nicholson, J.	High School for Boys, Bolton.
Potter, F. J.	Swindon High School.
Slater, S. H.	Paradise Ho. S., Stoke Newington.
Ward, R.	Raymond H.S., Bramley, Guildford.
Cole, A.	St. Oswald's College, Tynemouth.
Cox, A. H.	Brighton Grammar School.
Dixon, P. W.	Claremont College, Blackpool.
Howard, E. J.	Waverley House S., Southport.
Judd, C. A.	Beauvoir College, St. Leonards.
Loy, M. W.	Thornton Grammar S., Pickering.
May, J. L.	Private study.
May, W. J.	Private tuition.
Richardson, A. H.	6 Mount Preston, Leeds.
Upsdale, A. R.	Beauvoir College, St. Leonards.
Yeo, J. H.	Paignton School, Paignton.
Bracey, W. E.	Epsom College.
Carter, D. R.	Lynton House School, Witney.
Clarke, R.	E. Anglian S., Bury-St. Edmunds.
Davies, H.	Park-y-velvet Gr. & Sc. S., Car'then.
Elliott, G.	Brighton Grammar School.
Hilditch, J.	High School, Crewe.
Hothersall, J. B.	Cambridge House School, Wigan.
Lloyd, J.	St. Asaph Grammar School.
Paull, J. A.	East Hardwick S., Pontefract.
Sowerby, R. J.	South Hackney College, E.
Tatton, E. J.	Skelsmergh House S., Margate.
Turner, F.	Hart House School, Tregoney.
Ashby, S. F.	Bickerton House School, Birkdale.
Brown, E. F.	Brighton Grammar School.
Cox, A.	Grammar School, Langport.
Forrest, V.	Norton College, Luton.
Poole, W. E.	Askern College, Doncaster.
Sales, H. S.	The Collegiate S., Great Grimsby.
Sherwood, H. R.	The Priory, Kew.
Squibb, F. M. S.	Handel College, Southampton.
Willmore, W.	Epsom College.
Bugg, C. A.	Foster's Grammar S., Sherborne.
Daniel, T. B.	Rhodes House S., Manchester.
France, A. E.	Cambridge House School, Wigan.
Godfrey, E.	Hill House School, Totnes.
Hewitson, W.	Trinity College, Harrogate.
Horsfall, P.	Epworth College, Rhyl.
Pugh, C. W.	Devizes Grammar School.
Brettingham, R. L.	Trinity House College, Colchester.
Grabham, T. G.	Wellingborough Grammar School.
Lemel, N.	Tivoli House School, Gravesend.
Ridler, H. B.	Modern School, Woking.
Webb, E. C.	Salway House School, Leyton.
Wolstenholme, J.	Fair Oaks School, Wilmslow.
Davidson, R. M.	Maida Vale School, W.
Gosling, T. H.	Brighton Grammar School.
Luff, J.	Upton School, Slough.
Ross, W. G.	Lynton House School, Witney.
Ware, H. F.	Thanet College, Margate.
Warren, J. A.	Erme House, Mutley, Plymouth.
White, E. V.	St. John's Coll., Hurstpierpoint.
Chart, R.	Brighton Grammar School.
Denniford, T. V.	Huntingdon House S., Teddington.
Lord, F. A.	Wellington School, Heaton Moor.
Sedgwick, A. E.	Honton House, St. Leonards.
Von der Heyde, A. G.	Brighton Grammar School.
Ward, H.	Woodside House School, Sutton.
Bentley, J.	Commercial School, Astley Bridge.
Copp, F. D.	Grammar School, Bideford.
Fisher, W. H.	Vermont College, Clapton.
Foley, J.	Catholic Coll. Inst., Manchester.
Hargreaves, J.	East Hardwick S., Pontefract.
Mosley, R. V. A.	The Commercial College, York.
Salt, A. J,	Bourne College, Birmingham.
Campsall, A. W.	Private tuition.
Haworth, R.	Rhodes House S., Manchester.
Marshall, A. H.	Thornton Heath School.
Rogers, H. M.	Chetwynd Gro. S., Newport, Salop.
Blackmore, W.	Collegiate School, Hythe.
Hackwood, J. H.	Brighton Grammar School.
Hollingdale, W. H.	Clytha College, Newport, Mon.
Maegregor, A. H. C.	Mount Radford School, Exeter.
Preston, H. S.	The Manse, Tattenhall.
Stannard, W. L.	Boys' High School, Hornsea.
Brooks, N.	Chetwynd Gro. S., Newport, Salop.
Hulme, H. T.	Waterloo High S., Blundellsands.
Needham, G. A.	Montgomery Ho., Tunbridge Wells.
Todd, C. W.	Boys' High School, Hornsea.
Bryant, W. A.	Bourne College, Birmingham.
Hyett, F. W.	Holmwood, Bexhill.
Leaver, R.	Thanet College, Margate.
Lemel, S.	Tivoli House School, Gravesend.
Manning, F. K.	Royal Masonic Inst., Wood Green.
Musin, E. G. A.	Farnham Grammar School.
Page, A. T.	Beauvoir College, St. Leonards.
Barry, W. G.	Private tuition.
Casdagli, A.	Laurel Bank School, Manchester.
Davies, R.	Brooklands School, Sale.
Farrington, G.	Royal Gram. S., Newcastle-on-T.
Gedye, W.	Vermont College, Clapton.
Glenny, E. R. H.	Avenue House School, Sevenoaks.
Horsley, E. M.	Scarborough Grammar School.
Pix, C.	Norton College, Luton.
Plummer, E. M.	Ascham College, Clacton-on-Sea.
Walker, F. G.	Wellington School, Heaton Moor.
Ahier, H. J.	Oxenford House School, Jersey.
Burrell, R.	Stoke Newington Grammar S.
Pinn, W. J.	Devizes Grammar School.
Sargent, D. J.	Cleveland House S., Salisbury.
Blachford, H. F.	East Cliff School, Bournemouth.
Bradley, E. W.	Epworth College, Rhyl.
Gibson, A. G.	Boys' High School, Hornsea.
Hort, A. D.	Holmwood, Bexhill.
Naish, P.	Grammar School, Chard.
Windsor, A. E.	Grammar School, Chard.
Dawson, J.	East Hardwick S., Pontefract.
Emanuel, E. M.	Boys' Coll. & H. S., Southampton.
Kirk, P.	Yarm Grammar School.
Barber, M. C.	Brighton House School, Clifton.
Dorling, F. W. R.	Private tuition.
Hampton, N. A.	College House, Eastbourne.
Booth, A.	Manchester Commercial School.
Cheatle, G.	Bussage House, Stroud.
Walton, P. C.	Boys' Coll. & H. S., Southampton.
Wilson, W. C.	Anglo-French Coll., Finchley Rd.
Darby, E. R.	Hingham Endowed S., Attleboro'.
Nosworthy, H. J.	Hill House School, Totnes.
Timms, E. E.	College House, Eastbourne.
Brentnall, S. B.	Wellington School, Heaton Moor.
Costigan, F. J.	Waverley School, Liverpool.
Falcke, G.	Beaufort College, St. Leonards.
Gabe, M. P.	Adv. Elem. Boys' S., Merthyr Tydfil
Lyell, J. C.	Private tuition.
Braddock, F.	High School, Douglas, I. of Man.
Harris, C. W.	Waterloo High S., Blundellsands.
Hayes, S. G.	Grosvenor School, Twickenham.
Leese, R.	Deal College.
Le Tall, F. W.	Belgrave School, Scarborough.
Redman, R.	Palmerston House, Ross.
Williams, J. E.	Farnham Grammar School.

THIRD CLASS.—1ST DIVISION.

Wolfe, A. R. *bk.*	North Curry Classes, Taunton.
Smith, E. L.	Friends' School, Saffron Walden.
Buckingham, H. F.	Kelly College, Tavistock.
Robinson, W. S.	Scarborough Grammar School.
Buscombe, L. J. *a.ms.*	Harleigh House, Bodmin.
Hart, T.	Mercers' School, E.C.
Sealey, F. C.	K. Charles I. Gram. S., Kidderm'r.
Walker, A.	Manchester Grammar School.
Payne, C. E. W.	Whitworth School, Derby.
Williams, M.	Pontypridd Grammar School.
Jones, G. M.	Wellington College, Salop.
Clinker, R. C.	Sidcot School, Weston-s.-Mare.
Hodgson, A. T.	Parish Church Mid. Cl. S., Leeds.
Roberson, S. A.	The College, Herne Bay.
Beswick, C. H. *d.*	High School for Boys, Bolton.
Davies, J. W.	St. Helen's College, Southsea.
Henson, B. R.	Parkgate Avenue School, Hull.
Osborn, F. M.	Bickerton House School, Birkdale.
Buscombe, R. T.	Harleigh House, Bodmin.
Clark, T.	Catholic Coll. Inst., Manchester.
Mell, S. S.	Friends' School, Saffron Walden.
Adkins, J. S. *d.*	Wellington College, Salop.
Clay, R.	Private tuition.
Stocker, P.	St. Austell School, Cornwall.
York, G. H.	Wellington College, Salop.
Walker, J.	Middleton School, Bognor.
Pinniger, W. L.	Middle Class S., Weston-s.-Mare.
Smith, W. H.	Parish Church Mid. Cl. S., Leeds.
Williams, F. *d.*	108 High Street, Guildford.
Burbridge, J. K.	Eastbourne Old School.
Spooner, W. C.	Elmfield College, York.
Barlet, L. P.	Mercers' School, E.C.
Dear, W. E.	Emwell House S., Warminster.
Humphreys, J. E.	St. Helen's College, Southsea.
Bale, A. H.	Portway High School, Bath.
Loe, R. J.	Queen's School, Basingstoke.
Terrell, J.	Maida Vale School, W.
White, L.	The Grammar School, Bewdley.
Graham, H. G.	Quernmore, Bromley, Kent.
Grimshaw, A. C.	Sidcot School, Weston-s.-Mare.
Lewis, H. H.	Farnworth Grammar S., Widnes.
Carey, F. W.	Netherhampton Ho. S., Salisbury.
Isherwood, H.	University School, Southport.
Mitchell, R. K.	Chandos School, Hereford.
Rideout, J. B.	Grammar School, Eccles.
Garden, C. A.	Bickerton House School, Birkdale.
Russell, J. F.	Parish Church Mid. Cl. S., Leeds.
Savidge, S.	East Anglian S., Bury St. Edmunds.
Hamlin, H. J.	Bridgewater Collegiate School.
Grace, J. W.	St. Bede's College, Manchester.
Revert, G. H. C. *f.*	Eastbourne Old School.
Turner, C. J. *d.*	The College, Herne Bay.
Crosbie, E.	Hart House School, Tregoney.
Hodges, H. H.	Rye College, Peckham Rye.
Piggott, G. F.	Commercial School, Crediton.
Reeves, H. A.	The Grammar School, Totnes.
Jenner, W. M.	Winton House, Folkestone.
Nethercot, C. A.	Portway High School, Bath.
Schiele, F. E.	Brooklands School, Sale.
Tanner, P.	Friends' School, Saffron Walden.
Olley, A. H. C.	St. George's College, Wimbledon.
Terry, A. H. *d.*	Brunswick House, Maidstone.
Bailey, P. J.	Sea House School, Eastbourne.
Reynolds, C. W.	East Hardwick S., Pontefract.
Shaw, W. *d.*	Wellington College, Salop.
Spence, H.	Kersal Glen S., Hr. Broughton.
Waddington, R. H. *ms.*	Higher Grade School, Bacup.
Dunstan, F. M.	High School, Maidenhead.
Hart, T. E.	Vermont College, Clapton.
Hill, G. H.	Parish Church Mid. Cl. S., Leeds.
Lessware, R. H.	Lyonsdown Coll. S., New Barnet.
Pickering, W. S.	Dane Hill School, Margate.
Poulton, C H. *d.*	Leytonstone College.
Thompson, G. P.	Elmfield College, York.
Harrison, S. D.	Brunswick House, Maidstone.
Villers, E.	Highbury House S., St. Leonards.
Woodhouse, H. H. *ch.*	Dudley Middle Class School.
Berry, C. W.	St. George's College, Wimbledon.
Fair, W. *d.*	Brighton Grammar School.
Roseveare, P. W.	Brunswick House, Maidstone.
Walton, D. W.	St. Andrew's S., Wells Street, W.
Bateman, H. H.	Barton School, Wisbech.
Day, H. D.	Avenue House School, Sevenoaks.
Lane, A.	Highbury Coll., Brownsw'd Rd., N.
Pitcher, R. J. *mu.*	Erme House, Mutley, Plymouth.
Cunliffe, H. F. H. *d.*	Victoria Park S., Manchester.
Herivel, P. A.	Brunswick House, Maidstone.
Idenden, H. A.	Highbury House S., St. Leonards.
Lovesy, A. F.	Southdown College, Eastbourne.
Youell, E.	Middleton School, Bognor.
Butterworth, J. W.	Grammar School, Burnley.
Lass, E. D.	Private tuition.
West, W. A.	Battersea Grammar School.
Byrne, E. T.	Grosvenor School, Twickenham.
Hay, A. B.	Hull and East Riding College.
Naylor, B. H.	Hull and East Riding College.
Bankart, H. M. S.	North London High School, N.W.
Barber, J. W.	Holmfirth Elem. Board School.
Bateman, J. H.	Barton School, Wisbech.
Dearling, R.	Apsley House, Margate.

BOYS, THIRD CLASS—*Continued.*

Fenton, H.		East Hardwick School, Pontefract.
Guest, G. W. G.		K. Charles I. Gram. S., Kidderm'r.
Lewis, R.		Dolgelly Grammar School.
Nimmo, J.		Beaumont House School, Jersey.
Nock, F. J.		Bourne College, Birmingham.
Thorold, F. T.		North Curry Classes, Taunton.
Chapman, E. M.	*d.*	56 Prospect Road, Scarborough.
Featherstone, C.		Kersal Glen S., Hr. Broughton.
Sear, L. W.		Thanet College, Margate.
Davis, J.		Kendrick Middle S., Reading.
Hobson, H. S.		Oakfield School, Crouch End.
Gething, G. A.		Kersal Glen S., Hr. Broughton.
Rhind, A. H.		Lindenthorpe, Broadstairs.
Turner, D. G.	*d.*	The High School, Hastings.
Whittington, B. W.		Claremont College, Blackpool.
Willson, R. J.		St. George's College, Wimbledon.
Woollatt, C.		Claremont House, St. Albans.
Brandon O. G.		Mercer's School, E.C.
Brookes, J. A.		Wellington College, Salop.
Burdon, J. R.		Northgate S., Bury-St.-Edmunds.
Cross, E. P.		Gillingham Grammar School.
French, J. W.		Elmfield College, York.
Hawkins, T. S.		K. Edward VI. Gr. S., Southampton.
Livesey, H. V. A.		Elmfield College, York.
Marsden W. E.	*d.*	Leytonstone College.
Oppenheimer, H. S.		Mercers' School, E.C.
Watson, H.		Holy Trinity Boys' S, Margate.
Schomberg, J. E.		Private tuition.
Silke, R. K.		Grammar School, Ongar.
Voules, T. A.		Chesterfield Grammar School.
Williams, W.		Anglo-French Coll., Finchley Rd.
Brown, R. G.		Wellington College, Salop.
Edwards, J. R.		Cavendish College, Southampton.
Ffrench-Davis, L.		Midland Collegiate S., Edgbaston.
Frankenburg, M.		Great Ealing School, W.
Ivens, F.		Wykeham Ho. S., Priory Rd., N.W.
Nowill, F.	*d.*	Eton House Comm. S., Sheffield.
Peake, S. M.		High School for Boys, Bolton.
Peatfield, A. E.		Elmfield College, York.
Read, C.		Brighton Grammar School.
Riley, F.		University School, Southport.
Ruston, R.		Mead House School, Biggleswade.
Watts, E.		Stranraer School, Bournemouth.
Barber, J. H.		Ancaster House S., St. Leonards.
Barker, W. W.		Grammar School, Dewsbury.
Lane, W.		Gillingham Grammar School.
Masterman, W. T. Y.		Elmfield College, York.
McGoverne, E. G.		Farnham Grammar School.
Mitchell, J. J.		Chandos School, Hereford.
Roberts, H. J.		Wellingborough Grammar School.
Simpson, G. R.		The Commercial College, York.
Smith, C. J.		The College, Weston-s.-Mare.
Sykes, W. E.		Lynton House School, Witney.
Tupman, A. H.		Exmouth College.
Wells, A. W.		Brighton Grammar School.
Williams, P. F.		Kentish Town School, N.W.
Booth, G. H.		Academy, Crewe.
Bower, W. G.		Summerleaze Coll. S., E. Harptree.
Boyle, F. W.		Wykeham Ho. S., Priory Rd., N.W.
Byass, A.		Elmfield College, York.
Eyres, J.		Wilsford House School, Devizes.
Herbert, A. H.		St. John's College, Brixton.
Hewlett, E.		The Grammar School, Totnes.
Jepps, D. P.		Highbury House S., St. Leonards.
Schlesinger, B.		Great Ealing School, W.
Schnegelsberg, H.		Wykeham Ho. S., Priory Rd., N.W.
Stainforth, T. F.		Hull and East Riding College.
Tigg, E. A.		St. Mary's College, Peckham.
Wurm, F. M.		Boys' Coll. & High S., Southampton.
Bolland, A. P.		Parish Church Mid. Cl. S., Leeds.
Boncey, W. W.		Ascham College, Clacton-on-Sea.
Clayton, J. W.		St. Augustine's College, Ramsgate.
Daniells, P. N.		Whitstable College.
Esam, S. J.		Sea House School, Eastbourne.
Magnus, D.		Beaufort College, St. Leonards.
Maitland, J. de W.		The Hermosa School, Ealing.
Moore, R.		Waterloo High S., Blundellsands.
Oughton, E. E. B.		Licensed Victuallers' School, S.E.
Pennington, T.		The Grammar School, Bewdley.
Petersen, E. M.	*d.*	Sidcot School, Weston-s.-Mare.
Sissons, A. T.		Hull and East Riding College.
Stead, H.		Parish Church Mid. Cl. S., Leeds.
Vincent, E. H.		The Huish School, Taunton.
Wevell, T.		Harleigh House, Bodmin.
Baxter, J. W.		Ascham College, Clacton-on-Sea.
Burtt, S. M.		Friends' School, Saffron Walden.
Butland, W. E.		The Huish School, Taunton.
Carter, W. G.		Warwick House School, Southsea.
Kenny, J. H.		Boys' Coll. & H. S., Southampton.
Marriott, W. E.		Elmfield College, York.
Marshall, E. G.		The Grammar School, Midhurst.
Morrison, H. P.		K. Charles I. Gr. S., Kidderminster.
Morrison, W. C.		Vermont College, Clapton.
Neale, F. W.		Kendrick Middle School, Reading.
Pooley, G. S.		Gillingham Grammar School.
Roberts, J.	*d.*	Hoe Grammar School, Plymouth.
Rowling, S.		Parish Church Mid. Cl. S., Leeds.
Stringer, L.		The College, Gildersome.
Butler, T. H.		Queen Mary's Lower S., Walsall.
Cooley, P. G.		Royal Grammar School, Sheffield.
Evans, C. E.		Bourne College, Birmingham.
Haines, G. E.		Royal Masonic Inst., Wood Green.
Halligey, A. C.		Elmfield College, York.
Harris, E. F.		Paston Grammar S., N. Walsham.
Lonnen, W. H.		Arnold College, W. Bournemouth.
Morgan, H.		Grammar School, Newtown, Mont.
Niven, F. C.		Hull and East Riding College.
Norman, P. G.		Highbury House S., St. Leonards.
Part, M. F.		Catford Collegiate S., Lewisham.
Robinson, J.		Friends' School, Saffron Walden.
Royle, P.		Stamford Hill Collegiate S., N.
Warham, E. E.		Farnworth Grammar S., Widnes.
Warner, G. P.		Farnworth Grammar S., Widnes.
Wills, J.		Thornton Heath School.
Wooldridge, E. G.		King's College, Twickenham.
Barker, C. C.		Park Hurst School, Buxton.
Berresford, G. E.		Chesterfield Grammar School.
Blackburn, R.		The Southern Coll., Pannal Ash.
Boulton, F. J.		Milton College, Ullesthorpe.
Falkner, H.		Farnham Grammar School.
Hebblethwaite, S.		College House, Spofforth.
Howlett, R. A.		Gosport Commercial School.
Sheppard, A.		Hart House School, Tregoney.
Sholl, E. H.	*d.*	Sidcot School, Weston-s.-Mare.
Taunton, G.		Fowey Grammar School.
Bligh, G.		Avenue House School, Sevenoaks.
Candy, W. E.		Fortescue College, Radstock.
Cattlin, F. B.		Leytonstone College.
Chapman, H. A.		56 Prospect Road, Scarborough.
Cornish, A. W.		Bridgwater Collegiate School.
Dawson, H. I.		Herrick Foundation S., Lewisham.
Ellis, H. S.		Kendrick Middle School, Reading.
Franklin, A. C.		High St. Academy, Farcham.
Holding, G. E.		Belle Vue House S., E. Greenwich.
Horton, H.		Licensed Victuallers' School, S.E.
Howlett, A.		Friends' School, Saffron Walden.
Jones, G. W.		Anglo-French Coll., Finchley Rd.
Libbell, H. B.		Hingham Endowed S., Attleboro'.
Magson, F.		The Commercial College, York.
Stevens, G.		The Academy, Whitchurch.
Terry, A. E.		Hull and East Riding College.
Watkin, E. L.		Wellingborough Grammar School.
Williamson, W. W.	*d.*	Grammar School, Ongar.
Andibert, S. E.	*f.*	Oxenford House School, Jersey.
Baines, S. H.		Ascham House School, Reading.
Ely, R. S.		Cleveland House S., Salisbury.
Ess, G.	*f.*	Anglo-French Coll., Finchley Rd.
Hamer, E. T.		Southport Grammar School.
Higgins, W. W.		Middle Class S., Weston-s.-Mare.
Holden, E. G.		Whitstable College.
Humphrey, C. S.		Sir R. Hitcham's End. S., Coggeshall
Hutchison, F. A.		Beaumont House School, Jersey.
Lambert, E. C.		Berkeley School, Hull.
Mountain, G. Q.		Parish Church Mid. Cl. S., Leeds.
Plowman, T. R.		Vermont College, Clapton.
Rowsell, H.		Valentia House S., S. Norwood.
Walker, H. C.		Apsley House, Margate.
Bindon, W. F. V.		Henley House S., St. John's Wood.
Blanchflower, P.		E. Anglian S., Bury St. Edmunds.
Briggs, W. C.	*mu.*	The College, Gildersome.
Ford, F. W.		Warwick House School, Southsea.
King, A. E.		Mayall College, Herne Hill.
Priestnall, A.		Farnworth Grammar S., Widnes.
Scott, S. R.		Milton College, Ullesthorpe.
Shaw, H.		University School, Southport.
Stark, J. L.		Elmfield College, York.
Stokes, I. W.		Kendrick Middle S., Reading.
Sturge, E. P.		Sidcot School, Weston-s.-Mare.
Waite, W.		Belmore House S., Cheltenham.
Warwick, W. H.		Old Elvet School, Durham.
Capwell, G. H.		Elmfield College, York.
Dodd, A. H.		Middleton School Bognor.
Goode, P. H.		Edgbaston School of Commerce.
Grey, M. S.		Houton House, St. Leonards.
Jones, E. H.		Belvoir Road School, Bristol.
Odell, E. S.		Berrylands Ho. S., Surbiton Hill.
Randles, W. B.		Bourne College, Birmingham
Watson, G. F.		The Castle College, Torquay.
Worth, R.		Paignton School, Paignton.
Wright, F. L.		Anglo-French Coll., Finchley Rd.
Birt, H. H.		Eastbourne House, Devizes.
Bowman, H. A.		Mayall College, Herne Hill.
Copestick, E. J.		Whitworth School, Derby.
Houfe, J.		Trinity College, Harrogate.
Long, H. P.		Grammar School, Ongar.
King, W. S.		Redland Grove School, Clifton.
Middleton, F. J.		Hull and East Riding College.
Mitchell, W. W.	*d.*	Sea House School, Eastbourne.
Parlett, H. S.		Collegiate S., Almorah, Jersey.
Penrose, W.		Fowey Grammar School.
Pemberton, A.		The High School, Heaton Chapel.
Pilcher, W. H.		Sidney Sussex House, Hastings.
Riseley, A. D.		Hall's Grammar S., Snettisham.
Sands, P.		Parish Church Mid. Cl. S., Leeds.
Saunders, E.		Elgin College, Maida Vale, W.
Sollitt, H. W.		Boys' High School, Hornsea.
Torbitt, F.		Dudley Middle Class School.
Walker, W. P.		Lewisham Ho., Weston-s.-Mare.
Woodall, W. D.		Milton College, Ullesthorpe.
Ayres, W. A.		Licensed Victuallers' School, S.E.
Bean, H. E.		The Commercial College, York.
Beaugie, J. S.		Oxenford House School, Jersey.
Berresford, T. L.		Chesterfield Grammar School.
Blake, F. W. E.		Brunswick House, Maidstone.
Corfield, J. H.		Grove Ho. S., Tunbridge Wells.
Edwards, J. G.		Dolgelley Grammar School.
Griffiths, H. M.		Belmont House School, Bexley.
Healey, E. E.		Cliftonville College, Margate.
Hollimake, J.		East Hardwick S., Pontefract.
Neate, R. J.		Wilsford House School, Devizes.
Newton, T. I.		Elmfield College, York.
Pearson, J. A.		Brunswick House, Maidstone.
Ream, C. A.		The Commercial College, York,
Savery, J. E.		St. John's College, Brixton.
Slade, C. F.		Valentia House S., S. Norwood.
Stokes, C.		Chatham Institute, Liverpool.
Unsworth, P.		Elmfield College, York.
Wallbrook, A.		108 High St., Guildford.
Wright, S. H.		Grammar School, Odiham.
Arnold, H. W.		Brooklands School, Sale.
Benton, F. S.		The College, Herne Bay.
Clarke, F. St. C.		Sydenham College, S.E.
Dupré, H. A.		Woodside House School, Sutton.
Edmed, F. G.		Brighton Grammar School.
Garlick, J. A.		High School, Monkgate, York.
Hughes, R. T.		Brighton Grammar School.
Johnstone, T.		Ilkley College.
Moore, H. W.	*d.*	Harrogate College.
Oakley, J.		Private tuition.
Olver, A.		Harleigh House, Bodmin.
Parker, J.	*d.*	E. Anglian S., Bury St. Edmunds.
Peacey, W. H.		Ascham House School, Reading.
Platt, F. W.		The College, Matlock.
Terry, F. W. H.		Grammar School, Newbury.
Tinkley, F. C.		Apsley House, Margate.
Tooth, L.		Brighton Grammar School.
Walker, W. H.		Chandos School, Hereford.
Walter, A. F.		Chorlton Ho. Acad., Leamington.
Ware, R.		Exmouth College.
Binns, A. B.		Ennerdale School, Sunderland.
Chamney, G. W.		Sydenham College, S.E.
Cooke, H.		Sydenham College, S.E.
Crook, J. H.		New College, Margate.
Fenny, S.		Old Elvet School, Durham.
Hague, W.		Farnworth Grammar S., Widnes.
Hill, W. C.		Hall's Grammar S., Snettisham.
Horton, C. E.		Bickerton House School, Birkdale.
Hughes, W. W.		Athenæum School, Llanelly.
John, H.		56 Prospect Road, Scarborough.
Leach, H.		Parish Church Mid. Cl. S., Leeds.
Marsland, R.		Huddersfield High School.
Moat, W. C.		Anerley High School, S.E.
Pope, V. S. E.		Boys' Coll. & High S., S'hampton.
Reveley, T. P.		Eastbourne Old School.
Sheldrake, A. M.		Henley House S., St. John's Wood.
Stackhouse, J. F.		Sidcot School, Weston-s.-Mare.
Stephenson, P. G.		The Commercial College, York.
Thompson, A.		Elmfield College, York.
Tomlinson, C. N.		The College, Gildersome.
Woodman, G. A.		College House, Eastbourne.
Berry, A. F.		Wellingborough Grammar School.
Buxton, B. S.		Grammar School, Wirksworth.
Chubb, G. C.		Newcastle Mod. S., N'castle-on-T.
Davis, E.		Compton House School, Brighton.
George, H. C.		Chesterfield Grammar School.
Gibson, J. E.		Berkeley School, Hull.
Hacking, L.		Alston College, Preston.
Haslewood, C. F. B.		West Cliff School, Ramsgate.
Hawkes, F.		Commercial School, Bognor.
Hepworth, W.		Grammar School, Dewsbury.
Huet, F. W.		Private study.
Jennison, J.		East Hardwick S., Pontefract.
Leach, A.		Parish Church Mid. Cl. S., Leeds.
Manisty, H. E.		St. Oswald's Coll., Tynemouth.
Mutton, W. E.		Hart House School, Tregoney.
Russell, H. L.		Sydenham College, S.E.
Turton, E.		Drax Grammar School, Selby.
Wildman, E. W.		Claremont College, Blackpool.
Wilkins, A.		Norman Rd. School, Rusholme.
Wroughton, A. O. B.		Paradise H. S., Stoke Newington.
Allday, F.		Eagle House, St. Leonards.
Ashworth, F.		St. Bede's College, Manchester.
Barnes, A.		Apsley House, Margate.
Butterworth, F.		Manchester Commercial School.
Cook, J. G.		Grammar School, Ongar.
Cunliffe, J.		University School, Southport.
Davis, J.		University School, Southport.
Faunce, T. D.		Middleton School, Bognor.
Frank, S. W.		The Commercial College, York.
Hayne, J.		Hart House School, Tregoney.
Lorden, L. W. C.		Avenue House S., Sevenoaks.
Mackay, C. F.		University School, Southport.
Pechey, A. T. P.		Osborne House, Margate.
Pendle, C. T.		Highbury Ho. S., St. Leonards.
Perrett, E. R. M.		Gillingham Grammar School.
Prince, B. G.		Belmont H. S., Upper Tooting.
Rich, E.		Dr. Morgan's School, Bridgwater.
Simpson, F. C.		St. Martin's School, York.
Soddy, F.		Stanley House S., Eastbourne.
Thirlwall, P. J.		Chandos School, Hereford.
Trapnell, J. G.		Harrogate College.
Twelves, F. J.		Chesterfield Grammar School.
Walker, E. H.		Hall's Grammar S., Snettisham.
Chamberlain, S. D.		Fairfield House College, Exeter.
Claypole, E. E.	*d.*	Handel College, Southampton.
Coates, J. S.		Brooklands School, Sale.
Celebrook, R. H.		Avenue House School, Sevenoaks.
Creaser, A. J.		The Commercial College, York.
Dawe, A. E.		Lewisham H., Weston-s.-Mare.
Dobbin, E. J.		Brudenell, Tunbridge Wells.
Edwards, F.		Hannington High S., Eastbourne.
Gordon, D.		Mount Radford School, Exeter.
Hancock, J.	*d.*	Wellington School, Heaton Moor.
Hardenberg, E. J. F.		Leytonstone College.
Mitchell, J. A.		Schonberg Collegiate S., Ventnor.
Moore, G.		Great Ealing School, W.
Morgan, C. W.		Ilkley College.
Moseley, G. C.		Hull and East Riding College.
Neel, J. W.		Oxenford House School, Jersey.
Nicholas, E. S.		Sydenham College, S.E.
Nimmo, A. D.		Beaumont House School, Jersey.
Orchard, J.		Hart House School, Tregoney.
Parker, A.		Thanet College, Margate.
Preston, E. G.		Handel College, Southampton.
Roberts, J.		Henley House S., St. John's Wood.
Scott, R. R.		Brooklands School, Sale.
Tucker, C. T.		Mayall College, Herne Hill.
Turner, E. W.		The College, Herne Bay.
Turner, G. E.		Paignton School, Paignton.
Wellings, R. P.		Wellington College, Salop.
Aldridge, A. G.		Kendrick Middle S., Reading.
Almond, G. H.		Grammar School, Dewsbury.
Baker, F. R.		St. John's School, St. Leonards.
Bolton, R. H.		The Academy, Banbury.
Bonas P. J.		Henley House S., St. John's Wood.
Bond, G. G.		Clifton Grammar S., Plymouth.
Butcher, H. W. V.	*d.*	Grammar School, Newport, Mon.
Cadman, R.		Wellington School, Heaton Moor.
Carline, R. H.		Chesterfield Grammar School.
Cooke, E. W.		St. Chad's College, Lowestoft.
Crabtree, A. M.		Pannal College, Harrogate.

BOYS, THIRD CLASS—*Continued.*

Cutting, G. H.	Grammar School, Wirksworth.
Fleck, E.	New College, Margate.
Harvey, J. O.	Midland Collegiate S., Edgbaston.
Herbert, R. L.	Trafalgar House S., Winchester.
Hodgins, T. W. G.	Farnham Grammar School.
Huggett, G. S.	Royal Masonic Inst., Wood Green.
Illingworth, W. A.	Trafalgar Square S., Scarborough.
James, J. H.	Grammar School, Wirksworth.
Jeffery, F. J.	Apsley House, Margate.
Johnson, C.	East Anglian S., Bury St. Edmunds.
Leigh, A. R.	Marlborough Coll. S., Tuebrook.
Look, W. H.	Gillingham Grammar School.
Lucas, C. L.	Grammar School, Newbury.
Matier, P.	Stamford Hill Collegiate S., N.
McDonald, C. F.	The Commercial College, York.
Mellnish, F. H.	Brunswick House S., Windsor.
Modlin, R. H.	Argyle House S., Sunderland.
Muter, A. H. M.	Private tuition.
Nichols, A. A.	Leytonstone College.
Park, H. G. D.	Wellington College, Salop.
Rawlings, J. E.	Elmfield College, York.
Roberts, F. S.	Handel College, Southampton.
Smith, H. S.	Grove House S., Tunbridge Wells.
Thomas, L.	Dolgelley Grammar School.
Venn, J. F. H.	Private tuition.
Armistead, G.	East Hardwick S., Pontefract.
Beech, R.	Bickerton House S., Birkdale.
Beesley, E.	Grammar School, Wirksworth.
Blumberg, R.	Godwynehurst, Dover.
Bowie, F. J.	Licensed Victuallers' School, S.E.
Brashier, C. J.	Licensed Victuallers' School, S.E.
Butler, S. G.	Vermont College, Clapton.
Davsen, A. P.	Winton House, Folkestone.
Gascoine, T.	Brunswick House, Maidstone.
Gilbert, J. N.	Milton College, Ullesthorpe.
Goddard, A. H.	Licensed Victuallers' School, S.E.
Gyngell, H. G.	Kendrick Middle S., Reading.
Houghton, R. H.	St. Mary's College, Peckham.
Martin, J. H.	Eagle House, St. Leonards.
Minnis, J.	New College, Margate.
Neustein, A. F.	Middle Class S., Finsbury Park.
O'Connell, D. F.	St. Augustine's Coll., Ramsgate.
Pashler, W.	Mead House School, Biggleswade.
Pitt-Taylor, F. S.	Chatham Institute, Liverpool.
Pugh, C. S.	Devizes Grammar School.
Rangeley, H.	Chesterfield Grammar School.
Ridley, F.	The Commercial School, Ludlow.
Rouse, W.	Allenby College, Derby.
Stone, F.	The College, Broadstairs.
Wilson, W. H.	East Anglian S., Bury St. Edmunds.
Wright, E.	Stranraer School, Bournemouth.
Zabell, H.	The College, Herne Bay.
Ashworth, H. S.	Praetoria House, Folkestone.
Benger, T. H.	St. George's College, Wimbledon.
Clegg, J. F.	Chatham Institute, Liverpool.
Cooke, G. R.	East Hardwick S., Pontefract.
Cooper, D. W.	The College, Herne Bay.
Cooper, J. W.	New College, Margate.
Dixon, R. G.	Dane Hill School, Margate.
Downes, J. D. G.	Collegiate School, Aldershot.
Goodwin, A. S.	Private tuition.
Groom, P. F.	Northgate S., Bury St. Edmunds.
Harcourt, W. S.	St. Giles' College, Norwich.
Haworth, L. H.	University School, Southport.
Hill, A. P.	Montgomery College, Sheffield.
Hoar, F. T.	Brighton Grammar School.
Holden, B.	Fair Oaks School, Wilmslow.
Hooke, F.	Caversham House S., Reading.
Hunter, H. A.	Hall's Grammar S., Snettisham.
Jones, W.	Wellington College, Salop.
Maye, J. B.	The Grammar School, Totnes.
Normanton, A.	The Commercial College, York.
Pawsey, T. E.	Royal Masonic Inst., Wood Green.
Pearce, F. C.	The High School, Long Eaton.
Penberthy, W. J.	Hayle Grammar S., Cornwall.
Robinson, A.	High School for Boys, Bolton.
Rogers, J. J.	Wellington College, Salop.
Shaw, T. W.	St. Oswald's College, Tynemouth.
Sitwell, N. S. H.	Park Hurst School, Buxton.
Smith, J. E.	Midland Collegiate S., Edgbaston.
Verity, R. R.	Yarm Grammar School.
Walker, A.	Grammar School, Wirksworth.
Webb, H. P.	Collegiate School, Aldershot.
Williams, H.	Athenæum School, Llanelly.
Blacknall, C. A.	*d.* Chesterfield Grammar School.
Breton, H. H.	Boys' C. and Hi. S., Southampton.
Carey, J. G.	Brunswick House S., Windsor.
Daniels, P.	Thanet College, Margate.
Dicketts, E. E.	Highbury House S., St. Leonards.
Francis, C. E.	Middle Class S., Finsbury Park.
Gilbert, P. G.	Eastbourne Old School.
Graham, T.	Grammar School, South Shields.
Harrison, H. B.	Oxford House, Brighton.
Hinge, R. R.	Farnham Grammar School.
Hughes, T. B.	Elmfield College, York.
Hunt, L. J.	Gunnersbury College, W.
Jackson, R.	Grammar School, Ongar.
Laurence, A.	Elmhurst S., Kingston-on-Thames.
Ludwig, F. B.	The Academy, Banbury.
Marshall, F. H.	Henley House S., St. John's Wood.
Mason, W. E.	Harrogate College.
Mitchell, A.	Ilkley College.
Naish, N.	Grammar School, Chard.
Oakshott, R. L.	Ascham House School, Reading.
Peart, A. R.	Solway House School, Leyton.
Ray, E.	Praetoria House, Folkestone.
Richardson, C. M.	High School for Boys, Bolton.
Roberts, W. B.	Waverley School, Liverpool.
Schloesser, F. M.	Southwell House S., Margate.
Stead, W. B.	Parish Church Mid. Cl. S., Leeds.
Walker, G. C.	Strathmore House, Southport.
Walker, J. A.	Farnworth Grammar S., Widnes
Wells, F. C.	Skelsmergh House S., Margate.
White, P. H.	Gillingham Grammar School.
Arkell, H.	Middle Class S., Weston-s.-Mare.
Burfitt, E. A. H.	Pine House, Wincanton.
Bytheway, A. J.	K. Charles I. Gram. S., Kidderm'r.
Callcutt, G.	Friends' School, Saffron Walden.
Coley, G.	Lewisham House, Weston-s.-Mare.
Cooker, C. H.	Park House School, Uxbridge.
Cork, J. W.	Grammar School, Burnley.
Corrigall, J. C.	Grammar School, South Shields.
Dean, A. S.	Trade and Grammar S., Keighley.
Delves, R.	Battersea Grammar School.
Dudley, C. F.	Oxenford House School, Jersey.
Edwards, B. P.	Gillingham Grammar School.
Evans, C.	Hindley Grammar School.
Exelby, G. H.	The Commercial College, York.
Foulger, C. V.	Royal Gram. S., Henley-on-Thames
Furber, J. P.	Stamford Hill Collegiate S., N.
Hatch, F.	Collegiate School, Bowes Pk., N.
Hicks, C. E.	Cathedral Choir School, Ripon.
Holmes, A. E.	Victoria College, Bath.
Houghton, W. H.	The High School, Long Eaton.
Humphreys, E. V.	Dolgelley Grammar School.
Keith, G.	Anglo-French Coll., Finchley Rd.
Law, H. A.	Exmouth College.
Lawrence, G. F.	West Cliff School, Ramsgate.
Lisle, W. M.	Elmfield College, York.
Morton W.	Trinity College, Harrogate.
Murdock, R. M. T	Scarborough Grammar School.
Pettey, R.	Handel College, Southampton.
Proctor, J. W.	Brooklands School, Sale.
Redway, R. W.	Exmouth College.
Thornley, J. M.	High School for Boys, Bolton.
Tremeer, L. F.	Middle Class School, Barnstaple.
Wells, L. T.	Private tuition.
Wright, E. M.	Napier House School, Jersey.
Bland, W.	St. Martin's Gram S., Scarborough.
Brake, H.	Arnold High S., Farnboro', Hants.
Broad, J.	Eastbourne Old School.
Burgoyne, L.	St. Bede's College, Manchester.
Clapperton, T. J. M.	Praetoria House, Folkestone.
Cubitt, A. S.	Belle Vue House, Norwich.
Downer, A.	High School, Burgess Hill, Sussex.
Eley, E. H.	Kendrick Middle School, Reading.
Feak, L. S.	Catford Collegiate S., Lewisham.
Gates, G. F.	Bracondale School, Norwich.
Gibson, J.	Brunswick House School, Windsor.
Goose, A. W.	Bracondale School, Norwich.
Griffith, A. H.	The Grammar School, Totnes.
Haward, A. W.	Brunswick House School, Windsor.
Holmes, F. G. V.	Battersea Grammar School.
Humphrey, W.	Eastbourne Old School.
Jackson, E.	Hull and East Riding College.
Knowles, W. S.	Farnworth Grammar S., Widnes.
Martin, A. S.	Eagle House, St. Leonards.
Meachen, N.	Stamford Hill Collegiate S., N.
Mitchell, C. W.	College House, Eastbourne,
Moss, J. B.	Claremont College, Blackpool.
Partington, E.	Hindley Grammar School.
Pearce, F. C.	*d.* St. John's Mid. Cl. S., Brixton.
Peel, A.	Victoria Park S., Manchester.
Pile, P. A. H.	Grammar School, Newbury.
Ridler, E. H.	Modern School, Woking.
Samson, E.	The Huish School, Taunton.
Simmons, F. T.	Marlborough Coll. S., Up. Holloway
Smith, H. V.	Broughton School, Hr. Broughton.
Smith, L. S.	Fowey Grammar School.
Stiling, F. G.	Hayle Grammar S., Cornwall.
Stockwell, A.	Harrogate College.
Stone, J.	Caversham House S., Reading.
Temple, R.	Colfe Grammar S., Lewisham Hill.
Vickery, W. R.	All Saints' School, Clifton.
Ward, R. R.	Highbury Park School, N.
Wells, F.	The College, Herne Bay.
White, S. J.	Gillingham Grammar School.
Wright, F.	Heath Side School, Knutsford.
Archer, C. S.	Elmfield College, York.
Bailey, E. F.	Cleveland House S., Salisbury.
Barton, B.	Catholic Coll. Inst., Manchester.
Bills, A. J.	Private tuition.
Burfield, T.	Lynton House School, Witney.
Carlton, B.	Elmfield College, York.
Chancellor, H. S.	Ilkley College.
Collins, H. de M.	Willesden High School.
Cornforth, L. W.	Berrylands Ho. S., Surbiton Hill.
Cristin, J.	Beaumont House School, Jersey.
Crosbie, H.	Hart House School, Tregoney.
Cruse, T. E.	Vickery's, Southsea.
Danks, W. S.	Vermont College, Clapton.
Dunman, E. R.	St. John's College, Brixton.
Duplantier, E.	Wykeham Ho. S., Priory Rd., N.W.
Faraday, W.	Norman Road School, Rusholme.
Fowler, F. J.	Pine House, Wincanton.
Grimshaw, P. S.	Trinity College, Harrogate.
Haymes, F. E.	Exmouth College.
Higham, W.	Grammar School, Burnley.
Inge, E. E.	Holloway College, N.
Jennings, D.	Athenæum School, Llanelly.
Jones, C. H.	Exmouth College.
Mytton, R.	Chetwynd Grove. S, N'port, Salop.
Noton, H.	Rhodes House S., Manchester.
Pickering, A. W.	Hull and East Riding College.
Plowman, C. W.	Elmfield College, York.
Rheam, N. H.	The Manse, Tattenhall.
Silverlock, H. B.	South Hackney College, E.
Simmers, R. B.	Aberdeen House, Ramsgate.
Skeats, L. F.	Handel College, Southampton.
Stone, E. H.	Lindenthorpe, Broadstairs.
Tennent, G. D.	Highbury House S., St. Leonards.
Turner, A.	Pannal College, Harrogate.
Vollmer, G. F.	East Hardwick S., Pontefract.
Weare, E.	Gillingham Grammar School.
Wichelhaus, W. B.	Wirral College, Rock Ferry.
Young, W.	Sea House School, Eastbourne.
Barber, J.	Holmfirth Elem. Board School.
Bassett, A.	Apsley House, Margate.
Beesley, L.	Grammar School, Wirksworth.
Butler, S. H.	2 Apsley Villas, Bristol.
Carter, C. S.	Northgate School, Bury St. Eds.
Church, F. B. B.	Middleton School, Bognor.
Clarke, H. G.	Gunnersbury College, W.
Cowell, J. F.	Grammar School, Eccles.
Earl, E. A.	Highbury House S., St. Leonards.
East, S. F.	St. Chad's College, Lowestoft.
Everard, L. A.	Rhodes House S., Manchester.
Fraser, A.	Eagle House, St. Leonards.
Green, C. H.	The Grammar School, Andover.
Greene, H. E.	Ivy Bank S., Southampton.
Greenwood, G. A.	University School, Stockport.
Haigh, P. B.	2 Hilton St., Higher Broughton.
Hardon, H.	Wellington School, Heaton Moor.
Hart, H. J.	Sea House School, Eastbourne.
Hatt, H. E.	Grammar School, Wallingford.
Hildesheim, E.	Norman Road S., Rusholme.
Jenkins, W. D.	*d.* Athenæum School, Llanelly.
Johnson, J. C.	Midland Collegiate S., Edgbaston.
Knight, A.	The Grammar School, Midhurst.
Laborde, W. J.	St. Asaph Grammar School.
Marples, S. A.	Oakfield School, Crouch End.
Martin, C. W.	Swindon High School.
Moodey, E. E.	Cliftonville College, Margate.
Oakey, G. J.	Osborne House, Margate.
Potts, A. E.	Chesterfield Grammar School.
Randell, W. L.	Clifton Grammar S., Plymouth.
Saunders, S. T.	Henley House S., St. John's Wood.
Stanger, I. N.	St. Oswald's College, Tynemouth.
Stott, H. S.	Elmfield College, York.
Wallwork, H. A.	Grammar School, Eccles.
Wiltshire, J. B.	The Academy, Banbury.
Atthill, F.	The Grange School, Halstead.
Bainbridge, C.	Newcastle Mod. S., N'castle-on-T.
Barlow, A. E.	Farnworth Grammar S., Widnes.
Barnes, G. H.	Pine House, Wincanton.
Beabey, E.	Emwell House S., Warminster.
Bonnor, H. L.	St. Leonards Collegiate School.
Buckley, A. E.	East Hardwick S., Pontefract.
Clayton, A. H.	East Hardwick S., Pontefract.
Cooper, T. S.	Victoria Park School, Manchester.
Crapp, W. L.	Mayall College, Herne Hill.
Dean, H.	The High School, Heaton Chapel.
Earle, S.	Hull and East Riding College.
Eldridge, E. W.	Moorlands School, Bournemouth.
Elphick, W.	Farnham Grammar School.
Foster, F.	New College, Worthing.
Gray, E.	The Grange School, Halstead.
Hall, E. E.	Kendrick Middle S., Reading.
Home, S. H. G.	Dane Hill School, Margate.
Hornby, F. W.	Norton College, Luton.
Jeans, T. C.	Mercers' School, E.C.
Jessop, H. J.	Lyonsdown Coll. S., New Barnet.
Jolliffe, S. V.	Stanley House S., Eastbourne.
Jones, G. H. B.	Highfield Coll. S., Rock Ferry.
Landless, R.	Grammar School, Burnley.
Le Feuvre, F. V.	Oxenford House School, Jersey.
Malcham, P.	Royal Grammar School, Sheffield.
Mosse, R. L.	Woodside House School, Sutton.
Paris, A. L.	Ivy Bank School, Southampton.
Peart, F. W.	Salway House School, Leyton.
Penn, A. A.	The Limes S., Amhurst Park, N.
Piggford, T. C.	Chesterfield Grammar School.
Podmore, H.	Grammar School, Dewsbury.
Powell, E.	St. Mary's Hall, Cardiff.
Pritchard, J. W.	Farnworth Grammar S., Widnes.
Saville, A. E.	East Hardwick S., Pontefract.
Shannon, W. B.	*d.* 98 Hall Road, Handsworth.
Simpson, A. G.	St. Helen's College, Southsea.
Truscott, A. P.	St. Austell School, Cornwall.
Turner, J. R.	Collett House, Bournemouth.
Ware, A. E.	The College, Herne Bay.
Williams, C. J.	Sydenham College, S.E.
Williams, H.	All Saints' School, Clifton.
Yeo, F.	East Anglian S., Bury St. Edmds.
Archer, R. E.	Collegiate School, Wakefield.
Baker, H.	Napier House School, Jersey.
Bell, C. S.	Bridgwater Collegiate School.
Bracey, H. G.	Middleton School, Bognor.
Browne, A. R.	Avenue House School, Sevenoaks.
Butler, R. A.	Thanet College, Margate.
Coughtrey, A. H.	Hingham Endowed S., Attleboro.
Davies, C. E.	Coll. & Mid. Cl. S., Southgate Rd., N.
Dippie, C. R.	Scarborough Grammar School.
Fountain, J.	High School, Barnsley.
Goddard, P. H.	Henley House S., St. John's Wood.
Godwin, P. H.	The High School, Hungerford.
Gooch, F. C.	Wilson Coll., Stoke Newington.
Greet, F. A.	Grammar School, Newbury.
Kent, S. J. F.	Private tuition.
Lewis, J. A.	High School, Crewe.
Long, H. D.	Cambridge House S., Norwich.
Long, T. B. H.	Kendrick Middle School, Reading.
Mason, L.	Belle Vue House, Norwich.
Mead, G.	Gillingham Grammar School.
Meats, R. L.	Chandos School, Hereford.
Pitcaithley, A.	Ousegate School, Selby.
Price, W.	St. John's College, Brixton.
Pullon, E. P.	St. Martin's Gram. S., Scarborough.
Ripley, H.	The Commercial College, York.
Roddis, F.	The High School, Hastings.
Rollin, C.	Newcastle Mod. S., N'castle-on-T.
Salt, R. S.	Brunswick House, Maidstone.
Smith, E.	Fowey Grammar School.
Smith, W. G.	Redland Grove School, Clifton.
Thomas, W. H.	Huntingdon H. S., Teddington.
Thorp, E.	*d.* Dane Hill School, Margate.
Topham, J. A.	Park Hurst School, Buxton.
Wacher, H.	The College, Herne Bay.
Williams, R.	Clytha College, Newport, Mon.
Yarnold, R. J.	Dolgelley Grammar School.
Aldred, F. M.	Bickerton House School, Birkdale.

BOYS, THIRD CLASS—*Continued.*

Andrews, J. M.	Warbreck College, Aintree.
Bowen, B. H.	Park Hurst School, Buxton.
Eldred, E. L.	Vickery's, Southsea.
Emmott, A. J.	Stamford Hill Collegiate S., N.
Gee, G. E.	Wellington School, Heaton Moor.
Green, W. J.	Licensed Victuallers' School, S.E.
Hayes, J.	Thanet College, Margate.
Holtom, E. G.	Grammar School, Dewsbury.
Howlett, J. K.	Norwich Grammar School.
Hughes, A. O.	St. Asaph Grammar School.
Johnson, H. M.	Ilkley College.
Jones, M.	The Commercial School, Ludlow.
Landesberger, H. K. A.	Thanet College, Margate.
Mason, R.	Hull and East Riding College.
Mauger, E. J.	Oxenford House School, Jersey.
Maxwell, H. J.	Manchester Commercial School.
Morcom, J. P.	St. Austell School, Cornwall.
Northey, G.	East Devon County S., Tiverton.
Outram, J. A.	Avenue House S., Sevenoaks.
Parker, H.	Park Hurst School, Buxton.
Penny, C. B.	Lindenthorpe, Broadstairs.
Phillips, A. H.	Middle Class S., Wolverhampton.
Piggott, C. J.	Valentia House S., S. Norwood.
Platts, A.	Parish Church Mid. Cl, S., Leeds.
Pottinger, F. J.	Licensed Victuallers' School, S.E.
Rich, A.	Dr. Morgan's School, Bridgwater.
Robinson, C. A.	21 Waldegrave Rd., Up. Norwood.
Rodway, E. G.	Lewisham House, Weston-s.-Mare.
Roe, A. H.	Lewisham House, Weston-s.-Mare.
Storry, A. H.	Hull and East Riding College.
Tappenden, A. C.	Gunnersbury College, W.
Taylor, S.	Dr. Morgan's School, Bridgwater.
Thomas, A.	Hayle Grammar School, Cornwall.
Thonger, W. F.	Parish Church Mid. Cl. S., Leeds.
Thwaite, E. E.	Grammar School, Dewsbury.
Tims, T. T.	The Academy, Banbury.
Wenban, H. J.	Southdown College, Eastbourne.
Whitfield, J.	Scarborough Grammar School.
Baskerville, W. S.	Rhodes House S., Manchester.
Bowell, G. B.	Chandos School, Hereford.
Butler, H. A. G.	The Douglas Coll. S., Cheltenham.
Chaplin, A.	St. Peter's College, St. Leonards.
Chapman, C.	College House, Eastbourne.
Clarke, G. H.	Tudor Hall, Hawkhurst.
Coales, S. J.	Wellingborough Grammar School.
Dixon, H. E.	Hull and East Riding College.
Ford, J. E.	*d.* Netherton House S., Salisbury.
Gardiner, A. J. W.	Dane Hill School, Margate.
Gill, E. L.	Eccles Grammar School.
Habgood, W. E.	Royal Masonic Inst., Wood Green.
Harrison, J.	The Douglas Coll. S., Cheltenham.
Harrison, T. B.	Argyle House School, Sunderland.
Holroyd, A.	The Western College, Harrogate.
Hufton, J. W.	Farnworth Grammar S., Widnes.
James, F.	Commercial School, Bognor.
Johnston, H. H.	East Hardwick S., Pontefract.
Jopp, K. E.	St. Helen's College, Southsea.
Kempster, H.	The Commercial College, York.
King, S.	Taunton House S., Brighton.
Mather, R. N.	Grammar School, South Shields.
Palmer, E. S.	St. John's Collegiate S., Richmond.
Pearce, S. H.	Cowley College, New Barnet.
Poole, A.	Romford Grammar School.
Rawlings, S.	Friends' School, Saffron Walden.
Robinson, A. O.	Ennerdale School, Sunderland.
Rostron, J. A.	University School, Southport.
Sale-Barker, H. J. M.	D. Sydenham College, S.E.
Smith, C. J.	Wilsford House School, Devizes.
Snow, F.	Stamford Hill Collegiate S., N.
Snow, W. K.	Houton House, St. Leonards.
Vaughan, W.	Dolgelley Grammar School.
Wakeford, O. S.	Brunswick House, Maidstone.
Warne, F. W.	Southdown College, Eastbourne.
Webb, R. A.	The High School, Hastings.
Zimmermann, F.	*ger.* Anglo-German School, Brixton.
Ainscow, J.	Hindley Grammar School.
Allday, A.	Eaglo House, St. Leonards.
Anderson, F. G.	K. Charles I. Gram. S., Kidderm'r.
Austen, T.	High School, Burgess Hill, Sussex.
Brown, W. H. E.	Claremont House, St. Albans.
Cross, F. B.	Worthing High School for Boys.
Davison, L. S.	Newcastle Mod. S., N'castle-on-T.
Dean, S. G. H.	Mayall College, Herne Hill.
De Medewe, S. C.	Cherville College, Romsey.
Denby, E. F.	Wellingborough Grammar School.
Field, T. W.	Coll. & Mid. Cl. S., Southgate Rd., N.
Gamblen, E.	Warwick House School, Southsea.
Gidden, T. J.	K. Edwd. VI. Gram. S., S'hampton.
Griffith, A. W.	Sydenham College, S.E.
Harris, W. H.	The Manse, Tattenhall.
Heap, T.	Hazelcroft, Weston-super-Mare.
Holden, C. A.	Dane Hill School, Margate.
Howe, S. H.	Licensed Victuallers' School, S.E.
Hunter, A. S.	Sandwich School.
Inman, H. E.	Gillingham Grammar School.
Jones, P. A.	Brooklands School, Sale.
Keen, F.	Portway High School, Bath.
Le Huguet, J.	Collegiate S., Almorah, Jersey.
Lewis, E. I.	Apsley House, Margate.
Loftus, J. E.	St Augustine's Coll., Ramsgate.
Luscombe, C. J. T. G.	National School, Kings's Teignton.
Megson, A.	*d.* Brooklands School, Sale.
Mercer, F.	Guildhall Middle S., Bury St. Eds.
Moore, W. E.	Kendrick Middle S., Reading.
Mott, H. R.	Private tuition.
Mursell, T. A.	Belle Vue House, Norwich.
Nell, H.	Ilkley College.
Rushton, O. G.	Appuldurcombe Coll., I. of Wight.
Scott, F. H.	Headingley Hill School, Leeds.
Seaward, W. S.	Netherhampton Ho. S., Salisbury.
Smith, H. W.	The High School, Heaton Chapel.
Soutter, G. A.	Vermont College, Clapton.
Sparks, G.	Apsley House, Margate.
Sugden, C. E.	Parkgate Avenue School, Hull.
Villiers, W. J.	Epworth College, Rhyl.
Vincent, W. K. E.	Private tuition.
Westmoreland, C. H.	Boys' High School, Leeds.
Whittome, E. E.	Cowper's House S., Huntingdon.
Williams, G. E.	Dolgelle Grammar School.
Woodcock, T.	Netherhampton Ho. S., Salisbury.
Wykes, E. C.	Mill Hill House School, Leicester.
Wyldes, H.	Wellingborough Grammar School.
Wyrill, T. E.	Scarborough Grammar School.
Youll, J. H.	Newcastle Mod. S., N'castle-on-T.

THIRD CLASS.—2ND DIVISION.

Axon, J. I.	Romford Grammar School.
Bennett, A.	Kendrick Middle School, Reading.
Bindon, A. G.	Hazelcroft, Weston-super-Mare.
Boorne, J.	Herrick Foundation S., Lewisham.
Brain, H. S.	Northgate S., Bury St. Edmunds.
Brockbank, J. E.	Bickerton House S., Birkdale.
Brown, J. T.	Grammar School, Dewsbury.
Caink, A. H. E.	Sydenham College, S.E.
Darnell, W.	St. Augustine's College, Ramsgate.
Davies, H. H.	Grammar School, Newbury.
Dearden, C. R.	Royal Grammar School, Sheffield.
Drake, W. H	Bracondale School, Norwich.
Glenny, F. C. V.	Avenue House School, Sevenoaks.
Griffith, O. C.	Sydenham College, S.E.
Hall, H. J.	The Academy, Banbury.
Hammond, E.	The High School, Brentwood.
Harris, H.	Mayall College, Herne Hill.
Hoops, A. L.	Victoria Coll., Douglas, I. of Man.
Hunt, E.	Gillingham Grammar School.
Kay, J. W.	Drax Grammar School, Selby.
Jacobson, E.	Great Ealing School, W.
Matthews, E. S.	Private tuition.
Miers, F.	Trinity College, Harrogate.
Moore, G.	Elmfield College, York.
Newton, J.	Chesterfield Grammar School.
Owen, T. H.	Wellington College, Salop.
Phillips, E. M.	1 Arthur Rd., Holloway.
Reynalds, R.	All Saints' School, Clifton.
Sahal, V.	Great Ealing School, W.
Sharpe, W. D.	Warbreck College, Aintree.
Tart, W. L.	Valentia House S., S. Norwood.
Vale, W. S.	Uxbridge Preparatory School.
Vaughan, R. C.	Highbury Ho. S., St. Leonards.
Webb, H.	Eastbourne Old School.
Wilson, G.	Waterloo High S., Blundellsands.
Young, G. A.	Parish Church Mid. Cl. S., Leeds.
Atkinson, H. E.	Foster's Grammar S., Sherborne.
Baker, A.	Sea House School, Eastbourne.
Bishop, K. C.	Eagle House, St. Leonards.
Box, H. M.	St. Austell School, Cornwall
Coleman, W. W.	Hingham Endowed S., Attleboro'.
Fowler, J.	Bussage House, Stroud.
Fox, G. H.	Exmouth College.
Garrett, J. D.	Hornsey Park College, N.
Hoffmann, A.	Lewisham House, Weston-s.-Mare.
Hoyle, F. W.	Parish Church Mid. Cl. S., Leeds.
Jacobs, L. S.	Great Ealing School, W.
Knapp, R.	Farnham Grammar School.
Leaman, R.	Royal Masonic Inst., Wood Green.
Lewcock, A.	Hornsey Park College, N.
Makin, F.	Rochdale Grammar School.
Mant, C.	St. Helen's College, Southsea.
May, P.	Fowey Grammar School.
McNish, A. W.	Sea House School, Eastbourne.
Mordaunt, S. A.	Private tuition.
Morse, A. T.	Leytonstone College.
Nockolds, L. M.	Wellingborough Grammar School.
Parlett, F.	Collegiate S., Almorah, Jersey.
Penney, C. G.	Eton House School, Hull.
Reichardt, F. W.	Warbreck College, Aintree.
Rishworth, G.	Horsforth Commercial S., Leeds.
Rochfort, J. E.	Apsley House, Margate.
Smith, H. S.	Barton School, Wisbech.
Smith, R. T.	Licensed Victuallers' School, S.E.
Stockwell, J. O	Kendrick Middle S., Reading.
Stokes, T. H.	Huntingdon Grammar School.
Stone, E. H.	Wellington College, Salop.
Stone, J. W. K	Comm. S., Barrow-in-Furness.
Swabey, P. F.	Private tuition.
Thomas, T. W.	Sidcot School, Weston-s.-Mare.
Wallis, J. S.	Hayle Grammar S., Cornwall.
Weatherhead, W. E.	Bellevue School, Southampton.
Willys, R. R.	The Grammar School, Totnes.
Woollard, P.	East Anglian S., Bury St. Edmunds.
Wormald, G.	Sutton Park School, Surrey.
Adams, G. B.	Sea House School, Eastbourne.
Biggleston, J. E.	Stanley House, Margate.
Boize, L. W.	St. John's College, Brixton.
Bowerman, A. J.	Dr. Morgan's School, Bridgwater.
Broackes, A.	Arnold Ho. S., Farnboro', Hants.
Brooks, A. S.	Belsize School, S. Hampstead.
Colebrook, W. H. F.	The Grammar School, Andover.
Comer, V. A.	Anglo-French Coll., Finchley Rd.
Coton, H.	Salway House School, Leyton.
Douglas, R. H.	Chatham Institute, Liverpool.
Drewitt, H. W.	Clewer House School, Windsor.
Dunn, W. R.	The Douglas Coll. S., Cheltenham.
Fortt, A. B.	Middle Class S., Weston-s.-Mare.
Fortt, F. H.	Middle Class S., Weston-s.-Mare.
Garton, J.	Huddersfield High School.
Gillies, W. B.	Argyle House School, Sunderland.
Griffith, E. W. C.	The Grammar School, Totnes.
Hanham, E. M.	Summerleaze Coll. S., E. Harptree.
Hayman, A.	The Grammar School, Totnes.
Holmes, R. G.	Battersea Grammar School.
Holt, R.	The High School, Heaton Chapel.
Hunter, J. A.	Waterloo High S., Blundellsands.
Johnstone, H.	Up-Holland Grammar School.
Kane, J. H.	High School, Barnsley.
Kay, C. W.	Henley House S., St. John's Wood.
Macalister, J.	Herrick Foundation S., Lewisham.
McLachlan, C.	Caversham House S., Reading.
Neame, G. N.	Grammar School, Newbury.
Powell, P. J.	St. Mary's Hall, Cardiff.
Rowland, S.	Altrincham Grammar School.
Smith, E. W.	Elmfield College, York.
Williams, H. G.	Thanet College, Margate.
Ahier, F. J.	Oxenford House School, Jersey.
Alexander, R.	Grammar School, Eccles.
Aston, D. S.	The Woodroughs, Moseley.
Barker, J. H.	Parish Church Mid. Cl. S., Leeds.
Bell, J. E.	Laurel Bank School, Manchester.
Chamberlaine, N. R.	Wellingborough Grammar School.
Conder, G.	Middleton School, Bognor.
Daubeny, W. H.	Chesterfield Grammar School.
Delafons, R. W.	Royal Masonic Inst., Wood Green.
Edwards, C. A.	Lewisham House, Weston-s.-Mare.
Field, F. C.	High S., Queen's Coll., B'ham.
Fox, D. A.	New College, Margate.
Franklin, G. A.	High Street Academy, Farcham.
Goodall, B. P.	Trinity College, Harrogate.
Graham, T.	Waterloo High S., Blundellsands.
Grant, A. S.	Kingsland School, Shrewsbury.
Hagger, H. D.	Middleton School, Bognor.
Harris, E. S.	Middle Class S., Weston-s.-Mare.
Heathcote, J. R.	Whitworth School, Derby.
Hiles, R.	Chetwynd Grove S., Newport, Salop
Hoad, E.	Collegiate School, Hythe.
Holton, H.	Manor House, Clapham.
Howe, A. F. A.	High S., Burgess Hill, Sussex.
Jones, J. A.	Whitworth School, Derby.
Lenfestey, S. de J.	Commercial School, Crediton.
Loader, K.	Taunton House School, Brighton.
Maggs, L.	Netherhampton Ho. S., Salisbury.
Messenger, T. O.	Herrick Foundation S., Lewisham
Metcalfe, W. J.	Hull and East Riding College.
Millar, A. S.	Skelsmergh House S., Margate.
Newton, C. A.	Huntingdon Grammar School.
Ozanne, L. W.	St. Oswald's Coll., Tynemouth.
Purkis, H. F.	Northgate S., Bury St. Edmunds.
Rose, J. H.	Norwich Grammar School.
Saunders, A. K.	Hill House School, Totnes.
Still, L.	Emwell House S., Warminster.
Swift, A. E.	Up-Holland Grammar School.
Sykes, L. N.	The Grammar School, Totnes.
Taylor, E. J.	Anglo-French Coll., Finchley Rd.
Taylor, W. A.	Foster's Grammar S., Sherborne.
Tinewell, J. A.	Licensed Victuallers' School, S.E.
Ward, N.	Vermont College, Clapton.
Waterman, G. M.	Upton School, Slough.
Westcott, H. A.	Redland Grove School, Clifton.
Wiley, R. S.	Hull and East Riding College.
Williams, A.	Dolgelley Grammar School.
Williams, R. D.	Royal Masonic Inst., Wood Green.
Woodhouse, E. E.	Private tuition.
Dockerill, F. E.	Eastbourne Old School.
Dunn, B. S.	Blenheim House School, Fareham
Dyson, C. F.	Headingley Hill School, Leeds.
Endacott, F. D.	Paignton School, Paignton.
Falle, G. A.	Collegiate S., Almorah, Jersey.
Farnihough, C.	University School, Southport.
Harbottle, D. L.	Up-Holland Grammar School.
Harris, H. H.	Great Ealing School, W.
Higgins, E. A.	Parish Church Mid. Cl. S., Leeds.
Jolly, L. T.	Belle Vue House, Norwich.
Jones, C. L.	The Western College, Harrogate.
Kemmis, H. G.	Dr. Morgan's School, Bridgwater.
Kent, S. H.	St. John's College, Brixton.
Marriott, T.	Tellham House, Brixton Hill.
Mason, S.	Fowey Grammar School,
Moody, C. A.	Sidcot School, Weston-s.-Mare.
Morrison, A. S.	Middle Class S., Weston-s.-Mare.
Mosdell, W. G.	Kendrick Middle School, Reading.
Pearce, C. F.	Henley House S., St. John's Wood.
Robertson, J.	Granton College, Liverpool.
Robins, H. A.	Central Hill College, Up. Norwood.
Sanders, C. P.	Cavendish College, Southampton.
Scott, A.	Collegiate School, Hythe.
Shaw, H.	Ellesmere School, Harrogate.
Slade, F.	Valentia House S., S. Norwood.
Speakman, J.	Up-Holland Grammar School.
Stocker, T. M.	St. Austell School, Cornwall.
Taylor, F.	Wellington School, Heaton Moor.
Vaile, F. C.	Henley House S., St. John's Wood.
Varwell, H.	Hill House School, Totnes.
Wharton, G. E.	Tudor Hall, Hawkhurst.
Whitehouse, A. B.	K. Charles I. Gram. S., Kidderm'r.
Wood, J. C.	Herrick Foundation S., Lewisham.
Abbott, A. E.	Grammar School, Bideford.
Abell, C. F.	Whitworth School, Derby.
Baker, C. J.	Anglo-French Coll., Finchley Rd.
Barbour, J.	N'castle Mod. S., N'castle-on-Tyne.
Bateman, F. B.	Thanet College, Margate.
Batman, J. E.	The Commercial College, York.
Beck, S. F.	Napier House School, Jersey.
Beeton, F. S.	Fairfield House College, Exeter.
Bird, D.	Grammar School, South Shields.
Blanchard, H.	Netherhampton Ho. S., Salisbury.
Brown, A.	The College, Gildersome.
Bush, F. W.	Thanet College, Margate.
Clark, E. B.	Sea House School, Eastbourne.
Delday, E. J.	Scarborough Grammar School.
Fairweather, W. A.	Alma House, Mistley.
Falkner, S.	Victoria Coll., Douglas, Isle of Man.
Fielding, C. C.	Bracondale School, Norwich.
Godbold, P. R.	Beauvoir College, St. Leonards.
Gray, H.	Rugby House School, Eastbourne.
Groom, C. W.	Grammar School, Ongar.
Herbert, A.	Kendrick Middle S., Reading.
Heron, G. H.	Victoria Coll., Douglas, I. of Man.
Holt, J. D.	York Street Academy, Wakefield.
Jones, G. E.	Kingsland School, Shrewsbury.
Lance, W.	Balham High School, S.W.
Lees, J. W.	Brooklands School, Sale.
Ling, J.	Belle Vue House, Norwich.

BOYS, THIRD CLASS—*Continued.*

MacLoughlin, W. M.	Seafield Acad., Newcastle-on-Tyne.
Loader, T. H.	Dane Hill School, Margate.
Lott, H. C.	Dr. Morgan's School, Bridgwater.
Loxton, H.	Ilkley College.
Mitchell, W. F.	7 Sussex Square, Brighton.
Pocock, F. W. N.	Kendrick Middle School, Reading.
Purdie, W.	Norcroft House, Penrith.
Prior, J.	Altrincham Grammar School.
Radcliffe, E. A. T.	Sydenham College, S.E.
Reeves, R. C.	Tudor Hall, Hawkhurst.
Saunders, P. N.	Ascham College, Clacton-on-Sea.
Shorrock, L.	Royal Masonic Inst., Wood Green.
Staines, E. E.	The Commercial College, York.
Stevenson, A. L.	East Hardwick S., Pontefract.
Summerhayes, M. W.	Wellingborough Grammar School.
Swanson, H. M. M. M.	Henley House S., St. John's Wood.
Tillett, G. W.	Brunswick House, Maidstone.
Truscott, P.	Taunton's Trade S., Southampton.
Williams, H. P.	Commercial S., Astley Bridge.
Williames, J. C.	Wellington College, Salop.
Woods, W. H. O.	Gillingham Grammar School.
Allright, H.	Grammar School, Wallingford.
Binnie, H.	Kendrick Middle School, Reading.
Blacklin, H.	Grammar School, Ongar.
Bramble, H.	Hart House School, Tregoney.
Carter, H. D.	College House, Eastbourne.
Chapman, W. S.	Wellingborough Grammar School.
Collard, H. J.	Pine House, Wincanton.
Crews, G. E.	Rhodes House S., Manchester.
Crofts, J. W.	Wellingborough Grammar School.
Crookenden, A.	New College, Margate.
Edwards, E. E.	Dolgelley Grammar School.
Field, E. P.	Eton House School, Hull.
Gosschalk, M. V.	Hull and East Riding College.
Gow, L.	Middleton School, Bognor.
Head, F. L.	Private tuition.
Masters, G. A.	Salway House School, Leyton.
Mobberley, R. H.	Dudley Middle Class School.
Morris, G. T.	Anglo-French Coll., Finchley Rd.
Moss, S. W.	Lewisham House, Weston-s.-Mare.
Parkinson, C. E. A.	Cathedral Choir School, Ripon.
Patchett, G. S.	Epworth College, Rhyl.
Peacock, E. C.	Ellesmere School, Harrogate.
Peat, S. S.	Boys' High School, Leeds.
Plackett, H.	The Commercial College, York.
Porter, W. H.	Vickery's, Southsea.
Richardson, H. L.	St. George's College, Wimbledon.
Richardson, T. O.	Claremont College, Blackpool.
Robinson, F. C.	St. George's College, Wimbledon.
Sacret, S. R.	Kendrick Middle School, Reading.
Schneiders, H.	Holmwood, Bexhill.
Sedgwick, C. H.	Anglo-French Coll., Finchley Rd.
Slade, R. K.	Wilsford House School, Devizes.
Smith, W. F.	Swindon High School.
Swinburn, G. W. P.	Etonhurst, Weston-super-Mare.
Truscott, H.	Hart House School, Tregoney.
Tyer, G. A.	Grongar House, Margate.
Warner, G. P.	Wilsford House School, Devizes.
Weston, M. S.	Cowley College, New Barnet.
Anderson, S. A.	Skelsmergh House S., Margate.
Bradshaw, P. E.	Aberdeen House, Ramsgate.
Campbell, B.	Clytha College, Newport, Mon.
Campbell, F. W.	Merton House S., Brooklands.
Clark, R. J.	Middleton School, Bognor.
Davenport, J.	Altrincham Grammar School.
Donaldson, A. R.	Leytonstone College.
Evans, E. J.	Dolgelley Grammar School.
Eve, A. E.	Brunswick House, Maidstone.
Giles, W. E.	Grammar School, Ongar.
Griffiths, S. J.	Pontypridd Grammar School.
Hayter, E. R. W.	Pine House, Wincanton.
Hill, A.	Coll. & Mid. Cl. S., Southgate Rd., N.
Hill, R. W.	Private tuition.
Hillard, G. C.	Summerleaze Coll. S., E. Harptree.
Holland, J.	Barton School, Wisbech.
Holloway, F. E.	Apsley House, Margate.
Holt, H. C.	Wirral College, Rock Ferry.
Hood, M. S.	Ancaster House S., St. Leonards.
Howell, E. O.	Tellham House, Brixton Hill.
Hutchinson, J.	Ousegate School, Selby.
Keighley, F.	St. Martin's Gram. S., Scarborough.
Lumley, H.	Priory House School, Bridlington.
Melhuish, W.	Immanuel Coll., Streatham Com.
Milligan, W.	Ascham College, Clacton-on-Sea.
Minchin, R.	Wellingborough Grammar School.
Puckering, W. T.	The Commercial College, York.
Roberts, R. D.	St. Asaph Grammar School.
Shillitoe, C.	Sydenham College, S.E.
Smith, F. C.	Grammar School, Ongar.
Spike, F.	Glenwood Ho. S., Winchmore Hill.
Stone, R.	Kendrick Middle School, Reading.
Tate, A. W.	Trinity College, Harrogate.
Taylor, G.	Licensed Victuallers' School, S.E.
Thorn, H. G. A.	Wykeham Ho. S., Priory Rd., N.W.
Turner, C. J.	Grammar School, Ongar.
Varley, H. G.	Stamford Hill Collegiate School, N.
Vibert, F. H.	Hill House School, Totnes.
Walter, M.	Collegiate School, Hythe.
Williams, H.	Clytha College, Newport, Mon.
Worth, E. R.	Independent College, Taunton.
Beavis, H. W.	Modern School, Woking.
Bigelstone, J. S.	Byron House School, Ealing.
Bonner, H. A.	Eagle House, St. Leonards.
Bush, J. A.	The High School, Long Eaton.
Cooper, E. A.	New College, Margate.
Cooper, J. S. A.	Huntingdon Grammar School.
Cribb, S.	The Grange School, Halstead.
Evans, F. C.	Lindenthorpe, Broadstairs.
Groom, P.	Highbury Coll., Brownswood Rd., N
Gwatkin, A. J.	Taunton House School, Brighton.
Harvey, F.	The Douglas Coll. S., Cheltenham.
Higgison, F. W.	Royal Masonic Inst., Wood Green.
Hill, A.	Grammar School, Eccles.
Jacobs, G. E.	Leytonstone College.
Laidman, E.	Stranraer School, Bournemouth.
Mellowes, F. W.	Royal Grammar School, Sheffield.
Mills, A. C.	Apsley House, Margate.
Murrell, G. A.	Farnham Grammar School.
Nichols, S. E.	Mead House School, Biggleswade.
Nunnerley, E. E.	Milton College, Ullesthorpe.
Phillips, E. J.	Belvoir Road School, Bristol.
Pickering, A.	Grammar School, Wirksworth.
Plimsoll, G.	Exmouth College.
Reid, R.	Parish Church Mid. Cl. S., Leeds.
Ryland, H. P.	Salway House School, Leyton.
Sidebottom, H. H.	Rose Hill School, Bowdon.
Thomas, A. A.	Tudor Hall, Hawkhurst.
Walker, A. W.	Harborne Vicarage, Birmingham.
Walker, C. S.	Grammar School, Dewsbury.
Watson, P. G.	Grammar School, South Shields.
Webster, G. A.	Trinity College, Harrogate.
Whale, H.	Chesterfield Grammar School.
Wilton, P. J.	Warbreck College, Aintree.
Atkinson, J. M.	56 Prospect Road, Scarborough.
Berry, F. L.	Oxford House, Brighton.
Biggin, E. W.	Gillingham Grammar School.
Braund, F.	Grammar School, Bideford.
Burnett, A. L.	Bourne College, Birmingham.
Carey, S. D.	Boys' Coll. and High S., S'hampton.
Castelow, W. T.	Parish Church Mid. Cl. S., Leeds.
Chambers, D.	14 Broomgrove, Sheffield.
Coles, H. J.	Pine House, Wincanton.
Corke, E. S.	Mead House S., Biggleswade.
Durrant, F. A.	Belle Vue House, Norwich.
Edey, A. M.	Brooklyn Villa S., Sheffield.
Flemyng, B. W. B. T.	Grammar School, Ongar.
Ford, H.	Hull and East Riding College.
Fox, E. H.	Whitworth School, Derby.
Goodenough, J. M.	Cowper's House S., Huntingdon.
Green, H. J.	Gillingham Grammar School.
Harding, H. L.	St. John's College, Brixton.
Heath, E. J.	Worthing High School for Boys.
Hooper, F. W.	St. Austell School, Cornwall.
Hughes, W. E.	Grove House S., Tunbridge Wells.
Jenkins, T. H.	Lewisham Ho., Weston-s.-Mare.
Johns, F.	Hill House School, Totnes.
Johnson, R. K.	Battersea Grammar School.
Johnson, S.	Brunteliffe College, Leeds.
Jones, T.	St. Bede's College, Manchester.
King, F. G.	Eton House School, Hull.
Lesingham, F. L.	Avenue House School, Sevenoaks.
Longley, J. A.	Brighton Grammar School.
Lovegrove, C. F.	Kersal Glen S., Hr. Broughton.
Martin, H.	Hannington High S., Eastbourne.
Pitman, H. G.	Bayville, Bournemouth.
Pitt, J. T.	Chandos School, Hereford.
Robertshaw, A.	University School, Southport.
Scott, A. R. W.	Gunnersbury College, W.
Thompson, H.	Redbourne Hall, Kirton Lindsey.
Tripp, P. N.	Hull and East Riding College.
Tucker, W. S.	King Charles I. Gr. S., Kidderm'r.
Twist, F. P.	Ousegate School, Selby.
Wallis, W. E. J.	Farnham Grammar School.
Whitmarsh, B.	Grammar School, Ongar.
Widdowson, R.	Chesterfield Grammar School.
Wilson, J.	Up-Holland Grammar School.
Winter, C. M.	Eton House School, Hull.
Young, M.	Bussage House, Stroud.
Allsworth, W.	Grammar School, Wallingford.
Annett, A.	Kendrick Middle School, Reading.
Ashton, W. F.	Manchester Commercial School.
Boughton, C. H.	Vickery's, Southsea.
Bridges, B.	Apsley House, Margate.
Bright, A. H. T.	Romford Grammar School.
Buchanan, P.	The Grange School, Halstead.
Butler, R.	The Grammar School, Totnes.
Clement, W. E.	Athenæum School, Llanelly.
Darvill, W. T.	Stanley House, Margate.
Davies, W. S.	Mount Radford School, Exeter.
Dawson, H. W.	King Edwd. VI. Gram. S., Louth.
De Gruchy, J.	Oxenford House School, Jersey.
Drayson, A. P.	Glenwood Ho. S., Winchmore Hill.
Du Vivier, W. H.	Thanet College, Margate.
Elliot, S. A.	Elmfield College, York.
Ellison, W. W.	Wellingborough Grammar School.
Gammon, H.	The Grammar School, Andover.
Glover, L. A.	College House, Eastbourne.
Greenhalgh, J. R.	High S., Springfield Mount, Leeds.
Groves, W. L.	Independent College, Taunton.
Hemsted, F.	Glencoe, Anglesey, Gosport.
Hill, A. W.	Osborne House, Margate.
Huxtable, M.	Ilfracombe Grammar School.
Ind, C. U.	Cambridge House S., Margate.
Keats, G. W.	43 Maryon Rd., Charlton, S.E.
Mackey, G. L. R.	Royal Masonic Inst., Wood Green.
May, H. S.	Brunswick House, Maidstone.
Morris, S. F.	90 Falkner St., Liverpool.
Nutter, P. J.	Clewer House School, Windsor.
Palmer, F.	2 Apsley Villas, Bristol.
Petty, O.	Wood Lodge, Shooters Hill.
Phillips, S.	Stranraer School, Bournemouth.
Pollard, H.	Hart House School, Tregoney.
Runton, P. T.	Hull and East Riding College.
Short, H. E.	Chesterfield Grammar School.
Southern, J. W.	Claremont College, Blackpool.
Stanley, J.	Sydenham House, Leamington.
Stevens, B. C.	Ilfracombe Grammar School.
Strickland, R.	Yarm Grammar School.
Taylor, J.	Grammar School, Ongar.
Veale, C. J.	Hill House School, Totnes.
Venndt, J. C.	Upland Coll., Newington Green.
Vosper, C.	Brunswick House, Maidstone.
Wadoux, M. H.	Anglo-French Coll., Finchley Rd.
Waller, J.	St. Oswald's College, Tynemouth.
Wilkinson, L. G. W.	Oxford House, Brighton.
Willing, A.	Brooklands School, Sale.
Young, F.	Cherville College, Romsey.
Allen, J.	The Commercial School, Ludlow.
Atkinson, G.	St. Mary's Hall, Cardiff.
Barnett, A.	Beaufort College, St. Leonards.
Berrington, J. G.	Park Hurst School, Buxton.
Blatch, E.	Ascham House School, Reading.
Bousefield, A.	Hornsey Park College, N.
Bryan, C. H.	The Academy, Banbury.
Bywater, F. Y.	Cowper's House S., Huntingdon.
Cheetham, R.	University School, Southport.
Connew, T. F.	Wykeham Ho. S., Priory Rd., N.W.
Cooper, G. F. G.	Chippendale Lodge, Bournemouth.
Drane, R.	Belle Vue House, Norwich.
Edy, C. W.	Anglo-French Coll., Finchley Rd.
Flint, T.	Eton House School, Hull.
Foulds, W. E.	Wellington School, Heaton Moor.
Froome, W.	The Grammar School, Andover.
Gilbert, E. G.	Bilton Grange S., Harrogate.
Glenn, S. L.	Fairfield House Coll., Exeter.
Gordon-Smith, H.	Oxford House, Brighton.
Hartnoll, C.	Battersea Grammar School.
Hinton-Jones, A.	Claremont School, Shrewsbury.
Hopkinson, G. St. L.	Practoria House, Folkestone.
Keene, H. H.	Breydon House S., Bournemouth.
Keene, P.	Anglo-French Coll., Finchley Rd.
Kellas, J. C.	Victoria College, Stroud Green.
King, F. J.	Gillingham Grammar School.
Lashbrooke, H.	Caversham House S., Reading.
Laurie, J. A.	Whitworth School, Derby.
Leeson, R.	Warlingham School, Surrey.
Lewis, W. H.	Ilfracombe Grammar School.
Lord, A. E.	Higher Grade School, Bacup.
Luff-Smith, E.	Battersea Grammar School.
Martin, C. M.	Hoe Grammar School, Plymouth.
Mason, H. St. C.	Belmont House School, Bexley.
Newmark, D. M.	Tivoli House School, Gravesend.
Newsholme, D. H.	Claremont College, Blackpool.
Perry, H. E.	Victoria Coll., Douglas, I. of Man.
Pike, H. B.	Gillingham Grammar School.
Pitts, G. S.	Clewer House School, Windsor.
Poole, A. J. W.	Grammar School, Ongar.
Potter, W. J.	Brunswick House, Maidstone.
Rhodes, P.	The Western College, Harrogate.
Sadler, H. R.	St. John's Collegiate S., Richmond.
Sheldon, J.	The High School, Long Eaton.
Sindall, F.	Catford Collegiate S., Lewisham.
Slade, J. G.	Belsize School, S. Hampstead.
Smith, W. H.	Private tuition.
Spencer, M. A.	Mottingham House, Mottingham.
Stretton, S.	K. Charles I. Gram. S., Kidderm'r.
Taylor, P. L.	All Saints' School, Clifton.
Wake, C. F.	Mayall College, Herne Hill.
Webb, D. U.	Eastbourne Old School.
Wilde, N.	St. Mary's Hall, Cardiff.
Angier, C. T.	College House, Eastbourne.
Atkinson, T. C.	Hull and East Riding College.
Austin, E. G.	Eversley, Clifton, Bristol.
Barnett, F. R.	Park House School, Uxbridge.
Bennett, E. B.	Beaumont House School, Jersey.
Blaikley, A. J.	Anglo-French Coll., Finchley Rd
Browne, W. V.	Warbreck College, Aintree.
Drew, T. H.	Bourne College, Birmingham.
Edward, G.	Caversham House S., Reading.
Esson, W. A.	The Western College, Harrogate.
Fogg, F. G.	Farnworth Grammar S., Widnes.
Guy, J. L.	Wollaston Road S., Dorchester.
Harding, T. W.	Grammar School, Ongar.
Harrison, H. M.	Claremont College, Blackpool.
Hill, W. H.	Dr. Morgan's School, Bridgwater.
Jean, E. A.	Oxenford House School, Jersey.
Jenkins, J. P.	Eversley, Clifton, Bristol.
Jones, G.	Walton Institute, Liverpool.
Knight, C. G.	Arnold College, W. Bournemouth.
Labey, J. P.	Oxenford House School, Jersey.
Lawson, W.	Belmont House School, Bexley.
Lockhart, K.	Cowley College, New Barnet.
Luke, T. A.	Brooklands School, Sale.
Mills, H. W.	Wellingborough Grammar School.
Morphy, A.	Lewisham H., Weston.s.-Mare.
Moss, J. F.	Royal Grammar School, Sheffield.
Naish, F. W.	Grammar School, Wallingford.
O'Neill, M.	Boys' Coll. & High S., S'hampton.
Owston, W. H.	East Hardwick S., Pontefract.
Pettman, L.	Apsley House, Margate.
Pickup, G. A.	Brooklands School, Sale.
Pomroy, P. E.	Devizes Grammar School.
Ridsdale, P.	Hall's Grammar S., Snettisham.
Ritson, G. S.	Kendrick Middle S., Reading.
Rosoman, C. H.	Hendon School, Hendon.
Shaw, A. R.	Wellington College, Salop.
Sibary, H.	The Commercial College, York.
Stone, R. O.	Lindenthorpe, Broadstairs.
Sturdee, H. F.	Norton College, Luton.
Tallboy, F. J.	The Grammar School, Midhurst.
Timms, A. B.	College House, Eastbourne.
Von Froehnert, F. E.	H. Hoe Grammar S., Plymouth.
Waldmeier, F.	Ellesmere School, Harrogate.
Walker, J. L.	West Cliff School, Ramsgate.
Weall, J. G.	Osborne House, Margate.
White, F. N.	College House, Eastbourne.
Wilson, P. E.	Highbury House S., St. Leonards.
Aust, T. H.	Redland Grove School, Clifton.
Baker, S. H.	Gillingham Grammar School.
Barlow, A.	Taunton House School, Brighton.
Batham, C.	Beckenham Lodge S., Beckenham.
Beverley, L. McC.	Dane Hill School, Margate.
Brackett, W. N.	Sea House School, Eastbourne.
Brown, S. D.	Highbury House S., St. Leonards.
Clark, C. J.	Anglo-French Coll., Finchley Rd.
Clark, N. G.	Immanuel Coll., Streatham Com.
Collins, C. M.	Wellingborough Grammar School.
Craft, A. E.	Parkgate Avenue School, Hull.
Cross, E. N.	Bickerton House School, Birkdale.
Edwards, J. R.	St. Austell School, Cornwall.
Fenton, W.	The Huish School, Taunton.

BOYS, THIRD CLASS—*Continued.*

Fisher, C. D.	Upton School, Slough.
Furness, J. A.	Belmont House School, Bexley.
Godfrey, A.	East-Anglian S., Bury St. Edmunds.
Harper, J. H.	Claremont House, St. Albans.
Hilton, R. L.	Wellington College, Salop.
Honeyfield, A.	Gillingham Grammar School.
Howard, R. T.	Commercial S., Downham Market.
Humphres, H. J.	Grammar School, Newbury.
Laborde, F. H.	St. Asaph Grammar School.
Laughton, A. R. P.	Highbury House S., St. Leonards.
Laver, R.	Middle Class S., Weston-s.-Mare.
Lay, P. H.	Grammar School, Wallingford.
Lynes, B. B.	Compton House School, Brighton.
Macdonald, F.	Surrey House School, Margate.
Makin, E. C. S.	Eton House Comm. S., Sheffield.
Marshall, H.	Parish Church Middle Cl. S., Leeds.
Newman, W. C.	Lewisham House, Weston-s.-Mare.
Oades, S.	The College, Broadstairs.
Peacock, E. W.	Pynes House School, Thorverton.
Pemberton, A.	The High School, Heaton Chapel.
Ray, J. N. C.	Belle Vue House, Norwich.
Russell, H. W.	High S., Springfield Mount, Leeds.
Ryder, J. A.	St. Martin's Gram. S., Scarborough.
Scullard, G. H.	Taunton's Trade S., Southampton.
Shaw, H.	East Hardwick School, Pontefract.
Sheppard, A. E.	Oxford House, Brighton.
Smith, F.	The Commercial College, York.
Snook, G. L.	Dr. Morgan's School, Bridgwater.
Starck, P.	Oxenford House School, Jersey.
Sugden, J.	Parkgate Avenue School, Hull.
Thompson, R.	Trinity College, Harrogate.
Trevor-Roper, E.	Victoria Park School, Manchester.
Turnley, W. H.	Bourne College, Birmingham.
Tutton, C. C.	Walton Institute, Liverpool.
Williams, G. E.	Elmfield College, York.
Williams, S. R.	Redland Grove School, Clifton.
Allard, L. W.	St. Oswald's College, Tynemouth.
Allardice, D. D.	Wirral College, Rock Ferry.
Andrew, W. E.	Midland Collegiate S., Egbaston.
Aspland, S. R.	Belle Vue House, Norwich.
Beaumont, E.	Godwynehurst, Dover.
Bethell, J.	Pine House, Wincanton.
Bodenham, C. W.	The Commercial School, Ludlow.
Boone, H.	Lewisham House, Weston-s.-Mare.
Burgess, R. B.	Rose Hill School, Bowdon.
Cave, W. A.	Reading Collegiate School.
Cawley, F.	Grammar School, Eccles.
Chamberlain, H. H.	Thanet College, Margate.
Champness, T.	Romford Grammar School.
Clancey, F.	The Castle College, Torquay.
Grayson-Clarke, F. W.	Northgate S., Bury St. Edmunds.
Hanon, H. W.	Beaumont House School, Jersey.
Harris, W. J. C.	Russell House School, Plymouth.
Jellicoe, V.	Stamford Hill Collegiate School, N.
Jones, E. H.	Apsley House, Margate.
Jones, H.	The Academy, Whitchurch.
Julyan, T.	Hart House School, Tregoney.
Larmuth, H.	Fair Oaks School, Wilmslow.
Leather, W. B.	Parish Church Middle Cl. S., Leeds.
Lee, W. H.	Chesterfield Grammar School.
Maddison, A. A.	Huntingdon Grammar School.
Morton, F. R.	Hindley Grammar School.
Pearson, H. J. M.	Kersal Glen S., Higher Broughton.
Pfleiderer, O. G.	Central Hill Coll., Upper Norwood.
Prior, C.	Highbury House S., St. Leonards.
Pyefinch, A. E. H.	Camden School, Newland, Hull.
Redmayne, W.	Strathmore House, Southport.
Southcombe, C. R.	Lewisham House, Weston-s.-Mare.
Stanier, W. A.	Swindon High School.
Stewart, T. G.	Sydenham College, S.E.
Stubbs, E.	Wilson Coll., Stoke Newington.
Summers, L.	Clytha College, Newport, Mon.
Taylor, L. W.	Private tuition.
Vibert, W.	Napier House School, Jersey.
Webb, W. H.	Swindon High School.
Wixcey, C. R.	Finsbury Park College, N.
Wright, E.	Royal Grammar School, Sheffield.
Wright, P.	Bussage House, Strond.
Andrews, G. D.	Holt House School, Fakenham.
Ashton, W. H.	Cowper's House S., Huntingdon.
Bennett, C. J.	Park Hurst School, Buxton.
Bennett, J. F.	York Street Academy, Wakefield.
Buckley, H. M.	Bickerton House School, Birkdale.
Buss, A.	Stamford Hill Collegiate School, N.
Carden, A. E.	Taunton House School, Brighton.
Catling, S. A.	College House, Eastbourne.
Constable, P. E.	Gunnersbury College, W.
Daniel, H. C.	Thornham House, West Brighton.
Dewdney, A. V.	Hill House School, Totnes.
East, C. A. A.	Private tuition.
Elgie, C.	Yarm Grammar School.
Fullerton, A. H.	Eton House School, Hull.
Hannam, W. J.	Pine House, Wincanton.
Hawkins, J. F.	Richmond House, Ramsgate.
Haworth, J. P.	University School, Southport.
Hirst, F.	Pannal College, Harrogate.
Hoffgaard, J. F.	Appuldurcombe Coll., I. of Wight.
Lawson, P. W. F.	The Commercial College, York.
Linn, J.	The Commercial College, York.
Mead, E. R.	The Huish School, Taunton.
Miller, G.	Headingley Hill, School, Leeds.
Morle, P. B.	Clewer House School, Windsor.
North, F.	Pannal College, Harrogate.
Pinckney, A. A.	High School, Queen's Coll., B'ham.
Plews, A. C.	Maida Vale School, W.
Reid, H. A. P.	Hornsey Park College, N.
Ringer, E.	St. Giles' College, Norwich.
Ruoff, F. H.	Castle Hill School, Reading.
Sanderson, W. E.	Berkeley School, Hull.
Seaborne, H. W.	High School, Barnsley.
Smyrk, J. S. G.	Swindon High School.
Street, S.	Hall's Grammar S., Snettisham.
Strickland, A. G.	Middle Class S., Weston-s.-Mare.
Suter, F.	Taunton's Trade S., Southampton.
Swan, G. J.	Hingham Endowed S., Attleboro'.
Symes, D.	Fairfield House Coll., Exeter.
Thorp, S. J.	Farnham Grammar School.
Towner, J. W.	Brunswick House, Maidstone.
Walker, A.	Chesterfield Grammar School.
Way, M. H.	The Limes S., Ambrst Park, N.
Weekley, G.	Dane Hill School, Margate.
Williamson, R.	Victoria Coll., Douglas, I. of Man.
Younghusband, H.	Parish Church Mid. Cl. S., Leeds.
Ashworth, R. L.	Epworth College, Rhyl.
Battersby, F.	The High School, Brentwood.
Black, S. H. M	Lindenthorpe, Broadstairs.
Brittain, C. E.	St. Martin's Gram. S., Scarborough.
Brown, W. H.	Wellingborough Grammar School.
Carey, A. S.	Middle Class S., Weston-s.-Mare.
Cavenagh, M.	Ellesmere School, Harrogate.
Chislett, H. S.	The Academy, Banbury.
Chubb, H.	Gillingham Grammar School.
Dongall, W. S.	Wellington College, Salop
Ferris, W.	Grammar School, Newbury.
Forbes, C.	Vernon Ho. S., Radcliffe-on-Trent.
Gelling, H. G.	Victoria Coll., Douglas, I. of Man.
Gillingham, G.	Kendrick Middle S., Reading.
Haff, E. J.	The Huish School, Taunton.
Hargreaves, W.	Grammar School, Burnley.
Hosgood, N.	Wilson Coll., Stoke Newington.
Ironside, A. A.	Sutton Park School, Surrey.
Jollit, F. G.	Belsize School, S. Hampstead.
Longman, W. H.	Pine House, Wincanton.
Lowe, A.	Royal Gram.S., Newcastle-on-Tyne.
Main, G. R.	Wirral College, Rock Ferry.
Martin, F. W.	Dane Hill School, Margate.
Mason, S. A.	Farnham Grammar School.
Menzies, J.	Hart House School, Tregoney.
Milne, A.	Balham High School, S.W.
Nixon, C. F.	Cowper's House S, Huntingdon.
Oldman, R. D.	Osborne House, Margate.
Packman, G S.	Ascham College, Clacton-on-Sea.
Pacy, R. W.	Private tuition.
Powers, H. E.	Leamington Collegiate School.
Robinson, W. B.	Collegiate School, Aldershot.
Saunders, J. P.	Cowper's House S., Huntingdon.
Sharman, H. A.	Lewisham House, Weston-s.-Mare.
Smith, H. J.	The Collegiate S., Great Grimsby.
Stewart, C. H.	Kendrick Middle School, Reading.
Tebbutt, T. P.	Milton College, Ullesthorpe.
Theobald, A.	Stamford Hill Collegiate S., N.
Tindall, I. McI.	Wellingborough Grammar School.
Turner, E. W.	St. John's College, Brixton.
Wilson, J. F.	Headingley Hill S., Leeds.
Wreford, P. H.	Exmouth College.
Aldred, A.	Headingley Hill S., Leeds.
Alexander, A. H.	Devizes Grammar School.
Baker, G. R.	Gillingham Grammar School.
Butler, H.	Skelsmergh House S., Margate.
Carlé, G. H. T.	Summerleaze Coll., S., E. Harptree.
Clark, D. H.	Immanuel Coll. Streatham Com.
Court, L.	The College, Gildersome.
Craig, D. L.	Ascham House School, Reading.
Eatock, F.	Farnworth Grammar S., Widnes.
Gard, W. R. N.	West Cliff School, Ramsgate.
Harland, H.	The Castle College, Torquay.
Hawkins, E. J.	St. George's College, Wimbledon.
Hockey, E. J.	Cromartie House School, Acton.
Hodgkinson, C. H.	Claremont College, Blackpool.
Hodgson, E.	Huntingdon Grammar School.
Howes, R.	Private tuition.
Jephson, P.	Chesterfield Grammar School.
Kendall, F.	Hart House School, Tregoney.
Muriel, H. L.	Hall's Grammar S., Snettisham.
Noton, E.	Rhodes House S., Manchester.
Parker, F. S.	Park Hurst School, Buxton.
Pavillet, H.	Lindenthorpe, Broadstairs.
Payne, R. J.	Cherville College, Romsey.
Pegler, O.	Norton College, Luton.
Plugge, A.	Eton House School, Hull.
Price, H. R.	St. John's College, Brixton.
Profit, J. W.	High School for Boys, Bolton.
Schove, A. C.	Valentia House S., South Norwood.
Smith, T. J.	Milton College, Ullesthorpe.
Stokoe, S. W.	Rose Hill School, Bowdon.
Thomas, J. L.	Praetoria House, Folkestone.
Thwaites, H.	Exmouth College.
Turnbull, C. F.	Argyle House School, Sunderland.
Voisin, L. H. D.	Oxenford House School, Jersey.
Walmsley, A. A.	Grammar School, Eccles.
Watson, H. F. M.	Wellingborough Grammar School.
Bendall, C. H.	Middle Class S., Weston-s.-Mare.
Bexfield, H. S.	Leytonstone College.
Bristow, C. D.	Lindenthorpe, Broadstairs.
Brown, R. H.	Holmwood, Bexhill.
Buckler, W. P.	Osborne House, Margate.
Buckridge, C. F.	Victoria College, Stroud Green.
Burt, A. E.	The Collegiate S., Great Grimsby.
Chew, H. E.	Mead House School, Biggleswade.
Crossley, A. T.	Cathedral Choir School, Ripon.
Davis, F. J.	Tudor Hall, Hawkhurst.
Davis, J. A.	Bourne Hall, Bushey.
Dew, A. O.	Middle Class S., Weston-s.-Mare.
Gillah, F. W.	Elmfield College, York.
Glover, A. E.	Vermont College, Clapton.
Hamper, F.	St. Mary's Hr. Grade S., Scarboro'.
Insley, H. C.	Oxenford House School, Jersey.
Jarvis, A. J.	Wilson College, Stoke Newington.
Jones, D. R.	Dolgelley Grammar School.
Jones, W.	St. Mary's Hall, Cardiff.
Julian, R.	Hoe Grammar School, Plymouth.
Morgan, H. M.	Milton College, Ullesthorpe.
Nicholls, E. E.	St. Austell School, Cornwall.
Oxley, R.	Stamford Hill Collegiate School, N.
Price, W. E.	Swindon High School.
Roberts, H.	St. Asaph Grammar School.
Smith, S. H.	Anglo-French Coll., Finchley Rd.
Sykes, E.	Ilkley College.
Thomas, D. L.	Greenhill, Tenby.
Tyson, T. A.	Wavertree Academy, Liverpool.
Vanderlinden, H. J.	Tivoli House School, Gravesend.
Wallis, F. J.	Pine House, Wincanton.
Walters, F. H. E.	Wellingborough Grammar School.
Watson, H. C.	Stanley House, Margate.
Whale, R. D.	Upton School, Slough.
Wilkinson, F. W.	The Western College, Harrogate.
Woodhead, A. S.	Parish Church Middle Cl. S., Leeds.
Wright, F. W.	Brooklands School, Sale.
Allen, L. C.	Etonhurst, Weston-super-Mare.
Arnold, S.	Brooklands School, Sale.
Aslin, C. E.	Vernon Ho. S., Radcliffe-on-Trent
Atkinson, J. P.	Hull and East Riding College.
Birtill, J. E.	University School, Southport.
Cook, J. F.	The Manse, Tattenhall.
Dunston, A. J.	Farnham Grammar School.
Farleigh, L.	Grammar School, Bideford.
Forster, J. C.	N'castle Mod. S., N'castle-on-Tyne
Gifford, H. J.	Pine House, Wincanton.
Girling, R. J.	Belle Vue House, Norwich.
Goodall, E. T.	Trinity College, Harrogate.
Goulding, A.	Farnham Grammar School.
Haddon, H.	Ilkley College.
Hall, J. M.	The Western College, Harrogate.
Harper, J.	Gunnersbury College, W.
Harrington, A. W.	Anglo-French Coll., Finchley Road
Harrison, R. T.	Skelsmergh House School, Margate.
Johnson, A. E.	Wellington School, Heaton Moor.
Lamb, A. S. F.	Valentia House S., South Norwood.
Latimer, F. D.	New College, Margate.
Lee, A. H.	14, Broomgrove, Sheffield.
Lee, B. L.	Great Ealing School, W.
Linton, F. G.	Belmont House S., Upper Tooting.
Mahony, F. H.	Grosvenor School, Twickenham.
McClure, W.	Parish Church Mid. Cl. S., Leeds.
Peters, W.	Altrincham Grammar School.
Pryor, C. J.	St. Leonards Collegiate School.
Rule, J.	Hart House School, Tregoney.
Soan, F.	Mayall College, Herne Hill.
Starkey, F.	The College, Broadstairs.
Stubbs, T.	Granton College, Liverpool.
Thomas, G. H.	Redland Grove School, Clifton.
Weston, R. M.	Ivy Bank School, Southampton
Wright, R. D.	Brooklands School, Sale.
Wright, T. H.	High School, Crewe.

THIRD CLASS.—3RD DIVISION.

Barnes, J.	Vickery's, Southsea.
Barnfather, A. H.	Berkeley School, Hull.
Batt, E. A.	Lindenthorpe, Broadstairs.
Beard, A. G.	Alma House, Mistley.
Biggs, A.	Wilsford House School, Devizes.
Bowden, T.	Hart House School, Tregoney.
Coussens, E. E.	Ferndale, Quarry Rd., Hastings.
Durie, E. C.	Lewisham House, Weston-s.-Mare.
Eccles, F. J. A.	Ashted School, Birmingham.
Elgie, F.	Yarm Grammar School.
Faulks, P. W. C.	New College, Margate.
Gifford, T. C.	Pine House, Wincanton.
Goode, W. C.	Dane Hill School, Margate.
Hart, P.	The Grange School, Halstead.
Hogge, J. D.	Bickerton House School, Birkdale.
Jones, T. E.	Adv. Elem. Boys' S., Merthyr Tydfil.
Kinchin, C. W.	Middle Class S., Weston-s.-Mare.
Mercer, C. E.	Farnworth Grammar S., Widnes.
Mycock, T.	The Castle College, Torquay.
Noble, A. C.	Hull and East Riding College.
O'Brien, W.	Catholic Coll. Inst., Manchester.
Parton, W. H.	Bank House School, Moseley.
Pearce, A. W. S.	Bourne College, Birmingham.
Pochin, A. H.	Laurel Bank School, Manchester.
Ponking, P. H.	Encombe Lodge School, Reading.
Ramsey, W. G.	The Academy, Banbury.
Rose, C.	Oxenford House School, Jersey.
Scarles, O.	Grammar School, Newport, Mon.
Slade, J.	Belmore House S., Cheltenham.
Smith, S.	Middle Class School, Barnstaple.
Sowton, S.	Newton Abbot Boys' School.
Suthers, H.	Wellington School, Heaton Moor.
Taylor, J. H.	The College, Gildersome.
Taylor, W.	Eton House School, Hull.
Thomas, W.	Belmore House S., Cheltenham.
Thorp, W. S.	University School, Southport.
Watts, W. E.	Wilsford House School, Devizes.
Woods, W. D.	Vermont College, Clapton.
Wright, F. P.	Grammar School, Ongar.
Abram, A.	High School, Runcorn.
Adams, H.	Elmfield College, York.
Bayley, C.	Ascham House School, Reading.
Blagburn, J. W.	Hull and East Riding College.
Booth, A.	Manchester Commercial School.
Brown, A.	Albert House School, S. Hackney.
Candy, W.	Netherhampton Ho. S., Salisbury.
Charlesworth, E. A.	Private tuition.
Chorlton, A.	Norman Road School, Rusholme.
Churchill, G. S.	Lindenthorpe, Broadstairs.
Coomber, L. W.	The College, Gildersome.
Davidson, I.	Great Ealing School, W.
Davis, T. M.	Foster's Grammar S., Sherborne.
Dawson, A. McK.	Willesden High School.
Deverell, S.	Lewisham House, Weston-s.-Mare.
Fernie, F.	Wellingborough Grammar School.
Fletcher, O.	Yarm Grammar School.
Gallaher, J. C.	Horsforth Commercial S., Leeds.
Ganderton, A. A.	Boys' High School, Hornsea.
Handley, R. W.	Claremont College, Blackpool.
Kelly, G. A.	Victoria Coll., Douglas, I. of Man.
Knight, W. H.	Netherhampton Ho. S., Salisbury.
Lange, H. H.	The Grammar School, Withington.

BOYS, THIRD CLASS—*Continued.*

Linskill, W. H.	Ellesmere School, Harrogate.
Lund, W.	The Commercial College, York.
Mellor, G. C.	Alstonefield, Ashbourne.
Moody, R.	Onsegate School, Selby.
Nixon, J. G.	Epworth College, Rhyl.
Rigby, F. W.	Preston Class., Math., and Comm. S.
Schlesinger, W.	Compton House School, Brighton.
Schove, F. H.	Valentia House S., South Norwood.
Smith, A. W.	Kendrick Middle School, Reading.
Tanner, G.	Middle Class S., Weston-s.-Mare.
Till, W.	Boys' High School, Hornsea.
Wade, G. N.	Grammar School, Newport, Mon.
Wallis, F. C.	Holmwood, Bexhill.
Webster, J. S.	Wellingborough Grammar School.
Williams, H.	Studley House School, Lee, S.E.
Willoughby, T. S. O.	Erme House, Mutley, Plymouth.
Wright, W. H.	Midland Collegiate S., Edgbaston.
Andrews, A.	Belle Vue House, Norwich.
Aykroyd, F. A.	Harrogate College.
Batley, A.	Trinity College, Harrogate.
Bratton, A. T.	Wellington College, Salop.
Buckley, C.	York Street Academy, Wakefield.
Calver, W. D.	Trinity College, Harrogate.
Chapman, A. W.	New College, Margate.
Chappell, E.	Redenhall School, Harleston.
Courtier, H.	Apsley House, Margate.
Cutler, G. W.	Gillingham Grammar School.
Dawe, F. G.	Lewisham House, Weston-s.-Mare.
Day, G.	Lewisham House, Weston-s.-Mare.
Deacon, A. F.	Etonhurst, Weston-super-Mare.
Desborough, H. M. M.	Royal Gram. S., Henley-on-Thames.
Dowling, E.	Kendrick Middle School, Reading.
Eager, E. A.	Thornham House, West Brighton.
Glascock, L. C. B.	Aberdeen House, Ramsgate.
Gosden, A. W.	St. John's Hill Ho., New Wandsworth
Havercroft, C. H.	Darfield College, East Acton.
Heal, H.	Osborne House, Margate.
Heiron, V. C.	Middle Class S., Weston-s.-Mare.
Hughes, A. J.	Lindenthorpe, Broadstairs.
Humphreys, J. J. H.	The Grammar School, Llandilo.
Hydes, G.	Royal Grammar School, Sheffield.
Irish, H. E.	Lewisham House, Weston-s.-Mare.
Jarvis, J. H.	Midland Collegiate S., Edgbaston.
Lloyd, L. E.	The Woodronghs, Moseley.
Lloyd, L. J.	Taunton House School, Brighton.
Lock, R. A.	Anglo-French Coll., Finchley Rd.
Lunt, W. B.	College House, Eastbourne.
Millett, H. P.	Middle Class S., Weston-s.-Mare.
Normanton, R.	The Commercial College, York.
Packman, F.	Collegiate School, Hythe.
Poole, E. S. E.	Paignton School, Paignton.
Porter, W. G.	Private tuition.
Potter, G. W.	Glenwood Ho. S., Winchmore Hill.
Pumfrey, W.	Florence Street School, Islington.
Punnett, E. J.	Sea House School, Eastbourne.
Quirke, C. O'Q.	Taunton House School, Brighton.
Reeve, D. W.	Sutton Park School, Surrey.
Smallwood, R. A.	Sydenham College, S.E.
Smith, J. F.	Thanet College, Margate.
Smyth, R. W.	Herrick Foundation S., Lewisham.
Spendlove, H.	Royal Grammar School, Sheffield.
Street, S.	New College, Margate.
Tomkins, C. A.	Holmwood, Bexhill.
Tonkyn, E.	East Cornwall College, Liskeard.
Underwood, A. J.	Vernon Ho. S., Radcliffe-on-Trent.
Vickers, E. F.	Grammar School, Wallingford.
Webb, A. G.	Private tuition.
White, A. B.	Appuldurcombe Coll., I. of Wight.
Wilkins, F. C.	Taunton House School, Brighton.
Windeatt, J.	The Grammar School, Totnes.
Woodfin, N. C.	Lewisham House, Weston-s.-Mare.
Albu, H.	Beaufort College, St. Leonards.
Alwin, J. W.	Herrick Foundation S., Lewisham.
Arnold, F.	College House, Eastbourne.
Asquith, T. P.	Trinity College, Harrogate.
Baker, F. G.	Wellington School, Heaton Moor.
Bradley, W.	The Commercial School, Ludlow.
Chillcott, C. D.	College House, Eastbourne.
Corkill, F. J.	Rhodes House S., Manchester.
Foster, F. W.	Handel College, Southampton.
Greenall, J. A.	Immanuel Coll., Streatham Com.
Grime, C.	Claremont College, Blackpool.
Hill, A.	The Manse, Tattenhall.
Holmes, J. R.	Osborne House, Margate.
Hood, A. T.	Wellington School, Heaton Moor.
Hughes, W. E.	Immanuel Coll., Streatham Com.
Huntley, G.	Eton House School, Hull.
Jones, R. W.	Bickerton House School, Birkdale.
Lamb, W. J.	Warbreck College, Aintree.
Lloyd, A.	Wellington College, Salop.
Lloyd, J.	Trafalgar House S., Winchester.
Mainwaring, T. C. F.	Hornsey Park College, N.
Mann, T. F.	Hingham Endowed S., Attleboro'.
Mason, C. B.	Victoria College, Stroud Green.
Miller, J. W.	Victoria Coll., Douglas, I. of Man.
Myers, J. F.	Harrogate College.
Scott, F. W.	Thanet College, Margate.
Sharpe, C. M.	Rye Grammar School, Sussex.
Shaul, H.	Devizes Grammar School.
Smith, A. B.	East Hardwick S., Pontefract.
Starks, P. W. T.	Cherville College, Romsey.
Turner, G. A.	Highfield Coll. S., Rock Ferry.
Wainwright, H. S.	The Westeru College, Harrogate.
Walker, C. A.	Heaton Lodge S., Huddersfield.
Watkin, G. H.	Wellingborough Grammar School.
Williams, I. R.	Catford Collegiate S., Lewisham.
Willoughby, W. H.	Central Hill College, Up. Norwood.
Abbot, A. J.	Grammar School, Bideford.
Ackers, F. H. L.	Alma House, Mistley.
Allkin, H. W.	Denbigh Grammar School.
Averillo, B.	Stamford Hill Collegiate S., N.
Barnett, A.	Compton House School, Brighton.
Bound, W.	Bourne College, Birmingham.
Bratton, F. E.	Wellington College, Salop.
Callow, H.	Belle Vue House, Norwich.
Catton, T.	Victoria Park School, Manchester.
Church, R.	East Anglian S., Bury St. Edmunds.
Craig, J.	Commercial S., Astley Bridge.
Crisp, J.	Milton College, Ullesthorpe.
Currie, A. K.	The Grammar School, Totnes.
Davis, H.	Hart House School, Tregoney.
Densham, W. H.	Lapford Collegiate S., Devon.
Ellis, H. S.	Oakfield House, Balsall Heath.
Foster, P.	Handel College, Southampton.
Harmer, G. C.	Craven Place School, Maidstone.
Hartness, J. B.	Private tuition.
Hatt, R. C.	Grammar School, Wallingford.
Hawthorn, H.	Wellington College, Salop.
Haydock, E.	Hindley Grammar School.
Hearne, W.	Gunnersbury College, W.
Hodgson, J.	Hindley Grammar School.
Lee, H.	The College, Gildersome.
Leonard, R. H.	Hull and East Riding College.
Ludolf, G. H.	Headingley Hill School, Leeds.
Mitchell, R. A.	Royal Masonic Inst., Wood Green.
Needham, F.	Milton College, Ullesthorpe.
Newmarch, E. W.	King Charles I. Gram. S., Kidderm'r.
Nicholson, W.	Private tuition.
Norfolk, W. A.	Ilkley College.
Pascoe, A.	East Cornwall College, Liskeard.
Pepper, J.	East Hardwick S., Pontefract.
Phillips, L. J. A.	St. Leonards Collegiate School.
Potter, H. A.	High S., Queen's Coll., Birmingham.
Purcell, C. H.	St. Augustine's College, Ramsgate.
Ridehalgh, H.	The College, Gildersome.
Roberts, F. D.	Whitstable College.
Stampe, B. C.	The Collegiate S., Great Grimsby.
Sutton, H. F.	West Cliff School, Ramsgate.
Waterhouse, F. C.	East Hardwick S., Pontefract.
Watson, A. E.	York House School, Reading.
Wells, M.	Redland Grove School, Clifton.
Andrews, C. E.	Private tuition.
Beisley, F. C.	Grammar School, Wallingford.
Blake, F.	Stranraer School, Bournemouth.
Butcher, H.	Headingley Hill School, Leeds.
Capsey, B. H.	Wellington College, Salop.
Chapman, E. J.	Great Ealing School, W.
Cheney, A.	High School for Girls, Tenterden.
Clark, A. C.	Eton House School, Hull.
Clarke, A. C.	Kersal Glen S., Higher Broughton.
Daniell, F.	Balham High School, S.W.
Davis, A. S.	Boy's High School, Hornsea.
Dobson, G. B.	Ellesmere School, Harrogate.
Evans, E.	Hart House School, Tregoney.
Field, E. E.	Pine House, Wincanton.
Finemore, W. J. H.	St. Helen's College, Southsea.
Godfrey, W. H.	Redbourne Hall, Kirton Lindsey.
Hickson, G. S.	Oxford House, Brighton.
Higgins, T. H.	Epworth College, Rhyl.
Hill, R.	Grammar School, Spalding.
Hollebone, C.	Highbury House S., St. Leonards.
Hood, F. J.	Wellington School, Heaton Moor.
Horne, E.	St. Mary's Hr. Grade S., Scarboro'.
Johnson, H.	Battersea Grammar School.
Knapman, G. W.	Ilfracombe Grammar School.
Langton, A. H.	Osborne House, Margate.
Lord, R. W.	Epworth College, Rhyl.
Lovegrove, L. H.	Kersal Glen. S., Higher Broughton.
Marshall, G.	Thanet College, Margate.
May, L.	West Cliff School, Ramsgate.
McBride, A. E.	Epworth College, Rhyl.
Moore, A. L.	King Charles I. Gram. S., Kidderm'r.
Needham, J. G.	Eton House School, Hull.
Nichols, B. H.	St. Oswald's College, Tynemouth.
Ovens, F. W.	Pine House, Wincanton.
Paisley, G. F.	The Western College, Harrogate.
Penny, E. G.	Claremoht Ho. S., Wateringbury.
Pinniger, F. W.	Middle Class S., Weston-s.-Mare.
Power, E. H.	St. Augustine's College, Ramsgate.
Rennison, J. F.	Belle Vue House, Norwich.
Roberts, J. K.	27 Water Street, Rhyl.
Saul, W. A. H.	Highfield Coll. S., Rock Ferry.
Simmonds, E. L.	Cathedral Choir School, Ripon.
Tench, G.	Huntingdon House S., Teddington.
Tompkins, W. E. V.	Newton Abbot Boys' School.
Wittman, G. F. J.	Sidney School, Hull.
Baxter, J. H.	Pannal College, Harrogate,
Booth, W. A. C.	Brunshaw Seminary, Burnley.
Cave, C. S.	Clewer House School, Windsor.
Davies, G. T.	Private tuition.
Fell, R.	Heaton Lodge S., Huddersfield.
Finn, T.	Aberdeen House, Ramsgate.
Grierson, J. T.	The College, Gildersome.
Haigh, J. C.	The Commercial College, York.
Haines, T.	Abbey House School, Tewkesbury.
Hargraves, B. P.	Trinity College, Harrogate.
Husband, H. C.	Boys' Col. and High S., Southampton.
Johnson, R. C.	Hull and East Riding College.
Knight, H. B.	Rye Grammar School, Sussex.
Langford, N. J.	Wellington College, Salop.
Manson, T.	Scarborough Grammar School.
Martin, H.	Bussage House, Stroud.
Medforth, J.	The Commercial College, York.
New, F. W. W.	Alma House, Mistley.
Parker, J. F.	Anglo-French Coll., Finchley Rd.
Payne, A. W.	Worthing Collegiate School.
Rhind, A. K.	Lindenthorpe, Broadstairs.
Runton, C. H.	Hull and East Riding College.
Sandford, C. V.	Withington High S., Manchester.
Selby, M.	Highbury House S., St. Leonards.
Stevens, C. A.	2 Apsley Villas, Bristol.
Summers, F. A. W.	Etonhurst, Weston-super-Mare.
Thirkell, A.	Eton House School, Hull.
Vickers, J. E.	The Southern College, Pannal Ash.
Vogwell, C. A.	Royal Gram. S., Newcastle-on-Tyne.
Walkerdine, W.	Friar House School, Derby.
Wray, C. E.	High School, Barnsley.
Adams, C. A.	Devizes Grammar School.
Angus, G.	Taunton's Trade S., Southampton.
Ashman, F. H.	Lewisham House, Weston-s.-Mare.
Berridge, J. A.	Wellingborough Grammar School.
Birchley, L.	Belmore House School, Cheltenham.
Bubb, P.	Bussage House, Stroud.
Campey, H. H.	The Collegiate S., Great Grimsby.
Chapman, S.	New College, Margate.
Devine, W. A.	Redland Grove School, Clifton.
Emary, F. M.	Oxford House, Brighton.
Fleck, F. C.	New College, Margate.
Goldberg, J.	Belmore House School, Cheltenham.
Green, F. C.	Boys' Coll. & High S., Southampton.
Grimshaw, A. P.	Emmerdale School, Sunderland.
Halford, G.	Anglo-French Coll., Finchley Rd.
Hall, C. H.	Catford Collegiate S., Lewisham.
Harper, E. A.	Uxbridge School.
Hothersall, J. F.	Cambridge House School, Wigan.
Howard, W.	Claremont College, Blackpool.
Hughes, R. P. E.	St. Asaph Grammar School.
Jeeves, E. C.	Middle Class S., Weston-s.-Mare.
Jones, E. R.	Wavertree Academy, Liverpool.
Kershaw, C.	Preston Class., Math., & Comm. S.
Lord, E.	Bruntcliffe College, Leeds.
Marner, F. G.	Norton College, Luton.
Molt, R. C.	Stoke Newington Grammar School.
Morgan, F. W.	Herrick Foundation S., Lewisham.
Morris, E. W.	Epworth College, Rhyl.
Morris, R. A.	Epworth College, Rhyl.
Mosse, H. T.	Woodside House School, Sutton.
Myers, A.	Compton House School, Brighton.
Paterson, B. J.	St. Mary's Hr. Grade S., Scarboro'.
Poland, J. S.	Tivoli House School, Gravesend.
Raison, C.	Sea House School, Eastbourne.
Ross, N. R.	Parkgate Avenue School, Hull.
Scott, H. W.	Collegiate & Comm. S., Oldham.
Stocken, W.	St. John's Coll. S., Richmond.
Stokoe, J.	Rose Hill School, Bowdon.
Sutcliffe, H.	The Commercial College, York.
Taylor, H. O.	St. Martin's Gram. S., Scarborough.
Thevenard, C.	Surrey House School, Margate.
Thompson, F. W	Redbourne Hall, Kirton Lindsey.
Warner, E. H.	West Cliff School, Ramsgate.
Weatherdon, R. C. A.	Streatham School, Streatham.
White, T. R. M.	Etonhurst, Weston-super-Mare.
Williams, T. P.	27, Water Street, Rhyl.
Wray, O.	Ion House School, East Molesey.
Berrow, A. A.	St. John's School, St. Leonards.
Bradbeer, F.	Fairfield House College, Exeter.
Buckstone, A. F.	Valentia House S., South Norwood.
Burton, H. J. C.	King Charles I. Gram S., Kidderm'r.
Constable, C. E.	Cavendish College, Southampton.
Daniel, A.	Hart House School, Tregoney.
Dashwood, H. F.	Pine House, Wincanton.
Dawson, H. G.	College House, Eastbourne.
Dawson, J. T.	Coll. and Comm. School, Oldham.
Dunham, F. A.	Battersea Grammar School.
Emanuel, V.	Warlingham School, Surrey.
Fase, B. F.	St. John's School, St. Leonards.
Fisher, W. H.	Redland Grove School, Clifton.
Geen, A.,	The Southern College, Pannal Ash.
Goodman, F. W.	Greenhill, Tenby.
Goodman, M.	Highbury House S., St. Leonards.
Howard, A.	Farnham Grammar School.
Huntingdon, C. W.	Norton College, Luton.
Lebouteur, J. J. S.	Oxenford House School, Jersey.
Linaker, C. E.	Mead House School, Biggleswade.
Locke, G. H.	Claremont College, Blackpool.
Lund, H.	The College, Gildersome.
Miller, F. C.	Scorton Grammar S., Darlington.
Nichols, W. T.	Mead House School, Biggleswade.
Norton, B. K.	Bronghton School, Hr. Bronghton.
Palk, W. H.	Hill House School, Totnes.
Peters, W. E.	Grammar School, Eccles.
Richardson, W. L.	Stoke Newington Grammar School.
Rigby, R. M.	Milton College, Ullesthorpe.
Simmonds, C.	Thanet College, Margate.
Stewart, A. M.	The Castle College, Torquay.
Straker, L. V.	College House, Eastbourne.
Swanton, E.	Gillingham Grammar School.
Thurston L. T.	Shipham Rectory, Bristol.
Yates, T. P.	Cambridge House School, Wigan.
Adams, W. B.	Sea House School, Eastbourne.
Anderson, J. S.	Eldon College, Hull.
Anthony, G. V. C.	St. Austell School, Cornwall.
Bartholomew, W. H.	Etonhurst, Weston-super-Mare.
Bickers, E. R.	Parish Church Mid. Cl. S., Leeds.
Bird, D.	Hingham Endowed S., Attleboro'.
Brierley, S.	Middle Class School, Skelmersdale.
Browne, A. C. R.	St. Leonards Collegiate School.
Cooban, S. E.	Walton Institute, Liverpool.
Cork, D. R. E.	Dane Hill School, Margate.
Erica, G.	East Anglian S., Bury St. Edmunds.
Ferriday, G. F.	Wellington College, Salop.
Frampton, B.	The College, Weston-s.-Mare.
Fuller, H. C.	Collegiate School, Hythe
Gibb, A. M.	Bickerton House School, Birkdale.
Gibson, S.	Bourne College, Birmingham.
Grace, F. R.	North Camberwell High Schools.
Grandidge, G. W.	Ilkley College.
Greenhalgh, J. N.	High S., Springfield Mount, Leeds.
Greenland, L. C.	Sydenham College, S.E.
Harvey, A. L.	Hingham Endowed S., Attleboro'.
Hawksley, C. W.	Chesterfield Grammar School.
Hening, T.	Walton Institute, Liverpool.
Hewett, H. A.	2, Apsley Villas, Bristol.
Holme, R. C.	Grammar School, Eccles.
Husband, A. E.	Vermont College, Clapton.
Jackson, F. P.	Epworth College, Rhyl.
Jones, R. E.	Vermont College, Clapton.

BOYS, THIRD CLASS—*Continued.*

Kmyon, N.	University School, Southport.
McKay, W. E.	Elmfield College, York.
Moore, L.	Taunton's Trade S., Southampton.
Oliver, H. J.	Salway House School, Leyton.
Russell, E. A.	Ilfracombe College.
Slimwell, T.	Albert Park S., Didsbury.
Sude, P. T. W.	Gillingham Grammar School.
Smith, A. C. B.	The Western College, Harrogate.
Swinnerton, J. E.	Walton Institute, Liverpool.
Swinyard, J.	Clewer House School, Windsor.
Watts, H. P.	St. Helen's College, Southsea.
Wright, A. G.	Battersea Grammar School.
Alexander, J. T.	St. Oswald's College, Tynemouth.
Ardley, E.	Warlingham School, Surrey.
Arendt, W.C.	Sydenham College, S.E.
Bally, H. S.	Walton Institute, Liverpool.
Barry, J. G.	Gainford School, Darlington.
Bennett, C. H.	Anglo-French Coll., Finchley Rd.
Bethell, F.	Charlotte Street S., Bath.
Brown, H. N.	Walton Institute, Liverpool.
Button, A.	Stamford Hill Collegiate S., N.
Carpenter, E. F.	Summerleaze Coll. S., E. Harptree.
Collins, L.	Battersea Grammar School.
Cox, F. A.	Independent College, Taunton.
Dawson, W.	East Hardwick S., Pontefract
Dimnick, B. H.	Bourne College, Birmingham.
Dodgshun, E. J.	Headingley Hill S., Leeds.
Gordon, G.	The Commercial School, Ludlow.
Goudge, W. H.	Swindon High School.
Jackson, H. W.	Wellingborough Grammar School.
Lancaster, H.	Highbury House S., St. Leonards.
Longbottom, B.	Ilkley College.
Lyne, W. P.	EdmontonHo.Acad.,Up.Edmonton
Marston, A. T.	Milton College, Ullesthorpe.
Miller, W. E.	Vernon Ho. S., Radcliffe-on-Trent.
Ottaway, H. W.	Rocklea, West Hill, Sydenham.
Pierson, A.	Private tuition.
Potter, J. Y.	Claremont College, Blackpool.
Rawcliffe, J. H.	Grammar School, Burnley.
Reed, J. R.	Kendrick Middle School, Reading.
Robertshaw, C.	University School, Southport.
Siddaway, S. E.	Eton House School, Hull.
Starkey, A. E.	High School, Monkgate, York.
Thornton, W.	Grammar School, Burnley.
Truscott, J. R.	7, Sussex Square, Brighton.
Waller, P. G.	East Hardwick School, Pontefract.
Warnes, E. E.	Bracondale School, Norwich.
Wells, E. J.	The High School, Hastings.
White, E. B.	The Priory, Kew.
Wilkins, C.	Belmore House School, Cheltenham
Wilson, J. G.	Victoria Coll., Douglas, Isle of Man.
Bebro, G. J.	Compton House School, Brighton.
Bowlas, T.	Claremont College, Blackpool.
Brentnall, F.	Altrincham Grammar School.
Brigham, M. L.	Priory House School, Bridlington.
Cown, J.	East Hardwick School, Pontefract.
Davison, W.	Ennerdale School, Sunderland.
Densham, R. H.	Lapford Collegiate School, Devon.
Dixon, B. R.	Dane Hill School, Margate.
Dowse, J.	Eton House School, Hull.
Fase, S.	St. John's School, St. Leonards.
Fox, W. H.	Napier House School, Jersey.
Foy, H. H.	Richmond House, Ramsgate.
Fulkes, H. A.	Wellingborough Grammar School.
Gem, H. E.	Wirral College, Rock Ferry.
Gibson, P. W.	Priory House School, Bridlington.
Gibson, W. B.	Oxenford House School, Jersey.
Hare, E.	Altrincham Grammar School.
Hoffgaard, G. A.	Appuldurcombe Coll., I. of Wight.
Howard, H. J.	Thanet College, Margate.
Kershaw, H.	The Western College, Harrogate.
Lorimer, A. H. O.	Middleton School, Bognor.
Lyne, S. G. H.	Ilfracombe Grammar School.
Marson, H.	Belmore House School, Cheltenham.
Nicholls, R.	Boys' Coll. & H. S., Southampton.
Nolan, V.	Catholic Coll. Inst., Manchester.
Rule, H.	Hart House School, Tregoney.
Smith, E. J.	Nelson College, Lee.
Sproston, S. W.	College House, Eastbourne.
Sullivan, R. J.	St. Augustine's College, Ramsgate.
Swift, A. J.	Chatham Institute, Liverpool.
Thomas, N.	Surrey House School, Margate.
Upsdell, H. C.	North Camberwell High Schools.
Walker, F. E.	The Commercial College, York.
Willson, J. P.	Cowper's House S., Huntingdon.
Acton, W. T.	Baythorn House, Acton.
Adams, P. E.	Norton College, Luton.
Aitken, G.	St. Mary's Hall, Cardiff.
Anstey, H. C.	2 Apsley Villas, Bristol.
Atkinson, S. E.	Headingley Hill School, Leeds.
Brooker, M. E.	Brunswick House, Maidstone.
Caley, F. J.	Salway House School, Leyton.
Campbell, R. S.	Eton House School, Hull.
Easton, W.	East Hardwick S., Pontefract.
Farran, E. C.	Anglo-French Coll., Finchley Rd.
Fawcett, J. D.	Trinity College, Harrogate.
Fraser, E.	Middle Class School, Skelmersdale.
Gifford, C. R.	Craven Place School, Maidstone.
Haines, H.	The Academy, Whitchurch.
Haslehurst, G.	Devizes Grammar School.
Linay, J. E.	Cambridge House S., Norwich.
Maden, J. L.	Higher Grade School, Bacup.
Matterson, G. A.	Bilton Grange School, Harrogate.
Musson, J. H.	Vermont College, Clapton.
Norsworthy, H.	Ion House School, East Molesey.
Palmer, A. B.	Anglo-French Coll., Finchley Rd.
Partington, T.	Grammar School, Eccles.
Phillips, A. W.	Greenhill, Tenby.
Pollard, H.	Onsegate School, Selby.
Rawlings, F.	St. Mary's Hr. Grade S., Scarboro'.
Roberts, E. E. J.	Bourne College, Birmingham.
Robertson, D.	Alresford House School, Margate.
Rowe, J.	Duncton School House, Petworth.
Rowe, J.	Hart House School, Tregoney.
Sedgwick, W.	Headingley Hill School, Leeds.
Smalley, C. H.	Cowper's House S., Huntingdon.
Stanton, A. W. A.	St. John's College, Brixton.
Strickson, G.	Cowper's House S., Huntingdon.
Thomas, G. W.	2 Apsley Villas, Bristol.
Andrew, W. H.	Bickerton House School, Birkdale.
Bennett, F. G.	Belsize School, S. Hampstead.
Boucher, E. J.	North Curry Classes, Taunton.
Bromley, A. E.	Wellington School, Heaton Moor.
Browne, G. F.	Wellingborough Grammar School.
Bucknall, E.	Catholic Coll. Inst., Manchester.
Chapple, J.	Clewer House School, Windsor.
Froggatt, J. B.	The Western College, Harrogate.
Hall, W. T.	Tattenhall Schools, Chester.
Hirsch, H. A.	Highbury House S., St. Leonards.
Isherwood, H.	Commercial School, Astley Bridge.
Kent, G.	St. John's College, Brixton.
Lockett, A. W.	Wellington School, Heaton Moor.
Lozano, A.	Claremont College, Blackpool.
Monro, J. E.	Lindenthorpe, Broadstairs.
Morter, H. A.	Private tuition.
O'Doherty, T. R.	Middlesborough Grammar School.
Pattrick, C.	The Grange School, Halstead.
Peard, J. H.	Ilfracombe College.
Pitt-Taylor, L. M.	Chatham Institute, Liverpool.
Reeve, G. C.	Up-Holland Grammar School.
Reynell, C.	Craven Place School, Maidstone.
Wheelwright, C. W.	Eton House School, Hull.
Bucktrout, T. R.	Eton House School, Hull.
Clarke, G. P.	Parkgate Avenue School, Hull.
Freer, A. H.	St John'sHillHo.,NewWandsworth
Garner, A.	Cowper's House S., Huntingdon
Gray, R. R.	Battersea Grammar School.
Grove, F. W.	Elmhurst S., Kingston-on-Thames.
Gubbay, M. A.	83 Montpellier Road, Brighton.
Harris, W. A.	Bourne College, Birmingham.
Hewitt, G. F.	14 Broomgrove, Sheffield.
Hicks, S.	Fowey Grammar School.
Kirby, J. G.	Craven Place School, Maidstone.
Kirkby, E.	Parkgate Avenue School, Hull.
Macalister, W. G.	Herrick Foundation S., Lewisham.
Meade, R. E.	Anglo-French Coll., Finchley Rd.
Murray, J.	St. Mary's Hall, Cardiff.
Pearce, H.	NetherhamptonHouseS.,Salisbury.
Pinn, T. A.	Devizes Grammar School.
Pook, W. L.	Alma House, Mistley.
Pope, E.	Surrey House School, Margate.
Rhodes, A.	Ousegate School, Selby.
Smith, P.	Epworth College, Rhyl.
Verran, D.	Hart House School, Tregoney.
Walker, H. D.	Victoria Coll., Douglas, I. of Man.
Waugh, R. J.	St.John'sHillHo.,NewWandsworth
Wilks, A. H.	Middle Class School, Knutsford
Adams, S. H.	Norton College, Luton.
Bartlett, E.	Boys' Coll.& High S.,Southampton.
Bradley, L.	Trinity College, Harrogate.
Bradshaw, A. E.	Aberdeen House, Ramsgate.
Brain, A. P.	Redland Grove School, Clifton.
Carter, E. M.	Redland Grove School, Clifton.
Chiles, G. E.	Greenhill, Tenby.
Clapp, H. N.	Dane Hill School, Margate.
Clarke, F. S.	St.John'sHillHo.,NewWandsworth
De Ville, F.	Battersea Grammar School.
Deyes, H. E.	Irene College, Anfield, Liverpool.
Doble, C. E.	Wellingborough Grammar School.
Donohoe, F.	Cambridge House School, Wigan.
Forrest, G. C.	The High School, Heaton Chapel.
Grant, W.	Fair Oaks School, Wilmslow.
Hopkins, C. H.	Duncton School House, Petworth.
Hughes, W. G.	Rose Hill School, Bowdon.
Ironfield, W.	Commercial S., Astley Bridge.
Jackson, A.	Niddry House School, Eccles.
Lester, R. H.	Wellington College, Salop.
Mitchell, V.	College House, Eastbourne.
Nurse, H.	Ousegate School, Selby.
Perrin, W. E.	Balham High School, S.W.
Powell, C. A.	Private study.
Rayner, F.	Thanet College, Margate.
Tansley, H.	Penmount House S., Liverpool.
Thomas, H. J.	Redland Grove School, Clifton.
Wilks, A. F.	The Academy, Banbury.
Ainsley, W.	The Commercial College, York.
Blunt, C. E. J.	High School, Shrewsbury.
Bushby, G.	Highfield School, Rock Ferry.
Chancellor, C. G.	Apsley House, Margate.
Clark, P. F.	Anglo-French Coll., Finchley Rd.
Farthing, W. H.	Clewer House School, Windsor.
Ford, P.	Granton College, Liverpool.
Gale, H.	Middle Class S., Weston-s.-Mare.
Harris, H. R.	Vermont College, Clapton.
Henbrey, F.	Rye Grammar School, Sussex.
Hornby, A. H.	Norton College, Luton.
Hornibrook, M.	Private tuition.
Kelly, F. H.	Appuldurcombe Coll., I. of Wight.
Lingard, C. W.	High School, Barnsley.
Martin, E. McG.	Huddersfield High School.
McBryde, W. O.	Henley House S., St. John's Wood.
Medley, S.	Bussage House, Strond.
Mills, C. S.	Herrick Foundation S., Lewisham.
Murphy, H. W.	Hingham Endowed S., Attleboro'.
Nelmes, H. E.	Redland Grove School, Clifton.
Newstead, C. J.	Royal Gram.S.,Newcastle-on-Tyne.
Penwarden, G.	Hart House School, Tregoney.
Pike, H. L.	Ascham House School, Reading.
Rawlins, R.	Chesterfield Grammar School
Rawstorn, G. W.	Boys' High School, Hornsea.
Rowson, A. H.	Westbourne Park College, W.
Smith, H. C.	Victoria Coll., Douglas, I. of Man.
Waister, H. S.	Swindon High School.
Walker, G. F.	Strathmore House, Southport.
Wingrave, H. A.	Thanet College, Margate.
Bayley, T.	Ascham House School, Reading.
Branford, O.	Farnham Grammar School.
Dicks, E.	Wellingborough Grammar School.
Drew, H. W.	Bourne College, Birmingham.
Grant, A. W. H.	Hendon School, Hendon.
Hall, W.	Old Elvet School, Durham.
Harries, S. W.	Greenhill, Tenby.
Harrison, G. S.	Royal Grammar School, Sheffield.
Johnson, J. R.	Claremont College, Blackpool.
Mattocks, W.	Arnold College,WestBournemouth.
Michell, A. E.	Hoe Grammar School, Plymouth.
Moss, B. B.	Tattenhall Schools, Chester.
Mudd, A. H.	The Collegiate S., Great Grimsby.
Powell, A. W.	Belle Vue House, Norwich.
Rhodes, P.	Ousegate School, Selby.
Smith, T. W.	Wellingborough Grammar School.
Teale, J. O.	27 Water Street, Rhyl.
Wagstaff, F. A.	Wellington School, Heaton Moor.
Welbourn, C.	Anglo-FrenchColl., Finchley Road.
Woodruffe, W.	Fair Oaks School, Wilmslow.
Barr, A. D. St. C.	Thornham House, West Brighton.
Dean, S. J.	Duncton School House, Petworth.
English, A. M. J.	60 Granville Park, Blackheath.
Goodman, R. R.	Baythorn House, Acton, W.
Graham, F. G. A.	Leamington Collegiate School.
Greenstreet, H. C.	Dane Hill School, Margate.
Groom, A. M.	Northgate School, Bury St. Eds.
Hardy, H. G.	Bayville, Bournemouth.
Haworth, F. W.	Grammar School, Burnley.
Hirst, J.	Bilton Grange S., Harrogate.
Marlor, H.	Fair Oaks School, Wilmslow.
Platt, R. E.	The College, Matlock.
Price, C. N.	Belvoir Road School, Bristol.
Reed, A. J.	St. Martin's Gram. S.,Scarborough
Sherborne, J.	Redland Grove School, Clifton.
Smith, H. W.	Redland Grove School, Clifton.
Smith, M. B.	Laurel Bank School, Manchester.
Alford, M.	Lewisham House, Weston-s.-Mare.
Bond, W. P.	Lewisham House, Weston-s.-Mare.
Burton, B. G.	Yarm Grammar School.
Frankenburg, R. J.	Laurel Bank School, Manchester.
Gibbins, G. H.	Commercial School, Bridlington.
Giddens, C. W.	St.James'sCl.&Com.S.,King'sLynn
Hill, F.	Boys'Coll. & High S.,Southampton.
Jay, E.	Beaufort College, St. Leonards.
Maxwell, W. F.	Appuldurcombe Coll., I. of Wight.
McMechan, J. D.	Mayall College, Herne Hill.
Mitchell, J.	The Commercial College, York.
Parker, H.	The Western College, Harrogate.
Proctor, C. C.	Grammar School, Spalding.
Stanbury, F. B.	Pynes House School, Thorverton.
Stuart, C.	St. Leonards Collegiate School.
Tyrrell, G. W.	Commercial School, Bridlington.
Valentine, J. H.	Farnworth Grammar S., Widnes.
Woollatt, A.	Claremont House, St. Alban's.

[*The following obtained Special Certificates, having each obtained a General Certificate at a former Examination.*]

Browne, C. T.	*a.*	The Commercial College, York.
Burt, C. N.	*bk.*	Avenue House School, Sevenoaks.
Cobbledick, A.S.	*ch.*	The Commercial College, York.
Heselton, G.	*bk.*	The Commercial College, York.
Hole, F.	*d.*	The Grammar School, Totnes.
Sacret, H. J.	*eu., ph.*	Kendrick Middle School, Reading.

PASS LIST OF CANDIDATES FOR CERTIFICATES OF PROFICIENCY IN MERCANTILE SUBJECTS.

Bradburn, H.	*sp. arithmetic*	Grammar School, Eccles.
Butler, H. J.	*sp. bookkeeping*	The Huish School, Taunton.
Cook, P.		Catholic Collegiate Institute, Manchester.
Glanville, P. B.		The Modern School, Newcastle-on-Tyne.
Hallett, H. H.	*sp. arithmetic*	The Huish School, Taunton.
Harland, H. H.		Grammar School, Eccles.
Rothwell, T. A.		Grammar School, Eccles.
Sibthorp, S.	*sp. shorthand*	Catholic Collegiate Institute, Manchester.
Wimpory, F.		Grammar School, Eccles.

GENERAL CLASS LIST—GIRLS.

N.B.—The small italic letters denote that the Candidate to whose name they are attached obtained a Special Certificate in the subjects specified.

(*For list of abbreviations see page* 98.)

First Class.—Honours Division.

Kirby, A. *s. a. al. f. d. p.* — Red Maids' School, Bristol.
Martifee, E. A. *s. a. al. d. p.* — Red Maids' School, Bristol.
Griffiths, F. *s. f. p.* — Haddo House S., Scarborough.
Pritchard, L. *e. h. al. bk. f. nat. d. mu.* — Park House School, Manchester.
Berry, E. *a. al. eu. ger.* — The College, Huddersfield.
Nathan, M.R. *s. h. d.* — Salcombe College, Loughton.
Everest, A. *s. eu. p.* — Leigh Bank, Leamington.
Frodsham, M. G. *s. d. mu.* — Albert Villa School, Ramsgate.
Terry, E.C.H. *f. ger.* — Mary Datchelor Girls' S., S.E.
Duncanson, F. — Mary Datchelor Girls' S., S.E.
Waters, E. *f.* — Clapham Pk. Ladies' Coll., S.W.
Alston, A. M. *s. a. f. ger. mu.* — Clyde Villa, Kilburn.
Marzials, F. A. *ger. d. mu.* — Clarence House, Filey.
Smith, M.C.M. *f. ger.* — Clarence House, Filey.
Surman, E. G. *f.* — Grosvenor College, Bath.
Southall, M. *a. f. ger. p.* — Merton College, Croydon.
Harrison, H. *f. d.* — Eton House School., Sheffield.
Thring, N. A. L. *s. a. f. ger. d.* — Church Street S., Ellesmere.
Parlett, L. E. *f.* — St. Helier's Coll. Sch., Jersey.
Butlin, M. J. — Private tuition.
Richardson, L. — The College, Huddersfield.
Rawle, E. N. *f.* — Princess Helena College, Ealing.
Cobbett, A. M. V. — Private study.

First Class.—Pass Division.

Gaunt, A. *s. h. d.* — Parish Ch. Mid. Class S., Leeds.
Povel, C. *f. d. mu.* — Convent of Loreto, Hulme.
Teviotdale, C.J. *s. h.* — The Crescent School, Norwich.
Jakeman, E.E. *s. h. p.* — Parish Ch. Mid. Class S., Leeds.
Foxley, K. *f. d.* — Clyde Villa, Kilburn.
Cramp, E. *s.* — Merton College, Croydon.
Stone, F. R. — Linslade House, Crouch End.
Barton, E. *a.* — Enmoor Lodge Coll. S., New Leeds.
Garrad, F.M. *a. f. ger. d.* — Clyde Villa, Kilburn.
Packham, E. M. *f.* — Edinburgh House, Midhurst.
Green, K. M. H. *f.* — Mayo High S., Gray's Inn Rd.
Stokes, A. S. *d.* — Moseley High School for Girls.
Mitchell, H. C. *d.* — Private study.
Warburton, F. A. — Handsworth Ladies' College.
Rogers, M.G. *a. al. mu.* — Portsea Collegiate School.
McEnery, K. E. *f. h. ger.* — Newnham House, Sherborne.
Whitehair, E. — Moseley High School for Girls.
Beck, M. L. — Handsworth Ladies' College.
Jalland, E. — The Laurels, Nottingham.
Mutter, M. *h. mu.* — Vernon, Pembridge Villas, W.
Lownsborough, E. *h. f.* — Conv. S., Queen St., Scarborough.
Arch, K. E. L. *mu.* — Sydenham Coll. for Ladies, S.E.
Mitchell, G.E.D. *s. f.* — 233 Elgin Aven., Maida Vale, W.
Webster, M. — Parish Ch. Mid. Class S., Leeds.
Cleveland, C. E. — Southampton Girls' Coll. & High S.
Marriott, L. *s. h.* — Leicester Rd. S., Melton Mowbray.
Bennett, L. B. *f. ger. mu.* — Clapham Pk. Ladies' Coll., S.W.
Kerswell, F. K. *d.* — St. John's High S. Foxley Rd., S.W
Phillips, A. M. — Leigh Bank, Leamington.
Rowe, D. *d.* — Merton College, Croydon.
Furness, M.E. *mu.* — 44 Shakespeare St., Nottingham.
Moody, A. R. *d.* — Sidcot School, Weston-s.-Mare.
Clarke, J. L. — Albert Villa S., Ramsgate.
Meyer, M. K. — Sydenham Coll. for Ladies, S.E.
Perry, L. *p.* — Portland Coll., Hammersmith.
Bagden, A. S. *ger.* — Mecklenburg House, Putney.
Cooper, M. — Merton College, Croydon.
Tansley, E. J. *d.* — Ladies' Collegiate S., Brighton.
Crill, L. A. *f. mu.* — Wesley House School, Jersey.
Dixon, M. E. *mu.* — Select School for Girls, Filey.
Gregg, M. P. V. *a.* — Eversley High S., Eastbourne.
Neal, M. *f. ger.* — Edinburgh House, Midhurst.
Stratton, W. A. H. — St. Margaret's House, Brighton.
Weston, S. R. *mu.* — 76 The Mall, Newport, I. of Wight.
Francis, H.L. *h. ger.* — Private tuition.
Grubb, H. *a. mu.* — Friends' School, Saffron Walden.
Woolridge, S. M. — Athelstan College, Folkestone.
Higgs, L. W. *s.* — Proprietary School, Dudley.
Clarkson, A. E. — Select School for Girls, Filey.
Hepburn, E. M. — Belmont House, Derby.
Chatterton, F.M. *mu.* — Select School for Girls, Filey.
Drew, H. F. M. *f.* — Private study.
Gruchy, A.M. *f. mu.* — Wesley House School, Jersey.
Hyams, E. R. — The Laurels, Nottingham.
Pearce, A. C. *mu.* — Portway College, Reading.
Rodgers, A. *d. mu.* — St. George's House, Doncaster.
Gibbs, E. H. — 26 Ashley Road, Hornsey Rise.
Issard, B. M. — Welsh Girls' School, Ashford.
Pollard, E. M. *mu.* — Hanover House School, Ryde.
Budd, L. D. — Mayo High S., Gray's Inn Rd.
Lomax, E. A. *d.* — Welsh Girls' School, Ashford.
Bond, F. E. H. — Gosport Commercial School.
Gould, F. M. *mu.* — Eton House School, Sheffield.
Perrin, A. — St. John's High S. Foxley Rd., S.W
Bird, F. E. — Collingwood College, Lee.
Gladdish, C. M. — Welsh Girls' School, Ashford.
Reeve, J. M. — Glebe Place S., Stoke Newington.
Hulley, A. *d.* — Convent of Loreto, Hulme.
Pullen, C. — Parish Ch. Mid. Class S., Leeds.
Rayner, M. — Burlington Mid. Cl. Girls' S., W.
Steel, E. M. *f. ger.* — 22 Hatter St., Bury-St.-Edmunds.
Turnbull, A. S. *s.* — Parish Ch. Mid. Class S., Leeds.
Addison, C. — Kingsholme, Weston-s.-Mare.
Follows, E. G. *d.* — Sidcot School, Weston-s.-Mare.
Franklin, M. — Glebe Place S., Stoke Newington.
Kempton, E.F. *a. bk.* — North Bristol School for Girls.
Ritchie, L. — Convent of Loreto, Hulme.
Wright, C.F.M. *ger.* — Leylands, Stockwell Road, S.W.
Rowland, E. *d.* — Edinburgh House, Midhurst.
Horton, A. — Grosvenor College, Bath.
Jones, S. G. — Slepe Hall, St. Ives, Hunts.
Messervy, E. *f.* — Royal Bay Terr. S., Gorey, Jersey.
Webber, B. *d.* — Kingsholme, Weston-s.-Mare.
Uridge, E. *s.* — Holmcroft S., Bromley, Kent.
Wildblood, A. *s.* — Parish Ch. Mid. Class S., Leeds.
Ewing, E. A. — Private study.
Haynes, A. C. *f.* — Y Garn, Bromley, Kent.
Parsons, F. M. *d.* — Eastbourne House, Devizes.
Simpson, V. A. *s.* — Sydenham Coll. for Ladies, S.E.
Hall, A. — Park House School, Manchester.
Pipe, S. A. — The King's High S., Warwick.
Parsons, I. *d.* — Southside Ho., Weston-s.-Mare.
Baker, E. M. *f. d.* — Sydenham Coll. for Ladies, S.E.
Harwood, M.L. *mu.* — Severn Bank, Shrewsbury.
McGivney, A. *d.* — Convent of Loreto, Hulme.
Edwards, E. — Southampton Girls' Coll. & High S.
Kingston, K. — Lewisham Middle Class School.
Thackray, L. E. *h.* — Parish Ch. Mid. Class S., Leeds.
Parkes, J. E. *d.* — Riversdale, Acock's Green, B'ham
Slater, E. — Merton College, Croydon.
Haynes, E. — 16 Dalmeny Rd., Tufnell Park.
Large, M. E. — Grosvenor College, Bath.
Bullock, M. M. — West Kensington High School.
Cummins, L. K. *d.* — Sydenham Coll. for Ladies, S.E.
Heathcote, G.G.M. *a. mu.* — Oakley High Class S., Southsea.
Morley, M. E. — Grafton Ho., Lewisham High Rd.
Glenny, F. L. — Hillersdon House, Barnes.
Pemberton, H.M. *d.* — Southampton Girls' Coll. & H.S.
Thackray, E. A. — Parish Church Middle Cl. S., Leeds
Cochrane, E. J. M. — Sydenham Coll. for Ladies, S.E.
Auburn, K. E. — Westwood Coll. S., Scarborough.
Iredell, A. — Merton College, Croydon.
Casswell, M. — Merton College, Croydon.
Fraser, L. E. — Ashdown Villa S., Hornsey.
Palmer, M. I. — Knightsville, Lewisham High Rd.
Walker, E. M. *mu.* — St. George's House, Doncaster.
Witchell, O. — Stratford Abbey College, Stroud.
Boulton, A. P. — E. Southsea Collegiate School.
Hickman, H. *a.* — Moseley Ladies' College.
Kocking, E. — Mayfield School, Marlborough.
Taylor, S. — The College, Huddersfield.
Spriggs, M. C. — The Ladies' College, Derby.
Adkins, N. — Girls' Collegiate S., Leicester.
Sherborne, J. F. — 24 Rye Hill, Newcastle-on-Tyne.
Ward, H. — Archdale College, Southsea.
White, A. L. — Kingsholme, Weston-s.-Mare.
Branch, F. E. *d.* — Mayo High S., Gray's Inn Rd.
Pickard, A. A. — Alexandra College, Shirley.
Wood, J. A. *d. mu.* — Friends' S., Saffron Walden.
Willmore, E. — Sidcot School, Weston.-s.-Mare.
Blake, E. M. *d.* — Southampton Girls' Coll. & High S
Morford, L. — Alexandra College, Shirley.
Scott, C. C. *s.* — Cooper's Girls' School, Bow, E.
Blake, E. R. — Wood Green College, N.
Martin, M. H. *d.* — 76 The Mall, Newport, I. of Wight
McIlroy, M.E. *mu.* — Girls' Collegiate S. Whitchurch.
Bonwick, L. A. *f.* — Westwood College, Stroud, Glos.
Codd, A. — Carlton House, St. John's Wd.
Laurence, H.R. *ger.* — Minshull House, Beckenham.
Howell, J. L. — Welsh Girls' School, Ashford.
Smith, M. A. — Salcombe, College, Loughton.
Watkins, A. — Stratford Abbey Coll., Stroud.
Burge, R. M. — Leylands, Stockwell Road, S.W.
Harrison, V. E. — Parish Ch. Mid. Class S., Leeds.
Leggatt, A. M. — Lonsdale House S., Norwich.
Porter, E. H. — Edinburgh House, Midhurst.

Second Class.—1st Division.

Smith, M. S. *ger.* — Private study.
Wheeler, G. E. *d.* — Abney Park College, N.
Dyson, A. F. — High School for Girls, Hitchin.
Kennedy, H.M.E. *s. mu.* — Beech House, Ripley, Derby.
Wyatt, C. *a. f. ger.* — Private tuition.
Stevinson, M.H. *mu.* — Westwood Coll. S., Scarborough.
Lane, J. F. — Princess Helena College, Ealing.
Walker, M. J. *d. mu.* — 7 South Bailey, Durham.
Iredell, E. *mu.* — Merton College, Croydon.
Noakes, K. M. — Albert Villa School, Ramsgate.
Warne, E. — Collingwood College, Lee.
Coxon, W. I. *d.* — Anglo-French Coll., Up. Norwood.
Elgar, A. H. *mu.* — The Crescent School, Norwich.
Johnston, M. *mu.* — The Westlands, Scarborough.
Churley, A. M. — Park School, Higher Broughton.
Papworth, L. J. W. — Gower Street School, W.C.
Smith, B. *d.* — Park School, Higher Broughton.
Stevinson, H. M. — Westwood Coll. S., Scarborough.
Wilson, L. M. — High School for Girls, York.
Child, E. — The Old Court, Cirencester.
Gilpin, E. M. *s. d.* — 47 Ladbroke Grove, W.
Worthington, F. M. — High School for Girls, York.
Chambers, M. *mu.* — Eton House School, Sheffield.
Porter, M. — Collingwood College, Lee.
Reader, G. E. — Salcombe College, Loughton.
Kock, E. M. B. — Clarence House, Filey.
Billing, E. M. L. *mu.* — S. Michael's C., Shipton-u.-Wychw.
Glanville, J. *f.* — Thornpark, Teignmouth.
Disteli, M. *f. ger.* — Queen's College, Wood Green.
Houghton, C. B. — High School, Newton Abbot.
Lewis, M. — Welsh Girls' School, Ashford.
Pullen, A. M. — Addiscombe High School.
Couzens, F. *mu.* — Portsea Collegiate School.
Hemingway, G. *d.* — Girls' Grammar S., Dewsbury.
Dixon, K. E. — Trinity Hall, Southport.
Simpson, A. — High School for Girls, York.
Kelly, E. M. *f.* — Ursuline Convent S., Crooms Hill.
Wilson, A. M. — Slepe Hall, St. Ives, Hunts.
De Paula, V. L. *ger.* — Hendon College, N.W.
George, M. G. *ger.* — Birklands, Holland Park Gardens.
Parlett, M. — St. Helier's Coll. School, Jersey.
Finnis, H. *s. p.* — West Kensington High School.
Grove, F. A. — Harborne Ladies Coll., Birmingh.
Jensen, T. — Merton College, Croydon.
Lester, C. M. — Trinity Hall, Southport.
Burrows, A. — Trinity Hall, Southport.
Simpson, M. F. — Derwent House, Cockermouth.
Porter, F. E. G. — Minshull House, Beckenham.
Wellburn, K. — Westwood Coll. S., Scarborough.
Asher, A. — Devonshire House S., Carlisle.
Broadbent, F. L. — Trinity Hall, Southport.
Brown, G. M. *d.* — High School, Bournemouth.
Chapman, M. E. — High School for Girls, York.
Allan, H. N. — Sydenham Coll. for Ladies, S.E.
Bottom, A. H. *mu.* — Eton House School, Sheffield.
Conery, A. — Convent of Loreto, Hulme.
Drinkwater, B. — 26 Ashley Road, Hornsey Rise.
Poulton, M. L. *mu.* — Leybourne House S., Aylesbury.
Spark, L. M. *d.* — Private study.
Anthony, M. E. — Stoneygate College, Leicester.
Hare, K. A. *p.* — Chestnut House, Lincoln.
Master, M. L. — Private tuition.
Coleman, A. E. *mu.* — Westwood Coll. S., Scarborough.
Groner, F. — Margate Ladies' College.
Woolverton, A. — High School, Bournemouth.
Churley, H. K. — Park School, Higher Broughton.
Hamer, D. M. — Sydenham Coll. for Ladies, S.E.
Lloyd, M. — Kensington High School.
Russell, E. C. — The Laurels, Canterbury.
Sheard, M. R. — Trinity Hall, Southport.
Wilkinson, L. S. — Mecklenburg House, Putney.
Dodgson, F. I. — Derwent House, Cockermouth.
Fisher, E. M. — Ladies' College, Goudhurst.
Moodie, H. T. — Private tuition.
Needham, L. — Rutland House School, Stamford.
Squirrell, B. H. *d.* — Sidcot School, Weston-s.-Mare.
Waddell, A. J. — Grosvenor College, Bath.
Black, K. — Collingwood College, Lee.
Dixon, E. — 7 South Bailey, Durham.
Daniel, A. M. *mu.* — Milford House, Abergavenny.
Moore, D. M. *h.* — Girls' Collegiate School, Leicester.
Cadman, H. M. — Cromer House, Upper Teddington.
Dakin, S. E. — North London Coll. S. for Girls.
Dean, M. — St. Peter's House, Chichester.
Humphrey, E. E. — Camden School for Girls.
Probert, E. — Collingwood College, Lee.
Ridley, A. — Mount Eyrie, Southport.

GIRLS, SECOND CLASS—*Continued.*

Boam, E.		7 Hyde Terrace, Tollington Pk.
Davenport, E,	*d.*	Carisbrook H., Twickenham Park.
Edwards, A.		York House Coll., Kilburn Priory.
Smith, M. D.		Girls Collegiate High S., Lytham.
Watkins, E. M.	*mu.*	S. Michael'sC., Shipton-u.-Wyehw.
Hendry, M.		Collingwood College, Lee.
Kingsmill, C.		Fairfield House, Watford.
Smith, E. F.	*d.*	Girls' High School, Swindon.
Baines, K. E.	*d.*	Belvedere House, Brighton.
Elliott, A. F.		Townley House, Ramsgate.
Holland, E.		Private study.
Jones, R.		Welsh Girls' School, Ashford.
Littlewood, A.	*mu.*	Eton House School, Sheffield.
Marriage, S. M.		Brighthelmston, Birkdale.
Proeter, F.		Harborne Ladies' Coll., B'ham.
Ratcliffe, M. A.		The Laurels, Canterbury.
Scott, E. M.		Trinity Hall, Southport.
Bass, L.		Southampton Girls' Coll. & High S.
Durrant, F. E.		Slepe Hall, St. Ives, Hunts.
Howe, B.		The Terrace School, Chesterfield.
Larter, K.		Collegiate S. for Girls, Norwich.
Lee, M.		The College, Huddersfield.
Whales, L.		S.E. District College, Kennington.
Barber, L. M.		Westgate House, Peterborough.
Cousins, M. E.		Walthamstow Hall, Sevenoaks.
Dunn, S. C.		Fordington Ho. S., Bournemouth.
Hogg, M. D.		Abney Park College, N.
Jacobsohn, F. A.		Slepe Hall, St. Ives, Hunts.
McIntosh, M.		63 Kensington Gardens Square, W.
Marshall. C. H.		Slepe Hall, St. Ives, Hunts.
Thévenard, L.		The Orchard, Kingburn, Egham.
Chettle, A. M.	*d.*	Grosvenor College, Bath.
Couban, M.		Convent of Loreto, Hulme.
Horne, D.	*d.*	Camden School for Girls.
Pepper, M. C.		Private tuition.
Stephenson G.		High School for Girls, York.
Turner, A. M.		Slepe Hall, St. Ives, Hunts.
Wawn, M. A.	*mu.*	Rose Hill House, Whittington.
Jones, A. E.		Slepe Hall, St. Ives, Hunts.
Möller, F. E. N.		St. Kilda's, St. Leonards.
Morgan, E. M.		Eastgate School, Northampton.
Orr, M.		Trafalgar Square S., Scarborough.
Porter, A. L.		Edinburgh House, Midhurst.
Usherwood, E. L.		Blenheim House, Bournemouth.
Faraker, C. C. C.		Clyde Villa, Kilburn.
Harrold, N.M.	*f.mu.*	Warwick Hall, Maida Hill.
Hübener, E.		4 Waterloo Terrace, Newbury.
Oliver, M.	*d.*	Proprietary School, Dudley.
Rowcroft, H. K.		6 Orchard Gardens, Teignmouth.
Berry, K.		The College, Huddersfield.
Dimond, E. J.	*a.*	North Bristol School for Girls.
Dyne, R. A.		St. Katherine's, Eastbourne.
Fase, H.		Carlton House, St. John's Wood.
Hammond, M. E.		Church S., Old Steine, Brighton.
McGowan, A. M.		Private tuition.
Mew, E. L.	*s.d.*	47 Ladbroke Grove, W.
Woodcock, E.	*f.d.*	Clapham Park Ladies' Coll., S.W.
Woolley, S. L.		17 Powis Square, Brighton.
Badham, G. A. M.	*s.*	Carleton College, Tulnell Park.
Cannd, W.		Welsh Girls' School, Ashford.
Earp, E.		Brighthelmston, Birkdale.
Knights, H. D.	*d.*	Lonsdale House School, Norwich.
Lawrence, E.		Stratford Abbey College, Stroud.
Astle, E.		Melrose, Lowestoft.
Bulman, M. A.		Private tuition.
Burr, E. A.		Grosvenor College, Bath.
Garrett, M. E.	*ger.*	Univ. College, Avenue Rd., N.W.
Russwurm, C. E.		Beechwood, Matlock.
Shaw, G.		Mount Eyrie, Southport.
Steele, M.		Kingsholme, Weston-super-Mare.
Barnes, A.	*mu.*	Ladies' S., King's Build., Chester.
Booth, F. M. E.		St. Katherine's, Eastbourne.
Dyer, L.		High School for Girls, Putney.
Finch, R. E.		Devonport, Stoke & Stoneho. H. S.
Gibaut, A. M.		Zelzah House School, Jersey.
Gough, E. G.		Convent of Jesus & Mary, Ipswich.
Hewitt, A. M.		Southampton Girls' Coll. & H. S.
Hinson, C. E.		Leicester Rd. S., Melton Mowbray.
Hogan, K. S. L.		Welsh Girls' School, Ashford.
Hunter, E. H.		Private tuition.
Nutt, S. L.	*mu.*	Harborne Ladies' College, B'ham.
Davis, E.		Milford House, Abergavenny.
Kendall, E.		The College, Huddersfield.
Rixon, B. C.	*d.*	Carisbrook Ho., Twickenham Pk.
Sladen, E. M.	*d.*	1 Hurst Villas, Watford.
Taylor, E. E.		Princess Helena College, Ealing.
Turner, E. M.		Grosvenor College, Bath.
West, M. H.	*mu.*	Portway College, Reading.
Codling, A. D.		St. Anne's High School for Girls.
Fountain, A. C.		Mecklenburg House, Putney.
Illingworth, A. M.		Trafalgar Square S., Scarborough.
James, A.		High S., Queen's College, B'ham.
Peake, W. J. M.		Tresilian, Clifton.
Poulton, M.		Kingsdown High School, Bristol.
Chappell, L. I.		Orford College, Walthamstow.
Danby, B. M.		Private tuition.
Daniel, E. V.		Welsh Girls' School, Ashford.
Fisher, M. F.		Lonsdale House School, Norwich.
Longden, E. A.	*d.*	Eton House School, Sheffield.
Smith, M. L.		Stanmore Ho., Weston-s.-Mare.
Stewart, M. F.		Hendon College, N.W.
Way, A. J.	*d.*	Severn Bank, Shrewsbury.
Bertram, D. E.		Grosvenor College, Bath.
Bridger, F.		Merton College, Croydon.
Brooke, D.		Summerland College, Honiton.
Butler, M. C.		Private tuition.
Chapman, E. E.		Howard College, Bedford.
Ezekiel, R.	*f. ger.*	Merton College, Croydon.
Gray, E. M.		St. Lawrence Coll., N. Kensington.
Horn, E. R.		Parish Church Middle Cl. S., Leeds.
Lumsden, F. M.		7 South Bailey, Durham.
Thomas, S. E.		Yetwyth House, Aberystwyth.
Daniell, M. S. C.		Blandford Girls' School, Dorset.
Gratte, P.		Milford House, Newport, Mon.
Hamilton, G.		Southampton Girls' Coll. & High S.
Piercy, E. M.		High School for Girls, York.
Snowden, E. E.	*d.*	Richmond House, Lee, S.E.
Clarke, C. B.		Sydenham Coll. for Ladies, S.E.
Conder, E. M.		Private tuition.
Hobson, L.		Ladies' Coll., Savile Pk., Halifax.
Jackson, K.		Merton College, Croydon.
Ledwith, E.		Belmont House School, Richmond.
Lewis, E. I.		Belmont House, Derby.
Miles, A. F.		Vernon, Pembridge Villas, W.
Rawlings, M.		Melbourne House, Hackney.
Shepherd, J.		Stroud Green High S. for Girls.
Surrey, F. E.		Sinclair College, Kensington.
Wilson, A. A.		Enmoor Lodge Coll. S., New Leeds.
Courtnall, M.		St. Helier's Coll., Wellingborough.
Death, F. E.	*d.*	Chestnut House, Lincoln.
Deverell, E. M.		Southside House, Weston-s.-Mare.
Dyer, C. A.		East Southsea Collegiate School.
Ferrand, H. G.		Victoria House, Upper Tooting.
Hall, H. H.		King St. Seminary, Southwell.
Harris, M.		Merivale House, Newport, Salop.
Hopwood, E.		The College, Huddersfield.
Kidd, M.		High School for Girls, Horusea.
Marshall, G.		The College, Huddersfield.
Tabor, E.		Church Street School, Ellesmere.
Wallace, J. R. A.		Private tuition.
Bilke, R. E.		Greenhill Park Coll., Harlesden.
Bowles, L.		Burlington Mid. Cl. Girls' S., W.
Burgess, M. M.		S.E. District College, Kennington.
Greasley, F.		Parish Church Mid. Cl. S., Leeds.
Jell, I.		Merton College, Croydon.
Pearson, E. H.		Haddo House School, Scarborough.
Scott, I. M.		High School for Girls, York.
Stewart, E. M.		Queensborough C., Notting Hill. Sq.
Thomson, M.		193 The Grove, Hammersmith.
Wilmshurst, R. M.		Hughenden Hall, Wimborne.
Zachary, E. M.		The Old Court, Cirencester.
Barugh, M.		High School, Stockton-on-Tees.
Booth, K. A.		Eton House School, Sheffield.
Chapman, M. W.		Stella House Coll. S., Cathcart Hill.
Garside, M. A.		Parish Church Mid. Cl. S., Leeds.
Greet, C. H.		Ellesmere College, Sydenham.
Gurney, E. M.	*mu.*	Oakley High Class S., Southsea.
Kennedy, E. J.		Alexandra College, Shirley.
Macmillan, M. A.		Sidcot School, Weston-s.-Mare.
Mathison, M.		Claughton College, Birkenhead.
Meyrick, E.		Stella House Coll. S., Cathcart Hill.
Smyth, E. A.		Private tuition.
Stuart, M.		Queensborough C., Notting H. Sq.
Vernon, E.		Merton College, Croydon.
Vines, C. S.	*d.*	Townley House, Ramsgate.
Wrightson, A. M.		Maria Grey School, Fitzroy Square.
Byers, M. E.		Stanley House S., Stockton-on-T.
Cooke, E. L.		Private tuition.
Davis, L. E.		High School for Girls, Hitchin.
Long, A. J.		Longford Girls' School, Bristol.
Mitchiner, G.	*mu.*	Merton College, Croydon.
Paradise, E. M.		Church Street School, Ellesmere.
Smith, N. G.		Rutland House School, Stamford.
Thomas, M.		Southampton Girls' Coll. & High S.
Townshend, K.		1 Hurst Villas, Watford.
Bastin, M. R.		Glebe Place S., Stoke Newington.
Brown, E. J.		Haddo House S., Scarborough.
Eddington, H. C.		Sidcot School, Weston-s.-Mare.
Hutchinson, E. P.		High School for Girls, York.
Isherwood, H. B.	*mu.*	Ashleigh House, Tutbury.
Lewis, S.	*mu.*	Ladies' S., King's Buildings, Ches'r.
Mould, F. L.		Brockley High S. for Girls, S.E.
Ranschke, M.		Parish Church Mid. Cl. S., Leeds.
Young, A. E.		Private study.
Green, M. F. M.		St. Katherine's, Eastbourne.
Low, A. L.		Camden School for Girls.
Martin, J. M.		Lonsdale House School, Norwich.
Millard, B. L.	*d.*	High School, Maidenhead.
Rowe, M. E.		Vicarage Road School, Edgbaston.
Stephens, F.		Buena Vista, Weston-s.-Mare.
Swire, G.		Sydenham Coll. for Ladies, S.E.
Andrew, E.	*mu.*	Thornpark, Teignmouth.
Chandler, D. K.		Girls' High School, Swindon.
Collier, G. J.		Malvern House, Reading.
Daniel, E.		Milford House, Abergavenny.
Freeland, F. M.	*d.*	The Ladies' College, Wellington.
Lovell, E. A.	*mu.*	Ellesmere College, Sydenham.
Morton, A. E.		Welsh Girls' School, Ashford.
Page, A.		Collegiate S. for Girls, Norwich.
Salt, M.		St. Anne's High School for Girls
Browne, E. A.		Surrey House School, Norwich.
Curphey, E. J.		S. Michael'sC., Shipton.u.-Wyehw.
Cutbush, R. M.		Mecklenburg House, Putney.
Doeg, M. E.		Sidcot School, Weston-s.-Mare.
Gibson, E. A. F. M.		Highgate Collegiate S. for Girls.
Griffin, E. M.		Handsworth Ladies' College.
Lawrence, R. A.		Eton House School, Sheffield.
Rowse, M. A.		Belmont House, S., Richmond.
Wellburn, M. E.		Westwood Coll. S., Scarborough.
Williams, A. M.		Elmfield College, York.
Young, C. M.		High School for Girls, York.
Young, Z.		Holmedune, Blundellsands.
Adams, E. S.		Ellesmere College, Sydenham.
Benedictus, S.		Eldon House, Stoke Newington.
Carver, E. M.		Mecklenburg House, Putney.
Constantine, G.		Glengarry, Birkdale
Ellard, G. E.		Wembdon Ho. S., Northampton.
Ellwood, E. F.		High School for Girls, York.
Filmer, E.		Southampton Girls' Coll. & High S.
Herrick, L.	*f.*	Addiscombe House, Margate.
Hoosen, M. G.		East Southsea Collegiate School.
Martindale, B.		Church House, Stoke Newington.
Metivier, L. M.		Somerville School, Highgate.
Pollard, C. I.		Hanover House School, Ryde.
Wight, M.		Camden School for Girls.

SECOND CLASS.—2ND DIVISION.

Ashby, E. G.		Sidcot School, Weston-s.-Mare.
Burton, M. E.		Grosvenor College, Bath.
Helm, J. C.		Walthamstow Hall, Sevenoaks.
Pittaway, A.		Proprietary School, Dudley.
Poole, A.		Clanville Ho., Stoke Newington.
Prince, F.		Edinburgh House, Midhurst.
Randall, F. E.		Wembdon House S., Northampton.
Ransford, O. B.		Private tuition.
Rayner, M. M.		Private study.
Smith, A. M.		Margate Ladies' College.
Williams, E. G.		Hill House Coll., Haverfordwest.
Francklow, C. H.		Howard College, Bedford.
Gulliver, C. L.		Alexandra College, Shirley.
Herdman, M.		Battlehurst, Hexham-on-Tyne.
Langridge, G. M.		St. Katherine's, Eastbourne.
Learner, M. C.	*d.*	Leybourne House S., Aylesbury.
Lewis, C.		Welsh Girls' School, Ashford.
Mackern, E.		The Ladies' College, Derby.
Meyer, E.		Camden School for Girls.
Noakes, E. M.		Albert Villa School, Ramsgate.
Pentelow, F.		Slepe Hall, St. Ives, Hunt.
Potocka, F. R.		Ladies' Collegiate S., Leamington.
Rickwood, C. M.		Lewisham College, Lewisham.
Thomas, M. M.		Maria Grey S., Fitzroy Square.
Wink, A. L.		Camden School for Girls.
Beer, M. A.		Devonia House, Exeter.
Bevan, E.		Cambridge House, Guildford.
Bewley, G.		Kingsholme, Weston-s.-Mare.
Duggan, A. E.		Severn Bank, Shrewsbury.
Fowles, A.	*d.*	Belmont House School, Richmond
Frearson, A.		Sunny Bank, Bolton.
How, A. E.		Holmcroft School, Bromley, Kent.
Köek, E. B. M.		Clarence House, Filey.
Mayoss, E.		Alexandra College, Shirley.
Toovey. M. E.		Dartmouth Girls' School.
Tyler, T.		Bishopsgate Girls' School, E.C.
Wright, A.	*mu.*	St. Helier's Coll., Wellingborough.
Garrod, E. M.		Collingwood College, Lee.
Lax, M. M.		Avonbank House, Bath.
Wigley, W.		Olton High School, Birmingham.
Challis, S. A. W.		S. Michael'sC., Shipton-u.-Wyehw.
Lamb, A. J.		Ellesmere College, Sydenham.
Mills, M. T.	*d.*	Private tuition.
Schmidt, E.	*d.*	Slepe Hall, St. Ives, Hunts.
Shepperson, F. M.	*d.*	Howard College, Bedford.
Steele, B.		Southampton Girls' Col. & High S.
Thomas, M. E.		Welsh Girls' School, Ashford.
Trumper, A. A.		Eastbourne House, Devizes.
Worsfold, M. E. M.		The Laurels, Canterbury.
Dun, L. S.		York House Coll., Kilburn Priory.
Gelder, J.		Mecklenburg House, Putney.
Hewitt, H. S.		Moseley High School for Girls.
Keddle, L. B. G.		Hughenden Hall, Wimborne.
Pearse, A. R.		Walthamstow Hall, Sevenoaks.
Skipworth, F. A.		High School for Girls, Sidcup.
Smallwood, E. V.		Sydenham Coll. for Ladies, S.E.
Smith, E. K.		Rutland House School, Stamford.
Smith, M. M.	*d.*	The Laurels, Wetherden.
Staniforth, A.		Eton House School, Sheffield,
Turner, M. E.		Hughenden Hall, Wimborne.
Wagstaff, E. F.		Girls' Collegiate S., Macclesfield.
Brown, L. M.		Belmont, Dover.
Coles, R. M.		St. Winifred's, Southampton.
Dunkley, A. L.		Maida Vale College, W.
Gowan, M.		Longford Girls' School, Bristol.
Gray, F. E.		47 South Street, Durham.
Harman, Z. M.		Camden School for Girls.
Harvey, E. A.		The Laurels, Canterbury.
Mundy, E.		Croft House School, Wallingford.
Pemberton, J.		Field House, Heaton Chapel.
Reid, A. M.		Anglian Girls' Coll., Bp. Stortford.
Stancliff, F. H.	*d.*	Knightsville, Lewisham High Rd.
Taylor, A. H.		Twickenham College.
Thomas, E. E.		Woolwich and Plumstead High S.
Thomas, F.		Queen's College, Acton.
Whiteley, E. M.		Kensington High School.
Barnes, E. M.		Minshull House, Beckenham.
Bate, I. E.	*d.*	Ladies' Col. & High S., Leamington.
Butler, M. H.		Private tuition.
Harrison, B.		Arnold House School, Leicester.
Hirst, F. C.		Clapham Park Ladies' Coll., S.W.
Horsman. L. F.		5 Sussex Slace, Southsea.
Hughes, K.		Welsh Girls' School, Ashford.
Hutchinson, M. D.		St. Katherine's, Eastbourne.
James, E.		N. Yorkshire S., Coatham, Redcar.
Macdonald, M. B.		Girls' Collegiate High S., Lytham.
Robinson, G. F. O.		Princess Helena College, Ealing.
Rowland, A. M.		St. John's College, Ashbourne.
Wyatt, K. I.		Blandford Girls' School, Dorset.
Baker, M. L.		St. Bees' College, Southsea.
Beal, E.		Camden School for Girls.
Hill, C. C.		Clare House S., Northampton.
Hunter, E. L.	*f.*	9 Kingsgate Street, Winchester.
Judd, R. E.		St. Kilda's, St. Leonards.
Marshall, A. M.		Audley Villas S., Saffron Walden.
Parkes, L.		Oakengates School, Shropshire.
Phillips, E. S.		Torquay High School for Girls.
Whitley, E. G.		Fern Bank, Wandsworth Common.
Woodhams, A. M.		Braybrooke College, Hasting.
Bawden, K.		West Cornwall College, Penzance.
Cooke, J.		Girls' Grammar School, Dewsbury.
Dawes, B. W.		Sydenham Coll. for Ladies, S.E.
Hardcastle, F.		Cambridge House, Clifton, York.
Haywood, M. A.		Girls' School, Ashby-de-la-Zouch.
Holborn, E. M.		Stoneygate College, Leicester.
Kimber, F. M.		Coopers' Girls' School, Bow, E.
Turner, D.		Manor View Ladies' S., B'mouth.
Barbier, M. M.		Scotland Place S., St. Helier's.
Beavan, A. L. H.		6 Orchard Gardens, Teignmouth.
Bourne, J. A.	*mu.*	The Woodroughs, Moseley.
Coles, K. L.		Cambridge House, Newbury.
Collier, A. L.		Brownhills House, Southampton.

GIRLS, SECOND CLASS—*Continued.*

Cullen, E. M.		Kensington House, Cardiff.
Fisher, A.		Westwood Coll. S., Scarborough.
Goodman, M. K.		Brighthelmston, Birkdale.
Higgs, E.	*d.*	Summerbrook, Reading.
Holyoake, M. E.	*d.*	Hartfell College, Southport.
Lester, A.		Granville House S., Aylesbury.
Mason, E. L.		Ladies' College, Cheltenham.
Nattle, R. M.		Milton House School, Plympton.
Stanton, E.	*d.*	Lancaster Mansion, Margate.
Terry, L.		Meadowlands High S., Ashton-on.-Mer.
Calvert, M.	*mu.*	Girls' Collegiate S., Macclesfield.
Fry, M. C.		St. Peter's House, Chichester.
Mitchell, E.		Tewkesbury High School.
Pickstone, K.		High School, Farnworth.
Rapson, A.		Girton House, Yeovil.
Ryan, G. S.		Cromer House, Upper Teddington.
Sibree, A. D.		Walthamstow Hall, Sevenoaks.
Tarling, E.		Margate Ladies' College.
Wood, M. W.		Whitstable College.
Hague, H. M.		High School for Girls, York.
Hargreaves, M. J.		Glengarry, Birkdale.
Hunt, E. I.		Private tuition.
Mansergh, D. C.		Portland College, Hammersmith.
Marsh, G. L.		The High School, Hungerford.
McGill, G. K.		Friends' School, Saffron Walden.
Owen, E. F.		Welsh Girls' School, Ashford.
Poingdestre, S. A.		Zelzah House School, Jersey.
Pratt, M. H.		The Crescent School, Norwich.
Steed, M. S.		Christ's Hospital, Hertford.
Weaver, L.		Collingwood College, Lee.
Whitmell, A.		Clevedon School, Northampton.
Young, E.	*d.*	Holmedune, Blundellsands.
Bullock, B.		Merivale H., Newport, Salop.
Bundy, L. A.		Twickenham College.
Dunn, M. A.	*mu.*	Oxford Lodge S., Wolverhampton.
Grundy, F. G.		Park School, Higher Broughton.
Haslam, S. E.		Uppingham High S., for Girls.
Hird, F. M.		The Seminary, Yarm-on-Tees.
Hooper, M. F.		Leybourne House S., Aylesbury.
Inglis, E. M.		The Chestnuts, Craven Park, N.W.
Massé, C. F. M.		Lond. High S. of Comm., N. F'chley.
Mawdsley, E.		Church Street School, Ellesmere.
Piper, A. E.		Athelstan House, Margate.
Sandford, D. M.	*d.*	Christ's Hospital, Hertford.
Wheeler, M. E.		Brundon H. S., South Croydon.
Coates, E. W.		Mayo High S., Gray's Inn Rd.
Dawes, R.		Rathmore, Clifton.
Johnson, A. L.		Audley Villas S., Saffron Walden.
Lackenby, J.	*d.*	Belmont House, Leicester.
Lawman, A.		St. Helier's Coll., Wellingborough.
Levene, B.		Gloucester House School, Kew.
Levy, S. G.		Burleigh House, Margate.
Manlove, L. M.		Private tuition.
Mason, B. M.		Girls' Coll. S., Bexley-Heath.
Nash, M. E.		Grosvenor College, Bath.
Rayner, A.		Holmwood Ho., S. Hill Pk., N.W.
Smith, M. L.		Grosvenor College, Bath.
Taylor, S. G.		S. Michael's C., Shipton-u.-Wychw.
Vincent, A.		Ladies' S., High Street, Cosham.
Watts, A. M.		Trinity Hall, Southport.
With, O. B.		Minshull House, Beckenham.
York, L.		Clevedon School, Northampton.
Allan, K. M.		High School for Girls, York.
Cook, V. G.		The High School, Walsall.
Darroch, M. S.		Princess Helena College, Ealing.
Derriman, M.		Fillebrook, Southsea.
Edlington, A.		St. George's House, Doncaster.
Evans, B. M.		Hill House Coll., Haverfordwest.
Fletcher, M. F.		Grosvenor College, Bath.
Gandin, A. T.		Wesley House School, Jersey.
MacEwan, A. J. P.		5 Sussex Place, Southsea.
Smith, H.		Stratford Abbey College, Stroud.
Waldock, E. M.		Walthamstow Hall, Sevenoaks.
Williams, E. R.		Welsh Girls' School, Ashford.
Wright, K. M.		Handsworth Ladies' College.
Fox, E. J.	*mu.*	9 St. John's Park, Blackheath.
Gaiger, F. A.		9 Kingsgate Street, Winchester.
Gillard, A. B.		Howard College, Bedford.
Jenkins, M.		Welsh Girls' School, Ashford.
Keely, V. M.		Western House S., Nottingham.
Mannington, E.	*d.*	Olney House, Hastings.
Reeves, A. C.		Ivy House School, Trentham.
Robinson, F. A.		Clare House S., Northampton.
Rochat, F.		Glenholm Girls' S., Burgess Hill.
Simpson, A.		12 Reginald Terrace, Leeds.
Squire, K. M.		Sidcot School, Weston-s.-Mare.
Storey, M.		Westgate House, Peterborough.
Tarrant, E.	*s.*	Bishopsgate Girls' School, E.C.
Booth, L. M.	*mu.*	St. Anne's High School for Girls.
Brandon, E. A. A.		Tettenhall, Bedford Hill, S.W.
Finch, E.		7 Hyde Terrace, Tollington Park.
Gray, I.		Friends' School, Saffron Walden.
Hannant, E. M.		Grey Coat Hospital, Westminster.
James, E. M.		Park-y-velvet Gram. S., Carmthn.
Jones, E. G.		Univ. College, Avenue Rd., N.W.
Jones, G. J.		Maria Grey S., Fitzroy Square.
Lemon, E. A.		21 Home Pk. Villas, Stoke Devonp't.
Oakey, J.		Private tuition.
Owen, L. J.		Queen's College, Twickenham.
Parkinson, M.		Birklands, Holland Park Gardens.
Round, I. M.		Brent Hill Coll. S., Hanwell.
Waugh, E. M.		Private study.
Brushfield, E.		Buena Vista, Weston-s.-Mare.
Caven, L.		St. Helier's Coll., Wellingborough.
Downey, B.		Ryeford Hall, Stonehouse, Glos.
Ferris, L.		Buena Vista, Weston-s.Mare.
Gray, M. E.		Alexandra College, Shirley.
Read, L. A.		Clissold Coll., Brownswood Park.
Reingpach, M. A.		Highgate College, N.
Rutley, E.		Collingwood College, Lee.
Unwin, C.		Mount Eyrie, Southport.
Wall, F. A.		Showellhurst High S., Moseley.
Williams, E. M.		Westbourne House, West Cowes.
Brazier, E.		Greenhill House, Stourbridge.
Craddock, L. M.		Abney Park College, N.
Edley, C.		Collingwood College, Lee.
Elliott, H. N.		St. Peter's House, Chichester.
Harmsworth, A. C.		Malvern House, Reading.
Langley, P.		Eton House School, Sheffield.
Lefevre, J.		The Laurels, Canterbury.
Sutton, A. M.		Brighthelmston, Birkdale.
Bilbie, E.		Harley House, Hereford.
Bowden, L.		33, Sion Hill, Bath.
Griffiths, A.		Welsh Girls' School, Ashford.
Harley, S. S.		Pembroke House School, Bedford.
Langdon, U. M.	*d.*	Northcote, The Heath, Hampstead
Smith, F. M.		High School, Temple House, Hull.
Wildey-Wright, J.		Mecklenburg House, Putney.
Bennett, L.		Ashton Girls' High S., Staleybridge
Byers, A. E.		Stanley Ho. S., Stockton-on-Tees.
Duncan, E. M.		Grosvenor College, Bath.
Friston, K.		Grosvenor College, Bath.
Goddard, A.		Camden School for Girls.
Hart, M.		Oxford Lodge S., Wolverhampton.
Hill, L. C.	*d.*	St. Winifred's, Southampton.
Hotson, A. T.		Kensington High School.
Ironmonger, E. M.		Ladies' School, Spilsby.
Lawton, M.		Meadowlands High S., Ashton-on-Mer.
Mackern, A.		The Ladies' College, Derby.
McVicar, F.		Fellenberg School, Maidstone.
Morrell, B. A.		Alexandra House, Clifton.
Rose, F. M.		Camden School for Girls.
Tripp, G.		Croft House School, Wallingford.
Whittingham, M. T.		Salcombe College, Longhton.
Burkill, K. J.		Belmont House, Leicester.
Burrell, M.		Abney Park College, N.
Campbell, E. M.		3 Castle Street, Barnstaple.
Chamberlain, A. S.		The Square, Stow-on-the-Wold.
Clarke, E.		Maria Grey S., Fitzroy Square.
Cutlack, G. M.		Athelstan House, Margate.
Dannatt, E.		The College, Huddersfield.
Dell, E. M.		Friends' School, Saffron Walden.
Evans, A.		Welsh Girls' School, Ashford.
Harvey, P. M.		The Laurels, Canterbury.
Hill, K. R.		Glen Lyon, Sydenham.
Hussey, F.		Merton College, Croydon.
Jacobs, B.		Carlton House, St. John's Wood.
Makin, F.		Lyndthorpe, Romford.
Sanftleben, L.		17, Tavistock Place, Plymouth.
Thomas, G.		Harrow House High S., Cardiff.
Wight, M. M.		Gt. Harrowden Hall, Wellingboro'.
Barnes, E. A.		Christ's Hospital, Hertford.
Beaton, M. E.		Private study.
Billington, E. A.	*d.*	Grove College, Betley.
Bunker, E. S.		Carisbrook Ho., Twickenham Pk.
Coulsting, B.		Stanmore House, Weston-s.-Mare.
Davies, L. B.		Welsh Girls' School, Ashford.
Graves, M. E.		36 Warrington Crescent, W.
Hubbard, A. M.		Leicester Rd. S., Melton Mowbray.
Hulls, H.		Collingwood College, Lee.
Hutchinson, A.		Collingwood College, Lee.
Ingoldby, E. H.		Wandsworth High School for Girls.
Lewis, B.		Merton College, Croydon.
Popham, E.		Princess Helena College, Ealing.
Smith, K.		Private tuition.
Thomson, W. B. J.		Queen's College, Twickenham.
Ward, E. M.		Bladen House School, Hove.
Wolfe, C. A.		Duncan House, Clifton.
Wright, N.	*d.*	Garnault House, High Wycombe.
Beck, L. F. L.		174 Church St., Stoke Newington.
Brabrook, I. M.		Gatefield College, Lee, S.E.
Callender, E. C.		Coopers' Girls' School, Bow, E.
Coning, E. E.		High School for Girls, York.
Cory, F.		Charlemont House, W. Bromwich.
De Rue, L. J.		Wesley House School, Jersey.
Dowding, L.		Grosvenor College, Bath.
Johnson, F.		Beaumont Cross, Newark.
Kitto, B. V. G.		Baxterley, Rusthall, T'bridge Wells
Mears, R.		Ladies' College, Ilfracombe.
Morris, E. R.		Ashleigh House, Tutbury.
Pritchard, A. M.		St. Catherine's, Cardiff.
Almond, E. M.		Educational Home, Plymouth.
Balkwill, H.		Manadon Villa School, Plymouth.
Campini, R.		Farndon House, Brighton.
Davis, C.		Salcombe College, Loughton.
Donèt, E.		Highleigh Ho. S., St. John's, S.E.
Evans, C. L.		Showellhurst High S., Moseley.
Fairweather, M. H.		High School for Girls, York.
Freelove, E. M.		Friends' School, Saffron Walden.
Harding, M. M. H.	*d.*	Fairfield Head House, Chesterfield.
Ingoldby, M. F.		Wandsworth High S. for Girls.
Nicholson, A. E.		Trinity Hall, Southport.
Norgrove, E.		Leigh Bank, Leamington.
Pigg, F. M.		Brundon Ho. S., South Croydon.
Probyn, H.		Private tuition.
Roe, E. E.		Brighthelmston, Birkdale.
Taylor, E. M.		Trinity Hall, Southport.
Whittle, L.		Park School, Higher Broughton.
Bolt, E. F.		St. Winifred's, Southampton.
Clarke, M.	*d.*	Royal School, Lansdown, Bath.
Dainty, A. G. M.		Camden School for Girls.
Dawson, H. C.		Maria Grey School, Fitzroy Square.
Finn, F.		Girls' High School, Folkestone.
Glover, A. M.		Camden School for Girls.
Gould, E. E.		Educational Home, Plymouth.
Hext, B.		Private study.
Hills, B. M.		Coopers' Girls' School, Bow, E.
Jones, M. J.		Welsh Girls' School, Ashford.
Nixon, E. M. G.		The Laurels, Claybrooke.
Perkins, M. B.		Uppingham High School for Girls.
Pratt, E. A.		101 Manor St., Clapham.
Proudfoot, M.		57 Ladbroke Grove Road, W.
Robey, E. M.		Coopers' Girls' School, Bow, E.
Rose, A. E.		Connaught House S., Attleboro'.
Sidebotham, A.		Elmswood College, Stretford.
Sowton, E. M.		York House Coll., Kilburn Priory.
Triggs, S.		Woodcote Villa School, Epsom.
Atkinson, E.		High School, Stockton-on-Tees.
Bellows, H. B.		Girls' College, Seascale.
Benge, J. M.		E. Devon County School, Tiverton.
Breton, E. A.		Southampton Girls' Coll. & High S.
Curtis, E. L.		West Bank School, Sheffield.
Fenner, E. M.		Handsworth Ladies' College.
Fortescue, A. E.		Finsbury Park High School.
Fry, B. F.		Longley Ho. Coll. S., Easingwold.
Goff, B. C.		Malvern House, Reading.
Huscroft, C. A.		The Academy, Banbury,
Irish, L. J.		Ladies' S., High Street, Cosham.
Lloyd, E.		Arrow House, Kington.
Newman, E.		Eversley House School, Bognor.
Pepper, M. L. A.		Private tuition.
Shaw, P. K.		Sydenham Coll. for Ladies, S.E.
Tarran, A. S.		Camden School for Girls.
de Salis, K.		Royal School, Lansdown, Bath.
Flack, B. M.		Maria Grey S., Fitzroy Square.
Hooker, F. E.		Tudor Ho., Darnley Rd., Hackney.
Kew, E. M. J.		Pemberton College, Up. Holloway.
Laughorne, L. H.		Private tuition.
Marriott, C. J.		Trinity Hall, Southport.
Simpson, L. G.		Royal School, Lansdown, Bath.
Teanby, M.		Parish Church Middle Cl. S., Leeds
Wilson, M. F.		Belmont House, Boston.
Austin, M. M.		Moravian School, East Tytherton.
Bowsher, S. A.		Eastbourne House, Devizes.
Grassom, F.		Acton Lodge School, Cheltenham.
Grigor, A. M.		Cashiobury House, Southend.
Hulme, E. M.		Malvern House School, Southport.
Kelso, E.		Royal School, Lansdown, Bath.
Roberts, W.		1 Hurst Villas, Watford.
Sherwood, E. B.		Hamilton House, Holloway.
Standring, S. E.		Hartfell College, Southport.
Strood, F. E.		Girls' High School, Folkestone.
Tilby, A.		High S., Raleigh Rd., Hornsey.
Voase, E.		18 Railway Street, Beverley.
Watson, A. M.		Mecklenburg House, Putney.

SECOND CLASS.—3RD DIVISION.

Botterill, L.		Mount Devon Ldg., Scarborough
Carter, A. A.		St. Winifred's, Southampton.
Day, J.		Lady Holles's School, Hackney.
Faraday, E. M.		Camden School for Girls.
Fletcher, A. A.		The Manor House, Uttoxeter.
Jones, L. M. C.		Private tuition.
Nixon, A. P.		The Laurels, Claybrooke.
Oldroyd, E.		Broomfield House, Morley.
Oliphant, J. H.		Private tuition.
Phillips, A.		Baxterley, Rusthall, T'bridge Wells
Rossiter, C. M.		Uppingham High S. for Girls.
Sharp, R.		High S., Queen's College, B'ham.
Sparshott, A. L.		Brownhill's House, Southampton.
Spilling, M.		South London Coll., Brixton Rd.
Wade, F. L.		St. John's Colleges, Brixton.
Willard, M. F.		Queen's College, Wood Green.
Baines, F.		Cashiobury House, Southend.
Caldwell, E.		Portland St. Ladies' S., Manchester.
Edwards, E. M.		Camden School for Girls.
Evans, B. L.		Leith House, Acton.
Evans, V. H.		Belmont School, S. Croydon.
Isaacs, M. A.		Kidderminster High S. for Girls.
Lobb, E. E.		Anglian Girls' Coll., Bp. Stortford.
Morton, G.		The Hollies, Snettisham.
O'Leary, B.		Stanmore House, Weston-s.-Mare.
Phelps, A. B.		Red Maids' School, Bristol.
Romney, L. H.		4 Trinity Terrace, Cheltenham.
Simpson, E. M.		Girls' High School, Swindon.
Sutcliffe, E. J.		Longley Ho. Coll. S., Easingwold.
Booth, M. E.		Brean Down House, Burnham.
Davies, A.		Greenhill House, Stourbridge.
Elliot, G. E. A.		Wear Terrace S., Bishop Auckland.
Gregory, E.	*d.*	Middle Class S., Heaton Norris.
Horsfield, E. M.		Girls' Grammar S., Dewsbury.
Howcroft, E.		Warwick House, Littlehampton.
Lusty, K. A.		Hanover House School, Ryde.
Sier, B. E.		4 Trinity Terrace, Cheltenham.
Taylor, E. M.		Queenswood, Clapham Park.
Tomlinson, F.		Ivy House School, Trentham.
Ward, C.		Girls' Collegiate School, Leicester.
Baker, E. E. M.		Gatefield College, Lee, S.E.
Bourdass, F. C.		Westwood Coll. S., Scarborough.
Buckingham, M. A.		Christ's Hospital, Hertford.
Bunting, D. E.		Endsleigh Ho. S., Endsleigh Gdns.
Dillon, A. E.		Grosvenor College, Bath.
Everist, A. C.		Gresham College, Brixton Road.
Gough, E. H.		Ladies' High S., Chorlton-c.-Hardy.
Harper, M.		Westhill, Brackley.
Hulbert, F.		Private tuition.
Luttman, E. M.		The Priory School, Thaxted.
Macdougall, K. C.		Newcastle House, Lewes.
Milburn, S. S.		6 Windsor Terrace, Whitby.
Pertis, E.		Clapham Park Ladies' College, S.W.
Postlethwaite, A. H.		5 Sussex Place, Southsea.
Salamon, Z.		Carlton House, St. John's Wood.
Shedd, K. E.		Audley Villas S., Saffron Walden.
Stokes, C.		Coopers' Girls' School, Bow, E.
Thompson, A.		Leighton College, Birkdale.
Wallis, C. E.		3 Portland Place, Newbury.
Watl e ston, I. M.		Mecklenburg House, Putney.
Beakbane, E.		Sidcot School, Weston-s.-Mare.
Blake, B. F.		Alexandra College, Shirley.
Edney, M. K.		Farrington House, Chichester.
Hickman, S. F.		Mecklenburg House, Putney.
Hobling, A.		21 Home Pk. Villas, Stoke, Devonpt.

GIRLS, SECOND CLASS—*Continued.*

Kerswell, G.	St.John's HighS.,FoxleyRd.,S.W.
Phillips, J.	Welsh Girls' School, Ashford.
Raiment, E.	Girls' Collegiate S., Leicester.
Straw, A. F.	21 HomePk.Villas,Stoke, Devonpt.
Thomas, A. W.	Castle Buildings, Oswestry.
Anger, C.	Camden School for Girls.
Baily, G. E.	High School, Maidenhead.
Briggs, L.	Finsbury Park High School.
Edmondson, H.	Park School, Higher Broughton.
Elton, E. J.	Queenswood, Clapham Park.
Gardner, S. F. A.	Woodstock School, Windsor.
Grant, M. R.	Grey Coat Hospital, Westminster.
Hamilton, E. *mu.*	Southampton Girls' Coll.& High S.
Horne, E.	Kingsholme, Weston-s.-Mare.
Knott, B. E.	Royal Masonic Inst., Battersea.
Lousley, B.	Cambridge House, Newbury.
Lowe, H. G.	Elmswood College, Stretford.
Robinson, A.	Byculla, Southsea.
Ross, M.	Private tuition.
Rowlandson, S.	Sunnybank, Wilmslow.
Baily, E. M.	The Hollies, Snettisham.
Best, L. L. C.	Pembroke House School, Bedford.
Blake, F. M.	Lyndhurst, Leicester.
Boddy, A.	PortlandSt.Ladies'S.,Manchester.
Bracher, E. M.	Sidcot School, Weston-s.-Mare.
Davidson, A.	Twickenham College.
Day, A. B. L.	Kidderminster High S. for Girls.
Dean, B. E.	Westbourne House S., Chiswick.
Evans, A. R.	North Bristol School for Girls.
Glazebrook, A. B.	HandleyHouse,Newark-on-Trent.
Guest, E.	Montpelier House, Brentwood.
Jackson, H.	The Laurels, Canterbury.
Laing, J. M.	Camden School for Girls.
Pinder, A.	TwyfordHo.,K.Henry'sRd.,N.W.
Poyntz, E. H.	Coopers' Girls' School, Bow, E.
Wheeldon, M.	Mount Pleasant School, Derby.
Woodcock, M. E.	Surrey House School, Norwich.
Carliell, M.	78 Guildhall St., Bury St. Edm.
Daniels, E. H.	Mayo High S., Gray's Inn Rd.
Hudson, F. E.	Mecklenburg House, Putney.
Keyzor, E. F.	Private tuition.
Plowright, C. L.	Athelstan House, Margate.
Wetherall, C. E.	Sidcot School, Weston-s.-Mare.
Baker, A.	1 Southernhay West, Exeter.
Bird, C. S.	Devonia House, Exeter.
Bowcher, A.	Twickenham College.
Comfield, M.	Private tuition.
Fitt, L. A.	Milston Villas, Fareham.
Golby, M. A.	Melbourne Coll.,Thornton Heath.
Grey, S.	High School, Herne Bay.
Hart, D. S. B.	Belmont, Dover.
Hulseberg, A. M.	Ladies' S., High Street, Cosham.
Kiseh, E. H.	10 S.Stephen's Cres.,W'bourne Pk.
Rawson, A.	The Laurels, Nottingham.
Robilliard, A. C.	Malvern House, Reading.
Shaw, E. B.	Brighton House, Oldham.
Stock, L. M.	Ion House School, East Molesey.
Cave, E.	Brean Down House, Burnham.
Cuhitt, A. L.	5 Sussex Place, Southsea.
Davidson, E.	Twickenham College.
Fishwick, W.	Addiscombe House, Margate.
Freestone, B.	Lynton House, Margate.
Gambling, M. M.	Farrington House, Chichester.
Hardy, F.	MeadowlandsHo.,Ashton-on-Mer.
Howard, A. C.	Princess Helena College, Ealing.
Ingram, T. M.	Stanmore H., Weston-s.-Mare.
James, H. W.	St. Helier's College, Shifnal.
Marsh, M.	Fern Bank, Wandsworth Com.
Way, V. *d.*	Byculla, Southsea.
Beswick, A.	Trafalgar Sq. S., Scarborough.
Ellis, A.	Highfield, Harrogate.
Gandy, E. M.	Surrey House School, Norwich.
Graham, M. A.	High School, Stockton-on-Tees.
Hill, M. M.	Moravian School, East Tytherton.
Hulbert, E.	Private tuition.
Miller, E. M.	The Hollies, Snettisham.
Perchard, A. P.	Royal Bay Terr. S., Gorey, Jersey.
Player, E.	Vicarage Road S., Edgbaston.
Rogers, K.	S.E. District College, Kennington.
Thatcher, A.	Granville House S., Aylesbury.
Tracey, M. L.	Austey Villas, Alton, Hants.
Brooks, M.	Mecklenburg House, Putney.
Callwood, C.	Bank House School, Seaforth.
Conolan, G.	St. Agnes' S., East Grinstead.
Davis, H. E.	Montrose House School, Margate.
Hague, B.	St. Elphins, Crosby, Liverpool.
Hargreaves, L.	Glengarry, Birkdale.
Harris, A.	Royal School, Lansdown, Bath.
Hudson, C.	Cotham Girls' High S., Bristol.
Langton, K.	Dartmouth House Coll., Dalston.
Maxim, H. F.	Coopers' Girls' School, Bow, E.
Pratt, G. M.	Cashiobury House, Southend.
Seager, H. E.	Coopers' Girls' School, Bow, E.
Bentall, E. S.	School for Girls, Farnham.
Berry, A. M.	St.Mildred's,W.CromwellRd.,S.W
Collings, C. L.	Cambridge Academy, Liverpool.
Comely, M.	Ladies' Collegiate S., Worcester.
Dawbarn, M. P.	Salcombe College, Loughton.
Eltoft, E. J.	Brunshaw Seminary, Burnley.
Griffiths, G.	North Bristol School for Girls.
Harris, A. E.	Trinity Hall, Southport.
Hornibrook, E. E. J.	Mayo High S., Gray's Inn Rd.
Johnson, E.	High School, Leytonstone.
Potts, A. R.	St. John's Middle S., Kennington.
Rust, E.	Abbey House School, Selby.
Woolf, B. S.	Trebovir House S., Earl's Court.
Baldock, G.	Mayfield Lodge, Nottingham.
Bocock, B. E.	Abu Klea, Bournemouth.
Carter, A. M.	South College, Kettering.
Chambers, G.	78GuildhallSt.,BurySt.Edmunds.
Hall, F.	The Laurels, Nottingham.
Jervis, M. M.	Eton House School, Sheffield.
Nichols, C.	Bishopsgate Girls' School, E.C.
Preston, M. E.	Brunshaw Seminary, Burnley.
Richards, F. E. *mu.*	Fordington Ho. S., Bournemouth.
Trench, F. S.	Blenheim House, Bournemouth.
Williams, A.	11 Stopford Pl., Stoke, Devonport.
Williams, M. E.	Private tuition.
Brown, F. V.	Westbourne House S., Chiswick.
Charlesworth, A. A.	South Grove, Rotherham.
Edwards, V.	Hr.GradeGirls'S.,MerthyrTydfil.
Francis, G. B.	Grey Coat Hospital,Westminster.
Gillin, F. S.	Grey Coat Hospital,Westminster.
Hayes, L.	Private tuition.
Hix, M. K.	Eastbourne House, Devizes.
Hughes, A. J.	Ronhilda Ladies' School, Rhyl.
Renshaw, E. L	West Bank School, Sheffield.
Thorburn, J.	Montague House S., Weymouth.
Batchelor, M.	Park School, Higher Broughton.
Battersby, J. G.	Newcastle House, Lewes.
Culver, H. M.	Hamilton House, Holloway.
Gimlette, D.	Byculla, Southsea.
Harfeld, J.	33 Trinity Street, Borough, S.E.
Hudleston, A. M.	Royal School, Lansdown, Bath.
Meanley, L.	Oxford Lodge S., Wolverhampton.
Snell, F.	Swindon High School.
Spencer, A. M.	Arnold House School, Leicester.
Brookman, T. A.	Gower Street School, W.C.
Bunting, K.	Queenswood, Clapham Park.
Collen, A. L.	Moravian School, East Tytherton.
Herbert, F. E.	Longford Girls' School, Bristol.
Knott, M.	Belle Vue House, Swansea.
Lings, F.	Highfield, Harrogate.
McDowall, E. K. L.	Maria GreySchool, FitzroySquare.
Moon, A.	21 Alma Road, Sheerness.
Rogers, L.	6 Reigate Villas, Sutton.
Shepherd, E. G.	Stroud Green High S. for Girls.
Tibbles, A.	Leicester Rd. S., MeltonMowbray.
Willis, E. S.	Christ's Hospital, Hertford.
Lovett, K. F.	Maria GreySchool, Fitzroy Square.
Pepper, M.	16 Broomgrove, Sheffield.
Tanner, M.	Royal Masonic Inst., Battersea.
Ash, A.	Merivale House, Newport, Salop.
Bains, A.	13 Albion Terrace, South Shields.
Brogden, A. J.	Oakley High Class S., Southsea.
Cooper, F. M.	Private tuition.
Pinney, F. M.	Coopers' Girls' School, Bow, E.
Spencer, B. M.	Belmont House, Leicester.
Triggs, E.	West Cornwall College, Penzance.
White, E. O.	Baxterley, Rusthall, Tunb.Wells.
Brown, J.	Howard College, Bedford.
Burgess, A. B.	Trinity Hall, Southport.
Cross, M. E.	Private tuition.
Elkin, J. E.	Westbourne Ho. S.,Southampton.
Harvey, S. M.	Olton High School, Birmingham.
Hawkins, G. K.	St. Deny's Home, Warminster.
Holmes, E.	Handsworth Ladies' College.
Macturk, M. L.	Clarence House, Filey.
Miller, M. M.	Grendon House, Seaton Carew.
O'Brady, F. M.	Pembroke House School, Bedford.
Smith, L.	Royal Masonic Inst., Battersea.
Washbourne, H. M.	Camden School for Girls.
Worrell, L.	Mayo High S., Gray's Inn Rd.
Cosby E.	Barn Hill School, Stamford.
Hale, E. M.	Hamilton House, Holloway.
Hawkins, C.	Southampton Girls' Coll.& High S.
Hicks, C. M.	Coopers' Girls' School, Bow, E.
Lorimer, B. M. D.	Camborne House, Torquay.
Symonds, A. M.	Surrey House School, Norwich.
Thompson, M. A.	Mount Devon Lodge,Scarborough.
Boddy, E.	PortlandSt.Ladies'S.,Manchester.
Jay, M. H.	Bath High School.
Marriott, A. E.	Pentland Ho., Wandsworth Com.
Pearce, E. M.	Private tuition.
Rossiter, G. M.	Uppingham High School for Girls.
Andrews, C. E.	Oak Bank, Radcliffe.
Beard, M.	Mansfield House, Colchester.
Brown, A. W.	Coopers' Girls' School, Bow, E.
Gimlette, R.	Byculla, Southsea.
Judson, A.	Malvern House, Blockley.
Pearson, E.	Private tuition.
Perry, E. K. *d.*	E.AnglianGirls'Coll.,Bp.Stortford
Phillips, A. L.	Buxton Collegiate S., Kennington.
Prince, A. E.	Private study.
Sellick, M. C.	North London Coll. S. for Girls.
Shaw, A.	The College, Huddersfield.
Smith, W. M.	Stanmore House, Weston-s.-Mare.
Tokeley, E. L.	Carlsruhe College, Crouch Hill.
Worrall, F.	7 Castle St., Dalton-in-Furness.
Cowling, M.	Croft House School, Wallingford.
Kny, A.	Greenhill House, Stourbridge.
Lucas, E.	Malvern House, Blockley.
Morris, G.	Orford College, Walthamstow.
Pearce, A. J.	St.Mildred's,W.CromwellRd.,S.W
Petley, H. M.	Connaught House S., Attleboro'.
Sellers, A. J.	Salcombe College, Loughton.
Cooke, M. M.	36 Hilldrop Road, N.
Sayer, H. M.	Royal Crescent Coll., Margate.
Burrows, M. S.	Queen's College, Twickenham.
Corby, N. L.	Rushford House S., Manchester.
Cox, A. L.	Beaumont House, Llanelly.
Cryer, M.	Carlton House School, Eccles.
Hartle, M. W.	Brighton House, Edgbaston.
Stevenette, E. E.	Collingham, Newark.
Tebbutt, A.	PortlandSt.Ladies'S.,Manchester.
Varah, E.	Coopers' Girls' School, Bow, E.
Barnsdale, G.	Montague House S., Weymouth.
Barnwell, E.	Grosvenor College, Bath.
Nathan, N.	Salcombe College, Loughton.
Smith, M. M.	Collingwood College, Lee.
Barnes, B. C.	Westhill, Brackley.
Holmes, E. M.	The Ferns, Leamington.
Norbury, L.	Ladies'HighS.,Chorlton-c.-Hardy
Roe, K.	Byculla, Southsea.
Turner, J.	Royal Masonic Inst., Battersea.
Didron, L. C.	Collingwood College, Lee.
Hayes, A.	Private tuition.
Hooper, A. A.	Moravian School, E. Tytherton.
Knight, A. A,	St. LawrenceColl., N.Kensington
Morgan, A.	Welsh Girls' School, Ashford.
Paton, E.	7 Castle St., Dalton-in-Furness.
Roofe, A. M.	Avondale College, Croydon.
Adamson, K.	Plumpton House S., Tue Brook
Boddington, M. E.	Private tuition.
Harrison, M,	Oak Mount, Burnley.
Hoare, M. S,	Norfolk House, Gosport.
Tate, R.	Plumpton House S., Tue Brook.
Wimbush, E. M.	North London Coll. S. for Girls.

THIRD CLASS.—1ST DIVISION.

Nicolson, M. N.	Knightsville, Lewisham High Rd.
Dent, E. A.	High School for Girls, York.
Mossop, M.	Queen's College, Wood Green.
Todd, M. M. *mu.*	High School for Girls, Hornsea.
Lloyd, E. M. J.	Kensington High School.
Ott, A.	Private tuition.
Alger, J. E. A.	Trinity Hall, Southport.
Simpson, E.	Princess Helena College, Ealing.
Robson, E. A.	St. Andrew's House, Hove.
Stokes, K. E.	Moseley High School for Girls.
Barker, M. E. B.	Mowbray School, Sunderland.
Bates, M. *d.*	3 Pembridge Gardens, Bayswater.
Hartland, F. L. *d.*	Charlemont Ho., W. Bromwich.
Evans, E.	St. Helier's Coll., Wellingborough.
Mason, L. G.	Chestnut House, Lincoln.
Hulton, T.	Convent of Loreto, Hulme.
Johnson, C. M. *mu.*	Select School for Girls, Filey.
Allin, F. M.	High School, Newton Abbot.
Figgis, E. D. *mu.*	Kingsholme, Weston-s.-Mare.
Fosbery, M. *d.*	Kidderminster High S. for Girls.
Lockwood, E.	Western House S., Nottingham.
Staunton, E.	Sydenham Coll. for Ladies, S.E.
Stanswood, F. *mu*	Portsea Collegiate School.
Ireland, M. C. H.	St.Mildred's,W.CromwellRd.S.W
Lowe, W. *d. mu.*	Elmswood College, Stretford.
Wooding, G. *d.*	St. Helier's Coll.,Wellingborough.
Stirke, R. P.	Allen Olney Ho., Belsize Pk.Gdns.
Daniels, E. *s.*	Stanmore House,Weston-s.-Mare.
Bailey, E. M.	Lonsdale House School, Norwich.
Mapplebeck, A. J. *d.*	The Ladies' College, Derby.
Wildeblood, G. E.	The Ladies' College, Wellington.
Ferrand, L. S.	Victoria House, Upper Tooting.
Fountain, M. E.	Mecklenburg House, Putney.
Gates, A. L. *mu.*	Northbury House, Bury St. Eds.
Pearson, M. F.	193 The Grove, Hammersmith.
Golding, A. M.	Stoke Newington High School, N.
Arter, E.	Glebe Place S., Stoke Newington.
Dimmack, E.J. *mu.*	Oxford Lodge S.,Wolverhampton.
Isherwood, A.	Birklands, Holland Park Gdns.
Palmer, A. M.	Parish Church Mid. Cl. S., Leeds.
Sampson, A. J.	Portland College, Hammersmith.
Tansley, K. M.	Westgate House, Peterborough.
Woodward, F.	Buena Vista, Weston-s.-Mare.
Bowman, N.	Mowbray School, Sunderland.
Browne, F. K. *d.*	Richmond House, Lee, S.E.
Craven, W.	Sandholme, Oxton, Cheshire.
Dolman, M.	Merton College, Croydon.
Pratt, J. *mu.*	The Towers, Saltburn-by-Sea.
Walker, J. P. *d.*	Field House, Heaton Chapel.
Wells, E. L.	Ladies' Coll. & High S., Leam'ton.
Carey, K. M.	Eagle College, Hornsey.
Hemmant, F.	Tanshelf Hall, Pontefract.
Hurstwaite, E. J.	Park School, Higher Broughton.
Masey, E. L.	Howard College, Bedford.
Ravenshaw, F. L.	Furzebank, Richmond.
Sutcliffe, E.	Elmhurst, Rock Ferry.
Warden, A. M. *d.*	174 Church St., Stoke Newington.
Wilkes, E. E.	Buckland House, Axminster.
Ewbank, M. E.	High School for Girls, York.
Ireland, L. M. C.	St.Mildred's,W.CromwellRd.S.W
Mattei, M. *d.*	Ladies' College, Ealing Common.
Rickard, M. *d.*	The Beeches, Franche, Kidderm'r.
Vincent, G. I. *d.*	Downs College, Clapton, E.
Capsey, E. L.	The Ladies' College, Wellington.
Chandler, L. M.	The Cedars, Ponders End.
Hinshelwood, M. *mu.*	Torquay High School for Girls.
Kershaw, E.	The Church High S., Colchester.
Young, S. B.	Lonsdale House School, Norwich.
Barrow, A.	Merton College, Croydon.
Bayfield, E. *mu.*	10St.Stephen'sCres.,W'bourn.Pk.
Corbett, C. *d.*	14 Chatsworth Square, Carlisle.
Deane, G.	Stratford Abbey College, Strond.
Falkner, M. B.	Bath High School.
Howell, M. E.	St. Catherine's, Cardiff.
Jones, E. M.	St. Catherine's, Cardiff.
Noble, E. C.	Alexandra College, Shirley.
Reeves, E. H.	4 Cumberland Gdns.,St. Leonards.
De Caux, M. S.	Lonsdale House School, Norwich.
Gayner, E. S. *mu.*	6 Boughton Street, Sunderland.
Gray, E. M.	Enmoor Ldg. Coll. S., New Leeds.
Molyneux, H. M.	The Orme Girls' S.,N'castle,Staffs.
Porter, M.	Merton College, Croydon.
Sneeton, C. E.	Ladies' Collegiate S., Leamington.
Weston, E. A. W. *d.*	Longford Girls' School, Bristol.
Biddlecombe, M.	Kingston House School, Clifton.
Burrow, M. R.	St.John's Middle S., Kennington.
Crossley, G.	Girls' High School, Halifax.
Fox, M. M. S.	Ladies' College, Ealing Common.
Gerrans, A. M.	Private study.
Huggins, M.	78GuildhallSt.,BurySt.Edmunds.
Matthews, C. A. *d.*	Clyde Villa, Kilburn.
Power, E. A.	Victoria Rd. School, Harborne.

GIRLS, THIRD CLASS—*Continued.*

Robinson, E.		Dore & Totley High S., Sheffield.
Bevan, C.		Ladies'Coll.& HighS.,Leamington
Horsley, H.		Beechwood, Matlock.
Waddell, C.		Mowbray School, Sunderland.
Ward, J. E. L.		Camden School for Girls.
Hill, M. H.	*mu.*	Clare House S., Northampton.
Holmes, M. J.		Harborne Ladies' Coll., B'ham,
Price, L.		BartholomewHo.S.,KentishTown
Roberts, L.		63 Kensington Gardens Sq., W.
Warneford, J.	*d.*	Twickenham College.
Badcock, M. C.		Minshull House, Beckenham.
Blunt, M. E.		Girls' Collegiate S., Whitchurch.
Child, E. G.		The Old Court, Cirencester.
Gillson, F. M.		Private tuition.
Heaton, L. M.		Handsworth Ladies' College.
Jones, A. B.		Falkner College, Liverpool.
Lomax, M. S.		Private tuition.
Marples, E.		Sandholme, Oxton, Cheshire.
Parker, E. B.		Vicarage Road S., Edgbaston.
Rien, J.		Endsleigh Ho. S.,Endsleigh Gdns.
Wilson, M. E.		Clevedon Lodge, Reading.
Gouldbourn, A. M.		The Ladies' College, Wellington.
Horsey, C. N.		Stoke Newington High School, N.
Marsden, M. F.		The Manor House, Uttoxeter.
Maskell, F. R.		Kendrick Girls' School, Reading.
Mason, M.		Castle Buildings. Oswestry.
Thwaites, L. M.		Mayo High S., Gray's Inn Rd.
Turner, E.		Bishopsgate Girls' School, E.C.
Barker, H. J.		Leyland House, Lee, S.E.
Burke, E. M.		17 Powis Square, Brighton.
Dobson, G.	*d.*	North London Coll. S. for Girls.
Eder, F.		Gloucester House School, Kew.
Hastilow, A.		Peterborough Ho., Handsworth.
Layman, M. C.		Minshull House, Beckenham.
Rogers, M.		Stella Ho. Coll. S., Cathcart Hill.
Rowse, M. A.		Thornpark, Teignmouth.
Adams, A. M.		Hanover House School, Ryde.
Clark, E.		St. Helier'sColl.,Wellingborough.
Cook, S. W.		Claremont Ho., Waterloo, L'pool.
Haworth, H.		Park House School, Manchester.
Ireland, K. I.		7AtlantieTer.W., Weston-s.-Mare.
Kenyon, E. C.		Burlington Mid. Cl. Girls' S., W.
Medforth, N.		Westwood Coll. S., Scarborough.
Pegler, A. E. de J.		Private tuition.
Russell, T.		Minshull House, Beckenham.
Salt, A. M.		Brownhills House, Southampton.
Beament, A. M.		Hawthorn Ho., Stoke Newington.
Chapman, A. C.		Sunderland House, W. Brighton.
Hardwicke, G. M.		22 Hatter St., Bury-St.-Edmunds.
Iredale, E. M.		Queenswood, Clapham Park.
Joscelyne, E.		Worcester Road School, Redditch.
Lawes, A. J.		Malvern House, Reading.
Raby, M.	*mu.*	Mount Eyrie, Southport.
Smithson, A.		6 Windsor Terrace, Whitby.
Burrell, M.		Sandholme, Oxton, Cheshire.
Dakin, M.		North London Coll. S. for Girls.
Davies, E. E.		Hill House Coll., Haverfordwest.
Dawson, A.		4Cumberland Gdns., St. Leonards.
Dawson, K.		High School for Girls, Horusea.
Farler, I.		Kingsholme, Weston-s.-Mare.
Mountford, L. H. E.		Queen's College, Acton.
Player, E.		Holmcroft School, Bromley, Kent.
Woodward, L.		Beaumont Cross, Newark.
Barnet, E. A.	*d.*	39 Onslow Road, Richmond.
Bradshaw, W. M.		Private tuition.
Coleman, A. A.		Portway College, Reading.
David, E.		Harrow House High S., Cardiff.
Fry, A. W		Acock's Green Ladies' C.S.,B'ham.
Lowe, E.		Lulworth Lodge, Birkdale.
Robinson, M. C.		N.E. Dist. Coll., Stoke Newington.
Saxon, M. V. C.		Red House School, Barnstaple.
Shoobridge, M. E.	*d.*	Cambridge House, Guildford.
Trengrouse, E. M.		Mecklenburg House, Putney.
Wray, B.		Summerbrook, Reading.
Buchman, C. M.	*d.*	Belmont, Dover.
Chivers, M.	*mu.*	High School, Herne Bay.
Church, F.		Kingsdown High School, Bristol.
Digby, M. F.		Fern Bank, Wandsworth Common.
Edwards, C. E. A.		Sinclair College, Kensington.
Hammond, M.	*d.*	The Gables, Coventry.
Kent, R. E.		Solsgirth House, Highgate.
Nash, E. S.		Lichfield House S., Stone, Staffs.
Barrett, E. M.		Everard House S., King's Lynn.
Bedells, A. M.		Slepe Hall, St. Ives, Hunts.
Blyth, E. E. S.		Grattan House, Great Malvern.
Chapman, F.	*d.*	Clyde Villa, Kilburn.
Edney, E. C.		Farrington House, Chichester.
Harrison, A.		The Grange School, Buxton.
Jones, E. M.		Minshull House, Beckenham.
Moate, J. McK.		StrathwillanH.,CommercialRd.,E
Passingham, E.		High School for Girls, Hitchin.
Phillips, B.		Southampton Girls' Coll.&High S.
Sutton, M. B.		Wenbdon Ho. S., Northampton.
Taylor, B.		High S., Raleigh Rd., Hornsey.
Thompson, K. W.		Wellesley College, Colchester.
Watson, M. K. K.		Rose Hill House, Whittington.
Webb, E. E.		Malvern House School, Southport.
Woodhouse, E.		Private study.
Bowles, E. G.		Audley Villas S., Saffron Walden.
Brittain, A. A.		The Ladies' College, Wellington.
Bromley, M. A.		Lichfield House S., Stone, Staffs.
Holt, N.	*d.*	St. Winifred's, Southampton.
Imbert, I. M.		Hill House College, Brixton Hill.
King, I. M.		Hamilton House, Holloway.
Potts, A. E.		Harborne Ladies' Coll., B'ham.
Radway, E.		Grosvenor College, Bath.
Welch, M. E.		Lichfield House S., Stone, Staffs.
Wright, G. L.	*d.*	Queenswood, Clapham Park.
Baker, A. L. M.		33 Camperdown, Gt. Yarmouth.
Brett, M.		Warwick House, Brixton Hill.
Brooks, L.		High School, Temple Ho., Hull.
Daniel, W.		Milford House, Abergavenny.
De Berry, W. M.		Royal School, Lansdown, Bath.
George, M.	*d.*	Fellenberg School, Maidstone.
Huggup, L. A.		Thornbeck House, Darlington.
Levett, M. S.		Athelstan College, Folkestone.
Morgan, E. M.		Welsh Girls' School, Ashford.
Power, M.		Byeulla, Southsea.
Rayner, A.		Burlington Mid. Cl. Girls' S., W.
Thomas, M. A.		Arrow House, Kington.
Tomlinson, E.		High School, Upper Norwood.
Watt, E. H. A.		Margate Ladies' College.
Atkinson, A.		Merton College, Croydon.
Bailey, L. I.		Redbrooke School, Camborne.
Brennand, C. I.		Blandford Girls' School, Dorset.
Burn, E.		Sunny Bank, Wilmslow.
Hart, F.		Grattan House, Great Malvern.
Ingram, H. M.		Stanmore House, Weston-s.-Mare.
Johnston, E.		High School, Holyhead.
Mercer, E.		Acres House, Edenfield.
Osmond, E. G.		Brean Down House, Burnham.
Patterson, A. M.		The Ferns, Leamington.
Scace, A. A.		Audley Villas S., Saffron Walden.
Shearwood, A.		Kendrick Girls' School, Reading.
Steer, A.		Burlington Mid. Cl. Girls' S., W.
Taylor, C. E.		Private tuition.
Thompson, A. E.		Ladies'Coll.&HighS.,Leamington.
Winkfield, A.		Crofton House S., Fulham Road.
Best, K. A.		Tyrwhitt College, St. John's, S.E.
Derriman, M. E.		Avonbank House, Bath.
Fellows, M. E. E.		233 Elgin Avenue, Maida Vale, W.
Greenhill, M. E. M.		Vermont College, Clapton.
Jones, E.		Bournemouth Collegiate School.
Railton, M. E.		Queenswood, Clapham Park.
Shears, M. B.		26 Ashley Road, Hornsey Rise.
Smith, M. F.		Linslade House, Crouch End.
Tong, E.		High School, Farnworth.
Vincent, M.		Highgate Collegiate S. for Girls.
Williams, B.		Stautway, Bedford Hill, S.W.
Alias, E. M.		Warwick Ho. S., Littlehampton.
Benton, E.		Parish Church Mid. Cl. S., Leeds.
Chalke, A. A.	*d.*	Private tuition.
Chisnell, E. A.		Stanley Ho. S., Stockton-on-Tees.
Crennell, E. A.		Newton Hall, Middlewich.
Gibson, C. P.	*nat.*	Girls' High School, Bridgwater.
Harper, A. L.		Kemmendine House, Shrewsbury.
Harrison, M.		Longley Ho. Coll. S., Easingwold.
Jeune, G. B.		Wesley House School, Jersey.
MacArthur, E. B.		Private tuition.
Newson, E. M.		Broomfield School, Kew.
Sawyer, A. H.		St.Mildred's,W.CromwellRd.,S.W
Sheringham, M.		33 Camperdown, Gt. Yarmouth.
Simms, K.		High Street School, Stourbridge.
Topham, S.		The Ladies' College, Wellington.
Valon, I.		Westbourne House, West Cowes.
Williams, M.		Kingsdown High School, Bristol.
Adnitt, E. M.	*mu.*	Eastgate School, Northampton.
Baker, F. C.		Private tuition.
Blyth, H. M.		Gratton House, Great Malvern.
Bottomley, W.		Ashton Girls' High S., Staleybridge.
Brown, C.		Hanover House School, Ryde.
Brownjohn, M. E.		N.E. Dist. Coll., Stoke Newington.
Camm, L. M.		County School, Gloucester.
Coleby, E. M.		Mecklenburg House, Putney.
Fry, C. M.		St. Peter's House, Chichester.
Horne, C. E.		The Ladies' College, Wellington.
Lee, M.		Beech House, Ripley, Derby.
Nevill, E. K.	*f.*	Clyde Villa, Kilburn.
Smecton, L.		Convent of Mercy, Chelsea.
Sorensen, A.		St. John's College, Ashbourne.
Staynes, L. A.		Salcombe College, Loughton.
Stribley, M. S.		Seaton House S., Mutley Plain.
Walker, F. M.		The Orme Girls' S., N'castle, Staffs.
Wardhaugh, A.		Westbourne, Sheffield.
Corke, J. M.		Leyland House, Lee, S.E.
Green, G. M.		The Orme Girls' S., N'castle, Staffs.
Maynard, F.		Alexandra College, Shirley.
Newman, M.		Collingwood College, Lee.
Newsham, A. M.		Handsworth Ho. S., Northampton.
Pope, R. M.		Downs College, Clapton, E.
Pople, N. I.		Burlington Mid. Cl. Girls' S., W.
Quilliam, H. M.		High School, New Brighton.
Redfern, A.		Stoneygate College, Leicester.
Rickwood, B.		The Church High S., Colchester.
Rodwell, V. S.		Queenswood, Clapham Park.
Ruffle, E.		Girls' High School, Hastings.
Steane, E. N.		The Gables, Coventry.
Willis, E.		Holly Terrace School, Stoneycroft.
Wilson, J.		Parish Church Mid. Cl. S., Leeds.
Wood, C. A.		E. Southsea Collegiate School.
Brooks, M. E.		High Street School, Stourbridge.
Butcher, L. B.		Park School, Higher Broughton.
Cousins, A. M.		Walthamstow Hall, Sevenoaks.
Cregeen, A. A.		Holmcroft School, Bromley, Kent.
Gray, L.		Friends' School, Saffron Walden.
Greatbach, A. J.	*d.*	Blandford Girls' School, Dorset.
Hartt, K. W.		Ronton Vicarage, Eccleshall.
Haswell, G. C.		Devonport,Stoke&Stonehouse H. S.
Haynes, A.		Merevale House, Newport, Salop.
High, B. M.		Royal Masonic Inst., Battersea.
Hunt, G. C.		Audley Villas S., Saffron Walden.
Jutsum, B.		Redbrooke School, Camborne.
King, A. E.		Hamilton House, Holloway.
Middleton, A. M.		Cashiobury House, Southend.
Milner, E.		Middle Street School, Driffield.
Packham, A.		Athelstan College, Folkestone.
Page, M.		West Ho. High S., Forest Hill, S.E.
Paris, J.		Convent of Loreto, Hulme.
Peart, A. M.		Shelley House School, Ongar.
Pointon, R. E.		High School for Girls, Hitchin.
Rooth, K. M.		The Terrace School, Chesterfield
Smith, F. A.	*d.*	Holdstock Coll., Up. Holloway.
Ashenden, E. L.		The Laurels, Canterbury.
Bates, S.		Girls' Grammar School, Dewsbury
Bell, M. C.		Birklands, Holland Park Gardens
Bond, A.		Elmhurst, Rock Ferry.
Buckley, M.		Girls' High School, Halifax.
Catton, L.		Parish Church Mid. Cl. S., Leeds.
Gilling, N.		Lulworth Lodge, Birkdale.
Goodhall, B. E.		Portway College, Reading.
Groves, M. M.		Ladies' Coll.& HighS., Leamington
Jacobs, B. H.		The Laurels, Canterbury.
Little, F. E.		Queenswood, Clapham Park.
Marwood, A. M.		Sandholme, Oxton, Cheshire.
Mason, K. C.		Kidderminter High S. for Girls.
McEnery, T.		Newnham House, Sherborne.
Newman, H. M.		Royal Masonic Inst., Battersea.
Newton, M.		Parish Church Mid. Cl. S., Leeds.
Pearson, E. R.		Ladies' Coll., Savile Park, Halifax
Smith, F. B.		The Orme Girls' S., N'castle, Staffs.
Smith, H.		St. Helier's Coll., Wellingborough.
Whittam, F.		Crouch Hill High School for Girls.
Wright, E.		Linslade House, Crouch End.
Barbour, A. M.		8 EskdaleTerr.,Newcastle-on-Tyne.
Barrett, E. M.		Princess Helena College, Ealing.
Bowman, H.		Mowbray School, Sunderland.
Bradley, S. E.		Girls' Grammar School, Ripon.
Brett, E. S.	*d.*	Lady Holles's School, Hackney.
Burton, K.		63 Kensington Gardens Square, W.
Colles, H. M.		Springfield House School, Edgeley.
Edwards, G.		Belmont House, Leicester.
Gilchrist, J. T.		Sunny Bank, Wilmslow.
Harris, F. J.		Margate Ladies' College.
Hill, E. M.		Haddo House School, Scarborough.
Hughes, K. M.		Queenswood, Clapham Park.
Millson, B.		The Terrace School, Chesterfield.
Northcote, A. E.		St. John's Middle S., Kennington.
Olive, E.		Collingwood College, Lee.
Pearsall, C. E.		Kingston House School, Clifton.
Rutherford, A. M. O.		Sydenham College for Ladies, S.E
Thomas, F. W.		West Cornwall College, Penzance
Trotman, M.	*d.*	Lewisham Middle Class School.
Warrell, H.		St. Bernard's College, Southsea.
Wilcox, M. L.		London College, Stratford.
Woods, A. M.		Collingwood College, Lee.
Blakely, G. M.		Abu Klea, Bournemouth.
Cloke, G. E.		The Laurels, Canterbury.
Cross, F.		Charlemont House, W. Bromwich.
Delf, A. F.		The Gables, Coventry.
Elford, A. E.		Hughenden Hall, Wimborne.
Freeman, E.		"Wynnstay," Hornsey Lane.
Hale, L.		Clare House School, Northampton.
Hearsey, E.		Kingsdown High School, Bristol.
Hott, A. M.		Surrey House School, Norwich.
Langher, F. A.		E.AnglianGirls'Coll.,Bp'sStortford
Milburn, A. E.		Minshull House, Beckenham.
Morris, K.		Collingwood College, Lee.
Nash, A. S.		Grey Coat Hospital, Westminster.
Parker, C.		Kingsdown High School, Bristol.
Place, G.		Wellington College, Hastings.
Raven, S. J.		44 Shakespeare St., Nottingham.
Somers, A.		Peterborough House, Handsworth.
Staff, S.		Bishopsgate Girls' School, E. C.
Tipping, F. M.		St. Anne's High School for Girls.
Uwins, G.		Collingwood College, Lee.
Watts, F. L.		Victoria House School, Cambridge.
White, F. M.		St. John's Middle S., Kennington.
Andrews, E. M.		Kingsdown High School, Bristol.
Barbier, M. C.		MayoHigh S.for Girls,GraysInnRd.
Bernhardt, B. C.		Maria Grey School, Fitzroy Square.
Buchanan, J. B.		Avondale, Liverpool.
David, B. M.		Welsh Girls' School, Ashford.
Dodd, B.		Sandholme, Oxton, Cheshire.
Drake, M. F.		Atherfield House, Clifton.
Francis, R. J.		Private tuition.
Frodsham, I.		Albert Villa School, Ramsgate.
Gibbs, E. J.		26, Ashley Road, Hornsey Rise.
Griffiths, F.		Welsh Girls' School, Ashford.
Henk, A. T.		The Orme Girls'S.,Newcastle,Staffs
Heywood, E.		Private study.
Higman, H.		High St. House School, Taunton.
James, B.		Summerbrook, Reading.
Jefferys, S.		Belle Vue House, Holbeach.
Johns, L.		Bishopsgate Girls' School, E.C.
Jones, L. E.		The Ladies' College, Wellington
Kelly, E. F.		Alexandra College, Shirley.
Lawrence, A.		Eastnor House, Hereford.
Linnett, A. L.		Camden School for Girls.
Mead, M. B.		Cashiobury House, Southend.
Openshaw, M. A.		Springfield House School, Edgeley.
Parker, M. M.		Queen's College, Acton.
Peat, L.		Parish Church Middle Cl. S., Leeds.
Pigg, E. M.		Private tuition.
Porritt, E.		The College, Huddersfield.
Round, A.		Proprietary School, Dudley.
Rutherford, I.		Wilber House Girls'S., Biggleswade.
Sale, E.		Convent of Loreto, Hulme.
Tyler, A. M.		Grey Coat Hospital, Westminster.
White, I. E.		Welsh Girls' School, Ashford.
Burnside, A. L.		228A Romford Road, Forest Gate.
Cornish, R. M.		Buckingham Crescent S., M'chester.
Earl, L. K.		Wandsworth High School for Girls.
Flavell, M. B.		SandringhamH., AlexandraRd.N.W
Foster, E. M.		Leylands, Stockwell Road, S.W.
Foster, H. W.	*d.*	Friends' School, Saffron Walden.
Fowles, S. F.		Heyop House, Axminster.
Gage, J. A.		Larch Mount, Yatton, Som.
Grosutt, M. E.		Licensed Victuallers' School, S.E.
Heygate, A. M.		Bath High School.
Howitt, E. A.		The Grange School, Buxton.
Ivens, G.		Carlton House, St. John's Wood.

GIRLS, THIRD CLASS—*Continued.*

Kirton, A. M.	Girls' Collegiate School, Louth.
Mercer, E.	*d.* 25 Rhodes Street, Halifax.
Milnes, M.	Dalton Girls' School, Huddersfield.
Smith, C.	Western House School, Nottingham.
Thomas, A. E.	Norwood House, Liverpool.
Webb, C. E. F.	Royal Masonic Inst., Battersea.
Addison, H.	Kingsholme, Weston-super-Mare.
A'Deane, H. M.	Marli House, Richmond.
Austin, E. A.	The Ladies' College, Wellington.
Baker, D. L.	St. Kilda, Reigate.
Bate, H. G. O.	Cambridge House School, Derby.
Butterfield, R.	Girls' Grammar School, Dewsbury.
Cooper, M.	Haddo House School, Scarborough.
Dewes, H. B.	Minshull House, Beckenham.
Douglass, M. A.	Carrick House, Brampton.
Ewart, E. M.	Rutland House School, Stamford.
Fishe, E. A.	Walthamstow Hall, Sevenoaks.
Glover, K.	*d.* Elmswood College, Stretford.
Goodenough, A. S.	Portway College, Reading,
Grimes, E. K.	Lystra, Leckhampton, Cheltenham.
Higginbottom, A.	19 Belmont Street, Southport.
Hill, M.	Portsea Collegiate School.
Le Gros, L.	The Grange School, Buxton.
London, M. B. C.	Ladies' Collegiate S., Leamington.
Morford, E.	Alexandra College, Shirley.
Norman, M. E.	Camden School for Girls.
Nye, M.	Girls' High School, Hastings.
Pinch, F. S.	2 Duke Street, Bath.
Potter, E. M.	Girls' School, Ashby-de-la-Zouch.
Ransford, E. V.	Private tuition.
Scott, J. M.	The Wolverhampton High School.
Smith, J.	St. Helier's Coll., Wellingborough.
Stanford, F.	9 The Grove, Clapham Common.
Timmis, M. M.	Howard College, Bedford.
Waters, M. L.	5 Abbeville Rd. N., Clapham Com.
Wood-Hill, C. M.	3 Pembridge Gardens, Bayswater.
Arundel, K.	Stanley House S., Stockton-on-Tees.
Bairstow, A.	Girls' High School, Halifax.
Baker, E. B.	Milford House, Abergavenny.
Ball, B. A.	Diocesan High School, Derby.
Barton, C.	Girls' Collegiate High S., Lytham.
Battersby, E. R. M.	Ladies' College, Ashton-on-Mersey.
Bickell, E.	The College, Huddersfield.
Bryant, J. M.	Hamilton House, Holloway.
Chadwick, H.	7 Hyde Terrace, Tollington Park.
Charlesworth, B. B.	Sydenham Coll. for Ladies, S.E.
Collard, F.	South London Coll., Brixton Rd.
Davey, E. M.	Brownhills House, Southampton.
Dewey, B.	7 Hyde Terrace, Tollington Park.
Elmes, E.	Howard College, Bedford.
Finer, E. O.	Coopers' Girls' School, Bow, E.
Halford, E. M.	West End House, Wellingborough.
Hayter, E. G. R.	Private tuition.
Hearn, C. E.	*d.* Educational Home, Plymouth.
Holton, H.	Girls' Grammar School, Dewsbury.
Knight, A. A.	Parish Church Middle Cl. S., Leeds.
Martin, I. A.	Lonsdale House School, Norwich.
Neate, H. E.	Camden School for Girls.
Portnell, B.	Coylton House, Wincanton.
Reynolds, L. M.	Lulworth Lodge, Birkdale.
Riggs, A.	26 Ashley Road, Hornsey Rise.
Rolfe, B.	Ripley House, Bury St. Edmunds.
Rosenthal, A. B.	Sydenham Coll. for Ladies, S.E.
Rowe, K.	Margate Ladies' College.
Sands, E. M.	High School for Girls, Hitchin.
Thompson, E. D.	N. Yorkshire S., Coatham, Redcar.
Wain, A.	Queenswood, Clapham Park.
Webster, M.	Derby High School.
Whinnerah, A.	Sandholme, Oxton, Cheshire.
Whittaker, R.	Haddo House School, Scarborough.
Williamson, F. E. P.	Caerleon Ho. High S., Aberystwith.
Barnett-Smith, M. M.	J. Holdstock College, Holloway.
Buncher, A. L.	The Hollies, Birmingham.
Chambers, A. M.	The Beeches, Franche, Kidderm'r.
Conder, M.	Private tuition.
Deacon, G. J.	Mill Wall House, Sandwich.
Diver, M.	22 Hatter St., Bury St. Edmunds.
Easten, M.	Warlaby House School, Lee, S.E.
Fowlds, M.	Girls' Grammar School, Keighley.
Fuller, L.	63 Kensington Gardens Square, W.
Gainford, F.	Girls' College, Seascale.
Home, E. K.	Queen's College, Twickenham.
Ing, H. M. S.	High School for Girls, Hitchin.
Jenner, W. B.	Wandsworth High School for Girls.
Kendall, F. B.	Private tuition.
Kentfield, E. M.	76 The Mall, Newport, I. of Wight.
Kittke, J.	Rockhill House, Folkestone.
Langford, E. A.	Kidderminster High S. for Girls.
Leigh, M.	Ellesmere College, Sydenham.
Mackison, K.	Girls' Collegiate High S., Lytham.
Nursey, E.	Mowbray School, Sunderland.
Parnwell, C. G.	Ladies' Coll. School, Aberystwith.
Pitcher, G. S.	Howard College, Bedford.
Rivers, A. E.	Portway College, Reading.
Roberts, G.	Trebovir House S., Earl's Court.
Shillito, E.	St. George's House, Doncaster.
Squire, S. C.	33 Camperdown, Great Yarmouth.
Stephens, A.	Howard College, Bedford.
Turner, G.	Dartmouth House College, Dalston.
Williams, D. R.	London College, Stratford.
Allen, B.	146 St. George's Road, Bolton.
Barke, E. M.	Ladies' S., Cauldon Place, Shelton.
Bennett, H. S.	Whitstable College.
Chandler, H. G.	The Cedars, Ponders End.
Dover, J.	Eton House School, Sheffield.
Elton, A.	Lancaster Mansion, Margate.
Franklin, G.	9 Kingsgate Street, Winchester.
Gray, E. G.	Enmoor Lodge Coll. S., New Leeds.
Hankin, T. E.	86 Ladbroke Grove Road, W.
Hare, M.	Chestnut House, Lincoln.
Hay, H. C.	Fairford Villa S., Tunbridge Wells.
Hayward G. A. M.	The Old Court, Cirencester.
Hickson, J.	Westgate House, Peterborough.
Hughes, F.	1 Richmond Terrace, Liverpool.
Impey, G. F.	Mayo High S. for Girls, Gray's Inn Rd.
Johnston, M. S.	Brent Hill Coll. School, Hanwell.
Learner, K. A.	Leybourne House S., Aylesbury.
Meager, E.	Holdstock Coll., Upper Holloway.
Michell, E.	Twickenham College.
Moore, C.	Grey Coat Hospital, Westminster.
Perkin, J. C.	Grove College, Betley.
Savory, E. K.	22 Hatter St., Bury St. Edmunds.
Weston, E.	Eastgate School, Northampton.
Whiting, A. M.	Grey Coat Hospital, Westminster.
Windust, A. C.	Lady Holles's School, Hackney.
Wolf, B. A.	Private tuition.
Wooldridge, F. E.	Athelstan College, Folkestone.
Alment, C. M.	228A Romford Road, Forest Gate.
Annies, E. L.	Castle Hall School, Northampton.
Bach, P. B.	Westbourne House, West Cowes.
Brewin, B. A.	Crofton House S., Fulham Road.
Carson, J. E.	Wear Terrace S., Bishop Auckland.
Chapman, A. M.	Queenswood, Clapham Park.
Chovil, E. M.	Stantway, Bedford Hill, S.W.
Crighton, F.	Private tuition.
Cuzner, E. M.	Churchill House School, Alcester.
Danger, L.	Baxterley, Rusthall, T'bridge Wells.
Eaglesfield, E. F.	Princess Helena College, Ealing.
Eastwood, E. M.	Private tuition.
Elliot, M. B.	Eton House School, Sheffield.
Faden, A. M. L.	Church S., Old Steine, Brighton.
Folson, E. E.	Mayall College, Brixton.
Fordham, E. L.	Castle Hall School, Northampton.
Fox, L.	Birklands, Holland Park Gardens.
Fulton, L.	Middle Street School, Driffield.
Gallico, E.	Camden School for Girls.
Guthrie, A. B.	*d.* Field House, Heaton Chapel.
Heath, A.	St. George's House, Doncaster.
Hipkins, B. A.	The Wolverhampton High School.
Jarvis, M. G.	Collegiate School, Havant.
Jones, M. C.	Welsh Girls' School, Ashford.
Leathers, A. L.	The Crescent School, Norwich.
Lyon, H. S.	Royal Masonic Inst., Battersea.
Marshall, M.	4 Aden Grove, Stoke Newington.
Morton, E. M.	Deighton Villa School, Didsbury.
Mullins, E. M.	*d.* Princess Helena College, Ealing.
Oliver, L.	Proprietary School, Dudley.
Pinsent, M. L.	High School, Newton Abbot.
Reed, M. M. L. M.	Vernon, Pembridge Villas, W.
Roberts, M. J.	Welsh Girls' School, Ashford.
Tabor, S. F.	Church Street School, Ellesmere.
Townsend, G. A.	The Laurels, Canterbury.
Turner, E. E.	*d.* Private tuition.
Weston, K. F.	Private tuition.
White, M.	Trafalgar Square S., Scarborough.
Young, E. C.	Milton School, Northampton.
Archer, E.	Camden School for Girls.
Bell, M. M.	Private tuition.
Brindley, F. M.	Burslem High School for Girls.
Brown, E. S.	Westgate House, Peterborough.
Burslem, D. G.	Girls' Collegiate High S., Lytham.
Chapman, F. M.	St. John's Middle S., Kennington.
Coales, E.	St. Helier's College, Wellingborough.
Davis, F. H.	Linden College, Nunhead Lane, S.E.
Douët, E. M.	Highleigh House S., St. John's, S.E.
Fry, M.	Buena Vista, Weston-s.-Mare.
Gibbs, H. L.	Gosden House, Bramley.
Gilmour, E. J.	High School, Farnworth.
Hill, F. E.	Burlington Mid. Class Girls' S., W.
Hyde, M. E.	Field House, Heaton Chapel.
Johnson, S. S.	High School, Leytonstone.
Kemp, A.	Merevale House, Newport, Salop.
Lewis, E.	The Ladies' Coll., Wellington.
Littlewood, H.	The College, Huddersfield.
Longfield, A. E.	The Mansion School, Bildeston.
Loveless, M.	Buckland House, Axminster.
North, N.	Everard House S., King's Lynn.
Oates, A.	Mayfield Lodge, Nottingham.
Pearce, C. M. I.	Portsea Collegiate School.
Pearson, E. A.	Ormond House, Paignton.
Pigg, M. C.	Private tuition.
Pincombe, L. K.	Royal Masonic Inst., Battersea.
Pinyon, T.	47 South Street, Durham.
Saunders, E.	Slepe Hall, St. Ives, Hunts.
Soars, E. M.	Southside House, Weston-s.-Mare.
Stafford, W. M.	Grosvenor College, Bath.
Thompson, L.	Westgate House, Peterborough.
Todd, I. M. M.	Coopers' Girls' School, Bow, E.
Warren, R.	Grey Coat Hospital, Westminster.
Woolfe, B. E.	Elm Lodge, Leytonstone.
Wright, E. A.	Girls' Grammar School, Keighley.
Wright, F.	The Towers, Saltburn-by-Sea.
Young, E. G.	Gosden House, Bramley.
Allen, E. R.	Private tuition.
Baldwin, A.	Warwick House, Brixton Hill.
Beard, A. O.	Rose Hill House, Whittington.
Boulter, L.	Private tuition.
Brison, M. B.	Kingsdown High School, Bristol.
Burrows, E.	The Hall, Billingborough.
Burton, E.	Netherwood, Edgbaston.
Campion, W. A.	Mayo High S., Gray's Inn Rd.
Cantelo, B.	Beaulieu House, Sandown, I. of W.
Chalcraft, D.	Merton College, Croydon.
Coldwell, A.	Girls' Grammar School, Keighley.
Davis, A. G.	Varteg House School, Penarth.
Davis, M.	Girls' Middle Class S., Clevedon.
Dean, M. S.	Private study.
Devereux, E.	Tewkesbury High School.
Ditchfield, S.	Holly Terrace School, Stoneycroft.
Eastwood, E. B.	Private tuition.
Evans, A. M. M.	Havelock House S., Southsea.
Fleming, E.	Convent of Loreto, Hulme.
Gibson, M. E.	Fairfield Head House, Chesterfield.
Green, L. S.	Hamilton House S., Warrington.
Greethurst, M. K.	Royal Masonic Inst., Battersea.
Hinwood, M. H.	Moravian School, E. Tytherton.
Hodgkinson, E.	The Orme Girls' S., N'castle, Staffs.
Hore, C.	Ladies' College, Ilfracombe.
Houghton, K.	Park School, Higher Broughton.
Hume, A. G.	St. John's Coll. S., Stoke Newington.
Myatt, A.	The Orme Girls' S., N'castle, Staffs.
Overbury, E. B.	Private tuition.
Padwick, E. E.	St. Kilda, Reigate.
Palmer, F. L.	Morningside College, Hastings.
Parker, L.	Torquay High School for Girls.
Perry, F.	Crouch Hill High School for Girls.
Piper, F. C.	Athelstan House, Margate.
Pownall, A. M. A.	Anstey Villas, Alton, Hants.
Proudlock, F.	The Towers, Saltburn-by-Sea.
Sandilands, H.	Highleigh H. S., St. John's, S.E.
Surman, A. E.	Crofton House S., Fulham Road.
Tolley, H.	Leyland House, Lee, S.E.
Walker, G. M. A.	Western House S., Nottingham.
Ward, L. E.	Broomfield School, Kew.
Weston, A.	Westgate House, Peterborough.
Wilkes, E. M. R.	Euston Collegiate S. for Girls, N.W.
Wilson, A.	Westbourne House, West Cowes.
Wilson, E. H.	Carrick House, Brampton.
Bartlett, M.	Westhill, Brackley.
Bishop, G.	The Orme Girls' S., N'castle, Staffs.
Bocock, E. R.	Abu Klea, Bournemouth.
Bomford, G. E.	Salcombe College, Loughton.
Bowden, K. E.	Elmswood College, Stretford.
Brunsdon, A. S.	St. John's Middle S., Kennington.
Caut, F. M.	Rutland House School, Stamford.
Chambers, K. E.	Mayfield School, Marlborough.
Crawford, F. G.	Longley House Coll. S., Easingwold.
Dimelow, A. B.	Wolverhampton High School.
Ellis, C.	Ribblesdale College, Hastings.
Ford-Smith, E.	Ladies' College, Ashton-on-Mersey.
Garnett, B.	Field House, Heaton Chapel.
Gavey, E.	St. Catherine's, Cardiff.
Gibson, J.	Handley House, Newark-on-Trent.
Goddard, I. E.	Showellhurst High S., Moseley.
Griffiths, M. J.	Stella House Coll. S., Cathcart Hill.
Henderson, M.	Clanville House, Stoke Newington.
Herridge, E. M.	Ladies' Academy, Shepton Mallet.
Hulme, G.	Malvern House School, Southport.
Johnson, E.	Parish Church Mid. Cl. S., Leeds.
Nesham, E.	Hamilton House, Holloway.
Newbery, E. H. J.	Mayo High S., Gray's Inn Rd.
Oates, M. A.	Welsh Girls' School, Ashford.
Paull, E.	Redbrooke School, Camborne.
Sage, M. D.	Grey Coat Hospital, Westminster.
Simons, F. G.	North Bristol School for Girls.
Swain, C.	The Hollies, Birmingham.
Taylor, A. R.	Stella House Coll. S., Cathcart Hill.
Tritton, E. M.	Wandsworth High School for Girls.
Whewell, L.	Glengarry, Birkdale.
Aherne, M. E.	Woodside House S., Sutton.
Barnes, M. M.	Collegiate S. for Girls, Norwich.
Bartlett, A.	Blandford Girls' School, Dorset.
Bateman, L. B. M. F.	4 Aden Grove, Stoke Newington.
Boyce, K.	Carisbrook Ho., Twickenham Pk.
Cozens, C. E.	Lansdown College, Notting Hill.
Crapper, S. O.	*d.* Westgate House, Peterborough.
Ewart, K. E.	Rutland House School, Stamford.
Farrow, G.	Glan Dyfi House, Wisbech.
Grant, Marie	Abbey House School, Selby.
Green, A.	Ashleigh House, Tutbury.
Green, M. M.	Grey Coat Hospital, Westminster.
Griffin, M. W.	Handsworth Ladies' College.
Griffiths, F. B.	Charlemont House, W. Bromwich.
Hall, L. G.	Hamilton House S., Warrington.
Halliday, E. H.	Private tuition.
Hammond, L. V.	Lady Holles's School, Hackney.
Helyar, A. M.	Private tuition.
Hill, M.	Collegiate S. for Girls, Norwich.
Holcombe, A.	Camden School for Girls.
Hutchings, J. W.	Royal Masonic Inst., Battersea.
Hyde, M.	Clanville House, Stoke Newington
James, C. A.	Grove College, Betley.
Langham, W. L.	Southolme High S., Whalley Range.
Lawler, M. J.	Grey Coat Hospital, Westminster.
Linney, L.	Friends' School, Saffron Walden.
Lockerby, A. C.	4 Jesmond Rd., Newcastle-on-Tyne.
Marston, J. A.	Kersall Cell S., Higher Broughton.
Morgan, N. L.	29 Rothesay Road, Luton.
Moss, F. S.	Burlington Mid. Cl. Girls' S., W.
Murray, M.	Milburn School, Forest Hill.
Redgrave, F.	N. Camberwell High Schools, S.E.
Richards, A. G.	Princess Helena College, Ealing.
Robinson, M.	Mansfield House, Colchester.
Russell, A. H.	Howard College, Bedford.
Simpson, C. N.	Leylands, Stockwell Road, S.W.
Stanbury, E. B.	Westbourne House, West Cowes.
Symonds, B. S.	Middle Grove House, Brentford.
Tomlinson, J.	1 Clyde Terrace, Hull.
Voysey, E. M.	Summerland College, Honiton.
Walker, A. B.	Leicester Rd. S., Melton Mowbray.
Williams, F. C.	Grey Coat Hospital, Westminster.
Wright, E.	Blandford Girls' School, Dorset.
Beuzie, L. A.	Westbourne House, West Cowes.
Blades, J.	26 Ashley Road, Hornsey Rise.
Chamberlain, C. E.	Belmont, Dover.
Chambers, M.	16 Broomgrove, Sheffield.
Coghlan, K. D.	The Orme Girls' S., Newcastle, Staffs.
Cookson, G.	Proprietary School, Dudley.
Dean, E. M.	Fairfield House, Watford.
Downer, A.	Glenholm Girls' S., Burgess Hill.
Griffith, M. E.	Wilton House School, Chester.
Hall, B. E.	E. Southsea Collegiate School.
Hands, F. E.	Stella Ho. Coll. S., Cathcart Hill.
Harrison, E. M.	Holt House School, Fakenham.
Harrison, M. E. M.	Marlborough House S., Brighton.
Hawes, M. L.	Carisbrook House, Twickenham Pk.
Hawkins, M.	Collingwood College, Lee.
Heath, F.	Holly Terrace School, Stoneycroft.

GIRLS, THIRD CLASS—*Continued.*

Hirst, L.	The College, Huddersfield.
Hutton, E. M.	Walthamstow Hall, Sevenoaks.
Jeffries, G. L.	Pembroke House, Lee, S.E
Maxim, F. E.	26 Ashley Road, Hornsey Rise.
McMillan, C. A.	Royal Masonic Inst., Battersea.
Miller, H. R.	Duncan House, Clifton.
Morty, A. R.	Howard College, Bedford.
Mote, H.	Hamilton House, Holloway.
Nixon, M. A.	The Ladies' College, Wellington.
Player, F. G.	The Gables, Coventry.
Ramshaw, E.	Abbey House School, Selby.
Rear, S.	Chestnut House, Lincoln.
Sharpe, E.	Oak Bank, Radcliffe.
Smith, J. H.	Stoke Newington High School, N.
Stevens, L. E. M.	Kendrick Girls' School, Reading.
Sykes, A.	Abbey House School, Selby.
Thomson, M. L.	*d.* Camden School for Girls.
Watkin, I.	South London College, Brixton Rd.
Weyill, C.	Elmhurst, Rock Ferry.
White, F.	Warwick House, Brixton Hill.
Whitham, J.	Sunny Bank, Bolton.
Wildblood, M. V.	Ivy House School, Trentham.
Wyatt, E. H.	St. Peter's House, Chichester.
Alston, F.	78 Guildhall St., Bury St. Edmunds.
Barnes, C. J.	Collegiate S. for Girls, Norwich.
Bennett, F.	Stoke Newington High School, N.
Bird, A. L.	Queenswood, Clapham Park.
Borelli, E. T.	Beaver House, Farnham.
Boss, R.	Jewish High School for Girls, W.C.
Brewer, E. C.	2 Duke Street Bath.
Brown, E.	Southolme High S., Whalley Range.
Cannell, A.	Hawkesbury, Clevedon.
Church, L. E.	Kingsdown High School, Bristol.
Cockin, M.	Girls' High School, Halifax.
Cooper, E. L.	Lowestoft High School for Girls.
Davis, E. T.	Montague House S., Weymouth.
Doman, E. M.	Cambridge House, Chichester.
Edwards, S. K.	The Wolverhampton High School.
Elvidge, F.	Camden School for Girls.
Fines, M. K.	Highgate Collegiate S. for Girls.
Gavin, E.	Elmhurst, Rock Ferry.
Gosling, G. C.	4 St. Ann's Pk. Ter., W'dsworth Com.
Haines, A. M.	The Elms, Finchley Road.
Hedges, B. B.	The Woodroughs, Moseley.
Heppel H.	Showellhurst High S., Moseley.
Hiscock, E. M.	East Southsea Collegiate School.
Howard, E. H.	"Lyndhurst," Upper Norwood.
Johnson, F.	Ladies' Coll. School, Aberystwith.
Lindfield, G. R. M.	Simla House, Lee Park, S.E.
Littledale, F.	Carlton House, St. John's Wood.
Martin, E.	Merton College, Croydon.
McKenzie, M.	Crouch Hill High School for Girls.
Millington, E. M.	Oxford Lodge S., Wolverhampton.
Nicholson, D. H.	Friends' School, Saffron Walden.
Phillips, F. M.	Kidderminster High S. for Girls.
Pickman, G.	Merton College, Croydon.
Richards, F. G.	Duncan House, Clifton.
Sprakett, F. K.	Kingsdown High School, Bristol.
Steane, E. F.	The Gables, Coventry.
Storey, E. M.	Linden House, Halifax.
Turner, J.	Hanover House School, Ryde.
Watkinson, M.	College Mount, Otley, Yorks.
Withy, E. M.	Sidcot School, Weston.-s.-Mare.
Wrigglesworth, S.	Armley Ladies' School, Leeds.
Applebee, C. K. M.	Ormond House, Paignton.
Box, L.	Kendrick Girls' School, Reading.
Buzzard, E. L.	Clifton Ladies' College.
Coward, B. A.	Coopers' Girls' School, Bow, E.
Cropper, D. M.	Church S., Old Steine, Brighton.
Davies, M. A.	Welsh Girls' School, Ashford.
Dunkley, C. E.	Castle Hall School, Northampton.
Dyas, D. M.	21 Home Pk. Villas, Stoke, Devonp't.
Fox, E.	Oaklands, West Hampstead.
Good, B.	Collingwood College, Lee.
Gookey, E. I	Ashcroft, Staines.
Harris, A.	Ladies' Collegiate S., Leamington.
Hartley, M.	Hamilton House S., Warrington.
Heslop, A.	N. Yorkshire S., Coatham, Redcar.
Highton, E. C.	Holly Terrace School, Stoneycroft.
Johnson, L.	Middle Street School, Driffield.
Jones, A. V.	St. Catherine's, Cardiff.
Kelly, E. M.	Grosvenor College, Bath.
Kemp, M.	Merevale House, Newport, Salop.
Lavington, E. M.	Mayfield School, Marlborough.
Locke, J.	Stratford Abbey College, Stroud.
Marshall, E. B.	Alexandra College, Shirley.
McDowell, N.	Trebovir House S., Earl's Court.
Munro, A. M.	22 Hatter St., Bury St. Edmunds.
Naysmith, R. E.	Kingsdown High School, Bristol.
Neal, M. L.	116 Lordship Rd., Stoke Newington.
Nicholson, E. A.	Chestnut House, Lincoln.
Pearson, G. A.	St. George's House, Doncaster.
Pittard, G. F.	1 Southernhay West, Exeter.
Robinson, L. M.	Lady Holles's School, Hackney.
Rogerson, L.	Private tuition.
Rutland, M. A. B.	Westbourne House, West Cowes.
Shakerley, M.	West Cornwall College, Penzance.
Shufflebotham, A.	The Orme Girls' S., N'castle, Staffs.
Smith, A. W.	Llandaff House, Norwich.
Smith, J. L.	3 Grove Terrace, Rochdale.
Stock, A. M.	Clapham Park Ladies' Coll., S.W.
Tomlinson, A.	Girls' Grammar School, Keighley.
Tucker, M.	Leigh Bank, Leamington.
Turner, G.	Carleton College, Tufnell Park.
Tylecote, J. A. M.	Kenmendine Ho., Shrewsbury.
Webster, M. I.	Eton House School, Sheffield.
Winn, L. K.	The Gables, Coventry.
Wood, S. J.	Grey Coat Hospital, Westminster.
Ball, O.	Girls' School, Ashby-de-la-Zouch.
Bassett, F. L.	Belmont House School, Richmond.
Boorman, H. M.	Queen Anne's College, Southend.
Byles, H. C.	St. Peter's House, Chichester.
Collins, L. A.	St. John's Middle S., Kennington.
Cooke, M. F.	Norfolk House, Gosport.
Davis, E. M.	Moravian School, East Tytherton.
Duncan, S. E.	Private tuition.
Edkins, E. M.	Burlington Mid. Cl. Girls' S., W.
Elliot, K.	Licensed Victuallers' School, S.E.
Everett, M.	Ellesmere College, Sydenham.
Fitton, S. E. G.	Hill House, Huddersfield.
Foster, E. C.	Highleigh Ho. S., St. John's, S.E.
Fox, M. E.	Mecklenburg House, Putney.
Frewe, F.	Lynton House, Margate.
Harding, E. E.	Carrick House, Brampton.
Harris, A.	Clyde Villa, Kilburn.
Hartree, E. M.	2 Duke Street, Bath.
Henshaw, H. M.	Royal Masonic Inst., Battersea.
Hosmer, A.	Belmont, Dover.
Ingleby, E. M.	The Terrace School, Chesterfield.
Janes, E.	Alexandra College, Shirley.
Jones, E. M.	The Ladies' College, Wellington.
Jupp, N.	Belgrave Collegiate School, S.W.
Kershaw, E. J.	Private tuition.
Lazenby, B.	Sydenham Coll. for Ladies, S.E.
Lazenby, F.	Sydenham Coll. for Ladies, S.E.
Lile, E. M.	Hill House Coll., Haverfordwest.
Martin, L. M. E.	Morningside College, Hastings.
Nichols, F. E.	Amble College, Streatham, S.W.
Nicholson, K.	Mansfield House, Colchester.
Powell, A. B. C.	Amble College, Streatham, S.W.
Rooth, M. S.	The Terrace School, Chesterfield.
Ruck, J. C.	Camden School for Girls.
Sanderson, M. A.	St. John's Middle S., Kennington.
Seabrook, B. M.	Hughenden Hall, Wimborne.
Smith, H. A. D.	E. Southsea Collegiate School.
Smythe, L. D.	St. Lawrence Coll., N. Kensington.
Spicer, J.	Merton College, Croydon.
Towers, N.	Collingwood College, Lee.
Vine, L. A.	Redbrooke School, Camborne.
Warlow, E. P.	Royal School, Lansdown, Bath.
Ambler, M.	Longley House Coll., Easingwold.
Aumonier, A. L.	Camden School for Girls.
Birkett, E. A.	Kendrick Girls' School, Reading.
Carrell, J. D.	Collegiate School, Havant.
Cartwright, L.	Castle Buildings, Oswestry.
Causley, F.	Abney Park College, N.
Charlton, M. E.	Warwick House, Brixton Hill.
Cole, A. E.	*d.* Christ's Hospital, Hertford.
Cole, F. M.	Church S., Old Steine, Brighton.
Collins, A.	Linslade House, Crouch End.
Curtis, J. A.	Stanmore House, Weston-s.-Mare.
Fletcher, A. C.	High School for Girls, King's Lynn.
Foulds, M.	The Laurels, Nottingham.
Gibbon, W. M.	Ladies' Collegiate S., Leamington.
Goodrich, W. L.	Christ's Hospital, Hertford.
Gould, M.	High School for Girls, Tisbury.
Grenfell, A. M.	West Cornwall College, Penzance.
Guy, L. M.	Burleigh House, Margate.
Hanson, L.	Girls' Grammar School, Keighley.
Hardy, F.	Sidcot School, Weston-s.-Mare.
Hawker, M.	Seaton House School, Mutley Plain.
Horne, E.	Beaver House, Farnham.
Ingle, M.	11 Tomlin's Grove, Bow Road, E.
Killick, E.	Duncton School House, Petworth.
Le Feuvre, L.	Halcyon House, St. Heliers.
Molloy, H.	Convent of Loreto, Hulme.
Osiski, A. L.	Gloucester House School, Kew.
Pennefather, A. B.	Drayton House School, Richmond.
Penney, F. W.	Victoria Road School, Harborne.
Perry, E.	E. Anglian G's' Col., B'p's. Stortford.
Petley, A. J.	Connaught House S., Attleboro'.
Pollard, M. B.	Licensed Victuallers' School, S.E.
Rogers, M. L.	Christ's Hospital, Hertford.
Sapsford, E.	Bishopsgate Girls' School, E.C.
Silcox, M. L.	Emwell House School, Warminster.
Skey, M. M.	Stella House Coll. S., Cathcart Hill.
Smith, M. E.	Collingwood College, Lee.
Stent, S. M.	1 Carlton Villa, Thornton Heath.
Tangye, E. L.	Southside House, Weston-s.-Mare.
Taylor, E. A.	College House, Hungerford.
Tilly, T.	St. Bee's College, Southsea.
Wells, E. S.	4 Jesmond Rd., Newcastle-on-Tyne.
Williams, S. E.	S.E. District College, Kennington.
Wolstencroft, S. E.	Portland St. Ladies' S., Manchester.
Wooler, M.	St. Winifred's, Clifton.
Ashworth, A.	Parish Church Mid. Cl. S., Leeds.
Beaumont, A.	Oak Hill, Huddersfield.
Boyer, D.	Summerbrook, Reading.
Chapman, E. L.	Royal Masonic Inst., Battersea.
Cruse, J.	St. Bernard's College, Southsea.
Culverhouse, F. L.	Grosvenor College, Bath.
Emerson, J. M.	Princess Helena College, Ealing.
Evans, M. K.	Victoria Road School, Harborne.
Eveling, F. M.	Oakley High Class S., Southsea.
Fenner, M.	Mayfield Lodge, Nottingham.
Fielden, A. M. M.	Longley House Coll. S., Easingwold.
Garnham, C. A. L.	39 Central Hill, Upper Norwood.
Good, M.	Collingwood College, Lee.
Gourley, L.	Salcombe College, Loughton.
Greaves, G. H.	Kidderminster High S. for Girls.
Griffiths, B. A.	Mayo High School, Gray's Inn Rd.
Grigg, B. A.	Anglo-French Coll., Up. Norwood.
Hack, F. E.	Queen's College, Twickenham.
Hall, E. S. J.	Royal Masonic Inst., Battersea.
Harden, F. M.	North Bristol School for Girls.
Hargreaves, C.	Holly Terrace School, Stoneycroft.
Harvey, L. E.	St. Kilda, Reigate.
Henslowe, C. F. M.	Private tuition.
Image, M. D.	The High School, Bury St. Edmunds.
Ireland, K. M.	Malvern House, Reading.
Jennings, J.	78 Guildhall St., Bury St. Edmunds.
Lee, L.	Merton College, Croydon.
Leftwich, E.	Christ's Hospital, Hertford.
Lewis, C. E.	The Ladies' College, Wellington.
Low, M.	The Orchard, Kinburn, Egham.
Lyddon, H. A.	Jersey Ladies' College.
Mendelssohn, E.	Trebovir House S., Earl's Court.
Mesney, A. S.	All Hallows Orph., Ditchingham.
Moore, B. S.	Highleigh House S., St. John's, S.E.
Nicol, A. De L'O.	16 Dalmeny Road, Tufnell Park.
Odell, L.	Wilber House Girls' S., Biggleswade.
Paige, B.	Ladies' College, Ilfracombe.
Parker, M. L.	Llandaff House, Norwich.
Phillips, M.	Kingsdown High School, Bristol.
Pugh, G. E.	St. Winifred's, Clifton.
Quennell, M.	Grey Coat Hospital, Westminster.
Reader, F.	Salcombe College, Loughton.
Redrup, C. A.	Modena House, Ealing.
Reeves, A.	Albert Villa School, Ramsgate.
Roberton, B. R.	Westbourne House, West Cowes.
Shaw, L. H.	Girls' Grammar School, Halifax.
Sirett, M. R.	Westbourne House, Dudley.
Sotham, A. M.	Halidon House School, Slough.
Taylor, L. G.	Mecklenburg House, Putney.
Thompson, M. A.	N. Yorkshire S., Coatham, Redcar.
Wass, H. S.	High School, Temple House, Hull.
Weekes, H.	Summerland College, Honiton.
Weston, J.	Gresham College, Brixton Road.
Wilkinson, E.	9 The Grove, Clapham Common.
Williams, J. A.	Ellenborough House, Clifton.
Acton, E. M.	Routon Vicarage, Ecclesball.
Andrews, M. A.	Bladen House School. Hove.
Balls, E. H.	Shelley House School, Ongar.
Barter. G. F.	St. Margaret's, Ealing.
Blakeley, M.	Belle Vue House, Holbeach.
Brown A. F.	Twickenham College.
Candler, W.	Holmedune, Blundellsands.
Carter, F. H.	Lowestoft High School for Girls.
Crampton, E. K.	Alexandra College, Shirley.
Deakin, A.	Claremont School, Shrewsbury.
Dowling, B.	London College, Stratford.
Dyson, G. E.	High School for Girls, Hitchin.
Elgood, E. M.	Private tuition.
Garland, M.	Fordington House S., Bournemouth.
Gillett, T.	Buena Vista, Weston-super-Mare.
Hart, M. E.	Kendrick Girl's School, Reading.
Hemsley, H.	Archdale College, Southsea.
Hering, E. E.	Avonbank House, Bath.
Hill, M. E.	Ladies' Collegiate School, Brighton.
Howard, A. G.	Woodside School, Gunnersbury.
Howard, T.	St. Katharine's, Eastbourne.
Laing, L.	Private tuition.
Laird, M. F.	High School, Leytonstone.
Loader, E. A.	Salcombe College, Loughton.
Meader, C. L.	Westbourne House, West Cowes.
Mullins, I. F.	Montague House School, Weymouth.
Naylor, N.	High School for Girls, King's Lynn.
Nicholson, M. N.	Girls' High School, Halifax.
O'Connor, A. M.	The Hollies, Snettisham.
Phillips, C.	Baxterley, Rusthall, Tunb. Wells.
Pitts, W. H.	Private tuition.
Riemasch, H.	Baxterley, Rusthall, Tunb. Wells.
Rowson, A. M.	Private tuition.
Scott, C. A.	4 Reigate Villas, Sutton.
Smith, L. E.	Ladies' S., Cauldon Place, Shelton
Stroud, M. F.	Lystra, Leckhampton, Cheltenham.
Swan, M. D.	Lystra, Leckhampton, Cheltenham.
Targett, E. A.	Downs College, Clapton, E.
Walkey, A.	St. Catherine's, Cardiff.
Wallis, G. W.	High School for Girls, Hornsea.
Watson, I. S.	Vernon, Pembridge Villas, W.
Wilcocks, M. M.	Kingsdown High School, Bristol.
Wordingham, K. M.	Connaught House S., Attleboro'.
Worgan, J.	Ladies' School, Ripley, Derby.
Ames, M. E.	Anstey Villas, Alton, Hants.
Anderson, C. E. M.	Darlington High School.
Ashby, A. M.	Castle Hall School, Northampton.
Austin, E.	Private tuition.
Bartlett, L.	The High School, Tue Brook, L'pool.
Belchamber, E. C.	Belmont, Dover.
Bevan, W. M.	School for Girls, Farnham.
Billing, E. H.	S. Michael's C., Shipton-u.-Wychwd.
Case, K.	Coylton House, Wincanton.
Caven, A.	St. Helier's Coll., Wellingborough.
Chaffer, E.	The Priory School, Thaxted.
Chambers, N.	Parish Church Mid. Cl. S., Leeds.
Clarke, A. C.	Buckland House, Axminster.
Dawson, B. M.	Eversley House School, Bognor.
Deacon, B.	11 Stopford Place, Stoke, Devonpt.
Deed, R. E.	North London Coll. S. for Girls.
Dehoninck, V. T.	Grey Coat Hospital, Westminster.
Démarest, R. J.	Cambridge House, Guildford.
Dickinson, E. G.	Anglesea Villa S., Walton, L'pool.
Dimmock, G. E.	Maida Vale College, W.
Duncan, E.	Montague House S., Weymouth.
Etheridge, E. M.	Portway College, Reading.
Hodgson, M.	Girls' Grammar School, Dewsbury.
Jakeman, A. E.	Howard College, Bedford.
Jardine, C. E.	Sydenham College for Ladies, S.E.
Jones, G.	Harrow House High S., Cardiff.
Jones, S.	The Ladies' College, Wellington.
Knowles, E. M.	Ivy House School, Trentham.
Le Mare, A.	Walthamstow Hall, Sevenoaks.
Lomas, L.	Warden Court School, Cuckfield.
Lowe, R. R.	The Orme Girls' S., N'castle, Staffs.
Miller, M. M.	Girls' Grammar School, Keighley.
Morris, A.	Westwood Coll. S., Scarborough.
Nagle, E. A.	Belgrave Collegiate School, S.W.
Naylor, L. M.	Longley House Coll. S., Easingwold.
O'Leary, E.	Stanmore House, Weston.s.-Mare.
Perry, A. M.	The Wolverhampton High School.
Phenix, R. M.	Grey Coat Hospital, Westminster.
Plant, M.	Merevale House, Newport, Salop.
Redrup, G. M.	Modena House, Ealing.
Robarts, C.	Wilber House Girls' S., Biggleswade.
Robertshaw, C. S.	Girls' Grammar School, Bingley.
Ryall, G. M.	Devonia House, Exeter.
Seale, M. A.	Westbourne House, West Cowes.

GIRLS, THIRD CLASS—*Continued.*

Summers, R. M.	Maria Grey School, Fitzroy Square.
Tiptaft, L. A.	Rutland House School, Stamford.
Varcoe, J.	17 Tavistock Place, Plymouth.
Warcus, A. G.	Elm View, Cotham, Bristol.
Watson, F. M.	Lady Holles's School, Hackney.
West, G. O. H.	St. Anne's High School for Girls.
White, A.	Summerbrook, Reading.
Williams, E.	Harrow House High School, Cardiff.
Woods, A. M.	26 Ashley Road, Hornsey Rise.

THIRD CLASS.—2ND DIVISION.

Ashton, A.	Claremont House, Waterloo, L'pool.
Austin, L.	Merton College, Croydon.
Barratt, F. E.	Princess Helena College, Ealing.
Bellamy, A. C. M.	St. Winifred's, Clifton.
Bird, M. A. F.	Queenswood, Clapham Park.
Bontflower, J. W.	Cambridge House, Clifton, York.
Coatts, A. E.	Catford Collegiate S., Lewisham.
Collumbell, A. E.	Belmont House, Derby.
Cross, M.	Private tuition.
Cruickshank, S. E.	Field House, Heaton Chapel.
Denham, A. E.	Westbourne House, West Cowes.
Denham, F. H.	Beaulieu H., Sandown, I. of Wight.
Dobbin, M. C.	Hughenden Hall, Wimborne.
Easton, J.	Sydenham College for Ladies, S.E.
Elliott, W. A.	Private tuition.
Evans, G.	Welsh Girls' School, Ashford.
Everard, E.	Girls' School, Ashby-de-la-Zouch.
Feltrup, E.	208 Brook Hill, Sheffield.
Fisher, L. B.	Oak Hill, Huddersfield.
Gaught, E.	Northbury Ho., Bury-St.-Edmunds.
Gibbons, A. M.	Maida Vale College, W.
Gibson, A. E. W.	Handley House, Newark-on-Trent.
Giles, E. M.	Grosvenor College, Bath.
Grace, M.	Collingwood College, Lee.
Greenwood, N.	Merton College, Croydon.
Hearder, I. A.	Private tuition.
Heathcote, A.	Avonbank House, Bath.
Hill, E. M.	Manadon Villa School, Plymouth.
Hurst, E. F.	Girls' Collegiate School, Louth.
Jourdain, V. E.	Eagle College, Hornsey.
Kerley, A.	16 Gascoyne Terrace, Plymouth.
King, L. L. S.	Oakley High Class S., Southsea.
Lewis, A.	Belle Vue House, Swansea.
Lucas, R. M.	Private tuition.
Mather, C.	Hamilton House, Holloway.
Maxwell, N. M.	Langholm, Guildford.
Nice, H.	78 Guildhall St., Bury-St.-Edmunds.
Nicholson, E.	The High School, Altrincham.
Payne, E.	Grey Coat Hospital, Westminster.
Riley, A.	Sunny Bank, Bolton.
Round, B. A.	Handsworth Ladies' College.
Sell, K. E.	Sales House, Shepton Mallet.
Shaw, E. H.	Private tuition.
Silverthorne, E. M.	Christ's Hospital, Hertford.
Smith, R.	City of Durham School for Girls.
Snelgar, E.	Emwell House School, Warminster.
St. John, M.	Private tuition.
Stretton, F. E.	Holdstock Coll., Up. Holloway.
Turner, J. M.	Ladies' Coll., Little Queen St., W.C.
Vaughan, E.	Cambridge Academy, Liverpool.
Wells, B. E.	Cotterwolds, Thornton Heath.
Wickham, A. G.	Cross Hayes House, Malmesbury.
Wilkes, L. D.	Salcombe College, Loughton.
Williams, E. F.	Longford Girls' School, Bristol.
Barber, F. M.	Girls' High School, Halifax.
Barrow, E.	Summerbrook, Reading.
Barwick, A. E.	Carisbrook House, Twickenham Pk.
Bate, M.	Castle Buildings, Oswestry.
Bill, A. H.	Cliff Park High School, Southend.
Board, M. E.	Duncan House, Clifton.
Brierly, C.	Park House School, Manchester.
Chapman, K. M.	High School, Bournemouth.
Chaudet, F.	Bishopsgate Girls' School, E.C.
Claxon, M.	Mansfield House, Colchester.
Constable, E. A.	Warwick House, Brixton Hill.
Corkill, N.	Cleveland, Douglas, Isle of Man.
Crofts, F. C.	The Woodroughs, Moseley.
Croot, E.	Grosvenor College, Bath.
Danby, E.	Private tuition.
Davies, B. L.	Cambridge House, St. John's, S.E.
Donnehy, E. C.	Christ's Hospital, Hertford.
Drew, E. L.	Grove Park College, Lee, S.E.
Eaton, C. S.	The Old Court, Cirencester.
Edwards, L. S.	Burlington Mid. Class Girls' S., W.
Grey, E. N.	High School, Bournemouth.
Harding, L. B.	Torquay High School for Girls.
Henwood, A. M.	High School, Temple House, Hull.
Kemp, M.	Ripley House, Bury-St.-Edmunds.
Kidd, B. D.	College House, Hungerford.
MacGregor, E.	Mushull House, Beckenham.
Madgett, L.	Collingwood College, Lee.
Marks, N.	Fairfield House, Watford.
Moore, K.	Mansfield House, Colchester.
Morris, F. L. H.	High School, West Bromwich.
Morris, S. L.	Camden School for Girls.
Musgrove, E.	High School for Girls, Sidcup.
Newton, E.	Park House School, Teddington.
Page, A. C.	Lady Holles's School, Hackney.
Peddar, J. E.	Private tuition.
Phillips, M.	St. Winifred's, Southampton.
Pool, S. W.	33 Kremlin Drive, Stoneycroft.
Rawlings, N.	Highleigh Ho. S., St. John's, S.E.
Shotter, E.	9 The Grove, Clapham Common.
Smith, E. L.	Huckland House, Axminster.
Solomons, D.	Jewish High S. for Girls, W.C.
Stevens, F. M.	Stoke Newington High School, N.
Thomas, F. A. A. V.	Queen's Coll., W. Kensington Pk.
Thomas, H. E.	Deighton Villa School, Didsbury.
Vinall, E. D.	Glenholm Girls' S., Burgess Hill.
Walford, M.	Collingwood College, Lee.
Ward, G.	Brookside School, Darlington.
Warne, A. M.	Mornington Ho. Coll., Clapham Rd.
Wright, E. J.	The High School, Walsall.
Andrews, M. E. E.	Lewisham College, Lewisham.
Bance, E.	Southampton Girls' Coll. & High S.
Barham, A. H. E. E.	Hill House Coll., Haverfordwest.
Bell, A.	Brunshaw Seminary, Burnley.
Boissy, S.	Convent of Mercy, Chelsea.
Booth, A.	Collingwood College, Lee.
Bradley, N.	Diocesan High School, Derby.
Caudwell, L. C.	Mecklenburg House, Putney.
Clinton, M. E.	Grey Coat Hospital, Westminster.
Cooper, E. I.	Linden Hall, Clapham Road.
Cope, F.	Queenswood, Clapham Park.
Criddle, E. B.	St. Mildred's, W. Cromwell Rd., S.W.
Duncan, F. M. I.	St. John's House, South Shields.
Engert, E. V.	Camden School for Girls.
Forrest, C. B.	Highgate College, N.
Forster, C.	Royal School, Lansdown, Bath.
Foster, T. B.	Devonshire House S., Carlisle.
Goulburn, B.	Henry Street School, Bolton.
Graham, G. F.	The Wolverhampton High School.
Griggs, M.	Salcombe College, Loughton.
Hack, G. E.	Queen's College, Twickenham.
Hammond, M.	Belmont House, Leicester.
Hibberd, F. J.	Endsleigh Ho. S., Endsleigh Gdns.
Hilder, I. W.	Cambridge House, Guildford.
Isaacson, M. St. Q.	Northcote, the Heath, Hampstead.
Johnson, K.	Collingwood College, Lee.
Jones, E. C.	Private tuition.
Keall, A. E.	2 Oxford Park, Ilfracombe.
Latchmore, M. K.	Sidcot School, Weston-s.-Mare.
Leake, A.	Clevedon School, Northampton.
Levask, E. B.	Claremont Ho., Waterloo, L'pool.
Moore, M.	St. John's Middle S., Kennington.
Mulligan, K.	Ellenborough House, Clifton.
Neville, E.	Private tuition.
Oates, G.	Coopers' Girls' School, Bow, E.
Panton, M. E.	Southolme High S., Whalley Range.
Parker, C. J.	Malvern House, Blockley.
Pearce, A. M.	Welbeck House, Lewisham, S.E.
Phelp, S. D.	St. Mildred's, W. Cromwell Rd., S.W.
Porter, A.	Eversley House School, Bognor.
Ranson, G.	Merton College, Croydon.
Ruffle, M. H.	Wellington College, Hastings.
Seamons, G. M.	Leybourne House S., Aylesbury.
Snellgrove, G.	Fern Bank, Wandsworth Common.
Solomon, M.	Carleton College, Tufnell Park.
Story, I.	Wellington College, Hastings.
Swann, G. M.	High School for Girls, King's Lynn.
Theyer, E.	Tewkesbury High School.
Thompson, E. E.	Surrey House School, Norwich.
Unwin, M. W.	Private tuition.
Warren, M. S.	Queen Anne's College, Southend.
Williams, E. G.	St. Catherine's, Cardiff.
Wright, J.	St. Helier's Coll., Wellingborough.
York, M.	The Ladies' College, Wellington.
Allwood, E. A.	Haberdashers' Girls' S., Hoxton.
Barnsdale, M.	Montague House S., Weymouth.
Bingley, E. R.	Claremont School, Shrewsbury.
Bomford, E. M.	Court House School, Atch Lench.
Bonner, S.	Malvern House School, Southport.
Borrett, A. M.	Norfolk House, Romford.
Bowker, H.	88 Bloomsbury, Manchester.
Buckley, E. M.	Ellerslie House School, Hull.
Catlow, M.	Girls' Collegiate High S., Lytham.
Claxton, K. E.	36 Albany Street, Hull.
Conery, G.	Convent of Loreto, Hulme.
Dawbarn, B. M.	Salcombe College, Loughton.
Eagles, M. A.	3 Portland Place, Newbury.
Egerton, E.	Duncan House, Clifton.
Fisher, A.	High School, West Bromwich.
Fisher, E.	Glenholm Girls' S., Burgess Hill.
Fordham, H.	Howard College, Bedford.
Freeman, J.	Ladies' S., Cauldon Place, Shelton.
Grey, J. McC.	Elm View., Cotham, Bristol.
Harris, J. M.	Private tuition.
Hawkins, M. S.	Grosvenor College, Bath.
Hunt, F. E.	Southside House, Weston-s.-Mare.
Jackson, M.	Royal School, Lansdown, Bath.
James, E. L.	Bellevue, Brinstead; W. Ryde.
Kay, B. B.	Holly Terrace School, Stoneycroft.
Keene, E.	Burlton House, Reading,
Kershaw, G. B.	The Church High S., Colchester.
Lever, M. E.	The Elms, Stony Stratford.
Maxey, L. J.	Grey Coat Hospital, Westminster.
Older, F.	Hamilton House, Holloway.
Pickin, F. J.	Park School, Higher Broughton.
Pitts, H. G.	High School, Bournemouth.
Richards, M.	Collingwood College, Lee.
Richardson, A. K.	Licensed Victuallers' School, S.E.
Robin, M. S. A.	Kenmendine House, Shrewsbury.
Robinson, M. D.	3 Portland Place, Newbury.
Skelt, L. N.	Coopers' Girls' School. Bow, E.
Smith, A. H.	Camden School for Girls.
Smith, L. M.	Margate Ladies' College.
Stapley, F. E.	Cambridge House, Guildford.
Stokes, K.	Royal Masonic Inst., Battersea.
Sturge, V. M.	Sidcot School, Weston-s.-Mare.
Thomas, M. A.	Grosvenor College, Bath.
Vincent, M.	Connaught House S., Attleboro'.
Walker, E.	Girls' Grammar School, Dewsbury.
Warlow, B. P.	Royal School, Lansdown, Bath.
Watson, F.	High School, Herne Bay.
Whitty, A. E.	Christ's Hospital, Hertford.
Winship, E. M.	St. Winifred's, Southampton.
Allan, A. H.	83 Brodrick Terr., South Shields.
Allen, L.	Neotsbury School, Scarborough.
Allford, L.	Stanmore House, Weston-s.-Mare.
Baker, L. W.	Stanmore House, Weston-s.-Mare.
Bound, G. K.	Highgate College, N.
Bowen, K. E.	Moseley High School for Girls.
Brown, F. E.	Leighton College, Birkdale.
Brownscombe, E.	Private tuition.
Burrough, E.	Merton College, Croydon.
Clarke, L. E. M.	Westhill, Brackley.
Clifford, A. G.	33 Sion Hill, Bath.
Cross, E. W.	Ladies' College, Ashton-on-Mersey.
Davy, L.	Dore & Totley High S., Sheffield.
Dore, L. E.	Girton House, Brentford.
Driver-Holloway, L. A.	Minshull House, Beckenham.
Dyson, E.	St. Helier's Coll., Wellingborough.
Edwards, S. J.	St. Catherine's, Cardiff.
Finch, R.	Collingwood College, Lee.
Gould, A. S.	Hamilton House, Holloway.
Haynes, E. M.	Dorchester House, Clacton-on-Sea.
Heydon, A. E.	44 Shakespeare St., Nottingham.
Holden, F. H.	Cambridge House, Guildford.
Howard, E. G.	Girls' Day School, Dartmouth.
Jackson, C. E.	Ashleigh House, Newbury.
Jennings, E. M.	22 Hatter St., Bury St. Edmunds.
Macey, B.	St. Winifred's, Southampton.
Maidment, J. M.	Grosvenor College, Bath.
Mann, E. B.	The Crescent School, Norwich.
Marriage, C.	Southside House, Weston-s.-Mare.
Moody, N.	2 Victory Terr., Coatham, Redcar.
Mumby, A. M. E.	Hamilton House, Holloway.
Norman, H.	Down End, Clifton.
North, M. A.	Lady Holles's School, Hackney.
Peck, E.	Mansfield House, Colchester.
Russell, H.	Thornbeck House, Darlington.
Saunders, T. M.	Kingsdown High School, Bristol.
Smith, K.	West House High S., Forest Hill, S.E.
Smithson, M.	Collingwood College, Lee.
Stevens, F. A.	Walthamstow Hall, Sevenoaks.
Thompson, A.	Leighton College, Birkdale.
Thompson, U. O.	Ellenborough House, Cheltenham.
Tolson, E.	Huntcliffe House, Harrogate.
Twemlow, E. E.	Park School, Higher Broughton.
Vincent, M.	Summerbrook, Reading.
Wakefield, A.	Merton College, Croydon.
Webb, E. M.	St. Elmo, Bradford-on-Avon.
Wenn, L. M.	Mayall College, Brixton.
Woods, B. A.	26 Ashley Road, Hornsey Rise.
Wright, L. E.	Stanley House S., Stockton-on-Tees.
Allan, M.	Russell House, Plymouth.
Babb, B. M.	Educational Home, Plymouth.
Bailey, A. M.	Emwell House S., Warminster.
Baker, L. J.	Private tuition.
Bance, F.	Southampton Girls' Coll. & High S.
Barnard, M. F.	9 Kingsgate Street, Winchester.
Beeston, A. M.	Private tuition.
Betts, M.	The Gables, Coventry.
Butt, L. E.	Howard College, Bedford.
Candlin, H.	The Ladies' College, Wellington.
Carlile, A. G.	Private tuition.
Cole, K. M.	76 The Mall, Newport, I. of Wight.
Daunton, M. I.	Grosvenor College, Bath.
Davies, C. W.	Kendrick Girls' School, Reading.
Deller, E.	Ashcroft, Staines.
Dunglinson, C. I.	Girls' High School, Folkestone.
Dyson, F. E.	High School, Farnworth.
Earnshaw, H.	Eton House School, Sheffield.
Everett, K.	St. Elmo, Bradford-on-Avon.
Finch, A. M.	21 Home Pk. Villas, Stoke, Devonport
Flint, E.	1 Clyde Terrace, Hull.
Fullwood, E. M.	Proprietary School, Dudley.
Gammell, E. M.	Camden School for Girls.
Godet, E. B. A.	Caerleon Ho. High S., Aberystwith.
Greenleaf, R.	43 Upper Tollington Park, N.
Griffiths, F. S.	Private tuition.
Hankes, H. C.	Clarence House, Filey.
Harris, S. C.	Weirfield School, Taunton.
Hawes, M.	Carlton House, St. John's Wood.
Hawkes, M. E.	Queen Anne's College, Southend.
Helyar, L. N.	Private tuition.
Hill, A. E.	Grosvenor College, Bath.
Holmes, E.	Girls' Grammar School, Bingley.
Hooper, A. A.	Brean Down House, Burnham.
Hunt, H.	Grey Coat Hospital, Westminster.
Jarvis, H. E.	Coopers' Girls' School, Bow, E.
Kaye, P.	The College, Huddersfield.
Lamont, A. M.	The Orme Girls' S., Newcastle, Staffs.
Lawes, A. M.	9 Royal Terrace, Northampton.
Lee, F.	Harley House, Hereford.
Leutner, G.	Queen's College, Haverstock Hill.
Lidbetter, C.	Ladies' College, Water Orton.
Marshall, C. E.	Lady Holles's School, Hackney.
Minific, N. K.	Stanmore House, Weston-s.-Mare.
Montague, A. M.	Kendrick Girls' School, Reading.
Moore, C. M.	Camden School for Girls.
Morley, E.	63 Kensington Gardens Square, W.
Paull, E. K.	Stoke Newington High School, N.
Porter, K. R.	Blandford Girls' School, Dorset.
Pullin, M.	Emwell House School, Warminster.
Routley, M. K.	Queen's College, Acton.
Rowe, A.	Redbrooke School, Camborne.
Sedgwick, M.	The College, Huddersfield.
Swaine, M. E.	Christ's Hospital, Hertford.
Thomas, E.	Warlaby House School, Lee, S.E.
Tomkins, M.	Melbourne Coll., Thornton Heath.
Townsend, B.	Margate Ladies' College.
Waring, L. F. M.	Ellesmere College, Sydenham.
Wheeler, H. F.	Lansdowne College, Notting Hill.
Barnard, A.	Buena Vista, Weston-s.-Mare.
Bellville, M.	Byculla, Southsea.
Betty, E. M. B.	North Bristol School for Girls.
Blake, S.	Sidcot School, Weston-s.-Mare.
Blyth, M. A.	Surrey House School, Norwich.
Bott, M. M.	S. E. District College, Kennington.
Briggs, K.	Girls' Collegiate High S., Lytham.
Britcher, A.	6 Reigate Villas, Sutton.
Brooks, E. S.	Ladies' Coll., Little Queen St., W.C.
Brown, E. V.	Gresham College, Brixton Road.
Cook, L. E.	Lady Holles's School, Hackney.
Crawford, G. R.	Longley House Coll. S., Easingwold.
Cunliffe, A.	Sunny Bank, Wilmslow.

GIRLS, THIRD CLASS.—*Continued.*

Davis, K.	Collingwood College, Lee.
Dickinson, M.	Byculla, Southsea.
Dreyfus, A. C.	Camden School for Girls.
Fenton, B.	Ladies' Coll.& High S.,Leamington.
Fletcher, E.	Handley House, Newark-on-Trent.
Foad, F. A.	Girls' High School, Folkestone.
Gamon, J. R.	Cambridge Lodge, Eastbourne.
Hallett, E. F.	Buckland House, Axminster.
Harris, S.	Ladies' School, Conway.
Hope, E.	Sandholme, Oxton, Cheshire.
Hunter, L.	Highfield, Harrogate.
Hurst, O. A.	Royal Masonic Inst., Battersea.
Inman, A.	Eton House School, Sheffield.
Kearsay, A. E.	Christ's Hospital, Hertford.
Kilvington, M.	2 Victory Terr., Coatham, Redcar.
Kitto, L. S. F.	Abney Park College, N.
Leete, M.	St. Helier's Coll., Wellingborough.
Lewis, F.	Henley House, Penarth.
Lishman, E.	6 Cleveland Terrace, Darlington.
Lovell, F. H.	North Bristol School for Girls.
Mempes, M.	Lowestoft High School for Girls.
Mills, H. K.	Private tuition.
Montague, K.	NorthHouseColl.,StokeNewington.
Moon, E. J.	Ilfracombe Grammar School.
Pegler, V.	St.Michael'sColl.,Shipton-u-Wychwood.
Pilcher, O. E.	E. Southsea Collegiate School.
Robinson, A. R.	Belmont House, Derby.
Robinson, F. P.	Eden Lodge, Handsworth.
Robson, M. J.	22 Victoria Terr. South Shields.
Rogers, G.	Belle Vue House, Swansea.
Russell, A. F.	Grey Coat Hospital, Westminster.
Sanderson, A. E.	Princess Helena College, Ealing.
Sennett, A. E.	Grey Coat Hospital, Westminster.
Shaw, K.	Redbrooke School, Camborne.
Shrimpton, E.	St. Helier's College, Shifnal.
Sillito, E.	Richmond House, Penkhull.
Skipworth, A. P.	Princess Helena College, Ealing.
Smith, F.	Welland Hall, Spalding.
Steele, M. E.	Westbourne Ho. S., Southampton.
Stone, C.	Southampton Girls' Coll. & High S.
Stone, E.	Warwick House, Brixton Hill.
Swaine, M.	West Cornwall College, Penzance.
Taylor, N.	9 The Grove, Clapham Common.
Taylor, R. K.	The Grange School, Buxton.
Tompsett, E. A.	The Elms, Crewkerne.
Warren, L.	Grey Coat Hospital, Westminster.
Waters, H. P.	Westhill, Brackley.
Wilkinson, D.	Mecklenburg House, Putney
Woosey, J. M.	St. Catherine's, Cardiff.
Young, C.	Heathfield, King's Heath, B'ham.
Almond, E. E.	Educational Home, Plymouth.
Andrews, M.	Court House School, Atch Lench.
Atkinson, M.	Private tuition.
Baker, M. L.	Woodstock School, Windsor.
Barber, A.	Lytham Ho. S., Newton Heath.
Beard, L.	Grey Coat Hospital, Westminster.
Belfield, L.	Norwood House, Liverpool.
Broadhurst, F. L.	Caerleon Ho. High S., Aberystwith.
Bygrave, E. K.	Cambridge House, Guildford.
Champion, E.	Ashton Girls High S., Altrincham.
Cookes, E. E. J.	Bridge St., School, Knighton.
Corbin, N. C.	Caerbrok, Brixton Hill.
Croggon, M. C. A.	Park School, Higher Broughton.
De Gruchy, A. E.	Leda House School, Jersey.
Dickinson, M. R.	Chestnut House, Lincoln.
Dodgson, J. M.	Derwent House, Cockermouth.
Dudgeon, E. M.	Everard House S., King's Lynn.
Flinn, C. M.	Elmdon School, Coventry.
Gibbs, A. E.	Strathwillan H.,CommercialRd.,E.
Gilbanks, L. M. M.	Sydenham Coll. for Ladies, S.E.
Hancock, C. A.	Claremont School, Shrewsbury.
Higgins, F.	Buena Vista, Weston-s.-Mare.
Hope, E. O.	Summerhill House, Litherland.
Horsey, L. M.	Fairfield House, Watford.
Latham, K.	Down End, Clifton.
Le Gros, L. M.	Villa Nuova, Beaumont, Jersey.
Lessey, E.	86 Ladbroke Grove Road, W.
Manson, C.	Lady Holles's School, Hackney.
Neill, M. E.	MeadowlandsHighS.,Ashton-on-Mers.
Paget, M. S.	Carlsruhe College, Crouch Hill.
Penyon, B.	Collingwood College, Lee.
Quick, E. A.	Longford Girls' School, Bristol.
Reade, M. V.	Kenhurst, Hampstead.
Reid, R. M.	Private study.
Reynolds, E.	Montague House S., Weymouth.
Richardson, E.	Diocesan High School, Derby.
Rigg, M.	Montrose House, Eastbourne.
Robbins, B.	Salcombe College, Loughton.
Ryan, S	MeadowlandsHighS.,Ashton-on-Mers.
Sheppard, A.	Bournemouth Collegiate School.
Slack, B.	St. Anne's High School for Girls.
Southgate, S.	Merton College, Croydon.
Stephen, A.	Crouch Hill High School for Girls.
Stockman, J. E.	High School, Newton Abbot.
Strange, L. M.	Knightsville, Lewisham High Rd.
Stuttard, G. A.	Glengarry, Birkdale.
Sullivan, K. M.	*d.* Ribblesdale College, Hastings.
Tapscott, M. E.	Elm View, Cotham, Bristol.
Tasker, G.	Merton College, Croydon.
Troake, E. M.	Girls' Middle School, Tiverton.
Truscott, K. M.	Lady Holles's School, Hackney.
Tudor, E.	Westwood Coll. S., Scarborough.
Utton, E.	Bishopsgate Girls' School, E.C.
Ward, B.	St. Agnes' School, East Grinstead.
Watson, A. M.	21 Home Pk.Villas,Stoke, Devonpt.
Welch, G. H.	Stoke Newington High School, N.
Wells, E.	4 Jesmond Rd., Newcastle-on-Tyne.
Whistler, E. M.	3 Portland Place, Newbury.
Williams, L.	Kingsdown High School, Bristol.
Wright, E. E.	Welbeck House, Lewisham, S.E.
Wycherley, K. A.	The Ladies' College, Wellington.
Wykesmith, G.	Ormond House, Paignton.
Yates, K.	Haddo House School, Scarborough.
Yates, L. M.	Glyn Lodge S., Stoke Newington.
Yates, M. A.	Cambridge House School, Derby.
Yeomans, F.	High School, Brierley Hill.
Youngman, J.	Lady Holles's School, Hackney.
Abbott, M. J.	Connaught House S., Attleboro.
Attwater, F.	Merton College, Croydon.
Bagshaw, A.	Belmont House, Norwich.
Barrow, E.	Buena Vista, Weston-s.-Mare.
Bonham, E. M.	Queenswood, Clapham Park.
Botterill, G.	St. John's High S., Foxley Rd.,S.W.
Bridger, N. F.	Kenhurst, Hampstead.
Bury, M. M. L.	Mount Devon Lodge, Scarborough.
Clapham, E. M.	Coll. and Tech. S. Crouch Hill.
Clendon, M. E.	Leyland House, Lee, S.E.
Cook, A. E.	7 Clarendon Street, Hull.
Danks, G. A.	The Gables, Coventry.
Daviniere, M. J.	Birklands, Holland Park Gardens.
Embry, F. M.	Villendra, St. Weonards, Ross.
Evans, M.	Harrow House High S., Cardiff.
Fleming, D.	Victoria S. for Girls, Gospel Oak.
Foulds, M.	Girls' Grammar School, Bingley.
Galbraith, E. C.	Church Street School, Ellesmere.
Garthwaite, E.	Glanaguile H., Coatham, Redcar.
Habbershaw, S.	47 Springbank, Hull.
Hardy, H.	MeadowlandsHighS., Ashton-on-Mers.
Hayward, B.	South London Coll., Brixton Road.
Hill, E. M.	Park House, Lee, S.E.
Hiscocks, E. E.	Burlington Mid. Cl. Girls' S., W.
Jenkins, A. B.	St. Helier's College, Shifnal.
John, A.	Vartey House School, Penarth.
Jones, J. E.	Welsh Girls' School, Ashford.
King, L.	78 GuildhallSt.,BurySt.Edmund's.
Marden, C. S.	Harcourt Lodge, Anerley.
Miller, B. A.	Lady Holles's School, Hackney.
Morier, J.	Queen's Coll., W. Kensington Park.
Morris, R.	Mornington Ho. Coll., Clapham Rd.
Parsons, E. M.	Longford Girls' School, Bristol.
Peet, E. G.	Cambridge House School, Derby.
Pinnock, H. G.	Hamilton House, Holloway.
Porter, M. E.	Hartfell College, Southport.
Pyle, E. F.	Buxton Collegiate S., Kennington.
Rastall, F. M.	Margate Ladies' College.
Rees, M. E.	Queen's College, Haverstock Hill.
Roberts, E. M.	London College, Stratford.
Robins, B.	Camden School for Girls.
Salkind, M. M.	Belmont House, Norwich.
Savery, E. M.	St. John's Colleges, Brixton.
Shaw, M.	Lady Holles's School, Hackney.
Shipman, J. M.	Ladies' Coll. School, Aberystwith.
Smith, A.	Richmond House, Lee, S.E.
Swindell, W. F. R.	27 Vernon Terrace, Brighton.
Todd, A. M.	Devonshire House School, Carlisle.
Vigeon, G.	Buxton Collegiate S., Kennington.
Vinall, G. S.	Glenholm Girls' S., Burgess Hill.
Ward, E. C.	Malvern House, Reading.
Warren, M.	Girls' School, Totnes.
Westcott, E. M.	Kidderminster High S. for Girls.
White, L.	Byculla, Southsea.
Widdows, M. E.	Elmhurst, Rock Ferry.
Williams, K. E.	Malvern House, Reading.
Wilson, M. L.	S.E. District College, Kennington.
Witham, A. M.	Warwick House S., Littlehampton
Wotton, M. F.	Royal Masonic Inst., Battersea.
Wykes, B.	Rose Cottage, Daventry.
Adams, A.	High School, Newton Abbot.
Adkins, A. F.	Howard College, Bedford.
Airey, K.	Summerland College, Honiton.
Allison, S. C.	Christ's Hospital, Hertford.
Batty, E.	Longley House Coll.S.,Easingwold.
Beech, B. A.	278Gt.CheethamSt.,Hr.Broughton.
Bennett, M. E.	Kidderminster High S. for Girls.
Box, M.	Oaklands, West Hampstead.
Brown, E.	St. Anne's High School for Girls.
Cawley, S. K.	Claremont House,Waterloo,L'pool.
Cullum, A. H.	Broomfield School, Kew.
Curwen, W.	Sandholme, Oxton, Cheshire.
Davis, B. A.	Christ's Hospital, Hertford.
Dennis, C. A.	North Bristol School for Girls.
Elkes, M.	Merevale House, Newport, Salop.
Elliss, L.	Elm Lodge, Leytonstone.
Eshelby, E. M.	Bank House School, Seaforth.
Feilmann, A. R.	Western House S., Nottingham.
Friend, M. E.	St. Kilda, Reigate.
Gargan, A.	Convent of Loreto, Hulme.
Gilkes, E. L.	Leybourne House S., Aylesbury.
Grant, E.	Glebe Place S., Stoke Newington.
Grime, N.	25 Rhodes St., Halifax.
Hall, L. M.	Western House S., Nottingham.
Hitch, M. S.	Mornington Ho. Coll., ClaphamRd.
Holloway, L.	St. Andrew's House, Hove.
Horsley, A.	6 Cleveland Terrace, Darlington.
Horton, M. E.	High School, West Bromwich.
Howard, J. M.	Vale House, Whalley, Lanc.
Isted, A M.	Alexandra College, Shirley.
Kensey, M. A.	Licensed Victuallers' School, S.E.
Kirkman, M. H.	Morningside College, Hastings.
Laury, H. A.	West Cornwall College, Penzance.
Maiben, C.	Colebrooke House, Islington.
Makin, G.	St. Anne's High School for Girls.
Mears, H.	Girls' Collegiate School, Louth.
Miller, J. O.	Ladies' Coll. School, Aberystwith.
Moore, E. G.	Modena House, Ealing.
Needham, F. G.	Private tuition.
Oakley, K.	Camden School for Girls.
O'Neil, F.	Convent of Loreto, Hulme.
Page, F. C.	Townley House, Ramsgate.
Prior, M.	Cumberland Lodge, Croydon.
Rathborn, L. E.	St. John's Colleges, Brixton.
Reeve, E.	Cliff Park High School, Southend.
Reichardt, L. M.	Lulworth Lodge, Birkdale.
Salmon, F. A.	Lady Holles's School, Hackney.
Saut, M. E.	Ladies' S., Cauldon Place, Shelton.
Scott, F. E. I.	Red House School, Barnstaple.
Stockton, L. B.	Duncan House, Clifton.
Surman, E.	101 Manor St., Clapham.
Teagne, L. H.	Redbrooke School, Camborne.
West, A. E.	*d.* Sidcot School, Weston-s.-Mare.
Wheeler, C.	Summerbrook, Reading.
Willett, G. M.	Richmond House, Lee, S.E.
Williams, K.	Beaumont House, Llanelly.
Wood, K. M.	Parkside House School, Welwyn.
Wran, A. L.	21 HomePk.Villas,Stoke,Devonport
Wright, F. M.	Collingwood College, Lee.
Aldridge, J.	Ladies' Coll. & HighS.,Leamington.
Barber, C.	Carleton College, Tufnell Park.
Birkby, A. J.	Girls' Collegiate High S., Lytham.
Brayne, M. I.	Belgrave Collegiate School, S.W.
Buckley, A.	Ashton Girls' High S., Altrincham.
Buscall, C. A.	Lady Holles's School, Hackney.
Carruthers, E. G.	Royal Masonic Inst., Battersea.
Collinson, C. R.	24 Malvern Road, Leeds.
Cottrell, S.	Ladies' Collegiate S., Worcester.
Crawford, B.	Mecklenburg House, Putney.
Crow, E. M.	Girls' Collegiate School, Louth.
Cule, B.	Harrow House High S., Cardiff.
Dallow, E.	Brooklyn House,Wellington,Salop.
Duncan, R. H.	Private tuition.
Dunderdale, E.	The High School, Altrincham.
George, C. S.	CollegiateSchool for Girls,Norwich.
Glover, M. A.	Victoria House, Upper Tooting.
Graham, I. A.	Gatefield College, Lee, S.E.
Grant, Maude	Abbey House School, Selby.
Griffiths, E. M.	Stella House Coll. S., Cathcart Hill.
Hewson, F. D.	Girls' High School, Folkestone.
Hill, A. K.	Emwell House School,Warminster.
Holton, M.	Huntcliffe House, Harrogate.
Houghton, M. K.	Fern Bank, Wandsworth Common.
Husband, R.	Huntcliffe House, Harrogate.
Ivens, C.	Leigh Bank, Leamington.
Kenny, K. B.	Overton Bank School, Leek.
King, E.	Milford House, Avergavenny.
Komlosy, J. L.	Haberdashers' Girls' S., Hoxton.
Langdale, B.	14 Grosvenor Terrace, Scarborough.
Maden, A.	Glengarry, Birkdale.
Makin, N.	Lyndthorpe, Romford.
Mallandaine, C. B.	The Wolverhampton High School
Marsden, B.	Lansdowne House, Southport.
Marshall, E. M.	North London Coll. S. for Girls.
Marshal, M. D.	6 Orchard Gardens, Teignmouth.
Marson, J. L.	91 Belvedere Road, Walsall.
Martin, A.	Hanover House School, Ryde.
Owen, O. A.	Christ's Hospital, Hertford.
Parker, A.	St.Michael'sC.,Shipton-u.-Wychwd
Peddar, F. M.	Private tuition.
Pryce, E. A. M.	Church Street School, Ellesmere.
Ravenscroft, A. M.	Eagle College, Hornsey.
Robinson, W. D.	Girls' Middle School, Tiverton.
Rush, F. H.	Vernon, Pembridge Villas, W.
Ryan, E. G.	MeadowlandsHighS., Ashton-on-Mers.
Sawbridge, P.	Clevedon School, Northampton.
Stace, F. M.	Westbourne House S., Chiswick.
Strickland, H. M.	Stanley Ho. S., Stockton-on-Tees.
Sumner, E. A.	St. Anne's High School for Girls.
Thurston, E. M.	Eldon House, Stoke Newington.
Vaughan, E. G.	Ormond House, Kensington Park.
Vaughan, W.	22 Victoria Terrace, South Shields.
Walsh, M. E. L'E.	Sutherland House, Gt. Yarmouth.
Weston, A. W.	Malvern House, Blockley.
Wheeler, L. M.	Stoke Newington Middle Class S.
Williams, J. C.	High School, Holyhead.
Winfield, M.	Brunshaw Seminary, Burnley.
Withers, L.	Sunnymeade School, Cheddar.
Young, A.	56 High West Street, Dorchester.
Anderson, E. W.	Wandsworth High School for Girls.
Barber, J.	Bishopsgate Girls' School, E.C.
Barnsley, C.	Proprietary School, Dudley.
Bentley, M.	Eastwood House School, Notts.
Bishop, B. M.	The Laurels, Kensington.
Box, A.	Lancaster Mansion, Margate.
Brice, E. M.	Westbourne House S., Chiswick.
Calvert, E. E.	Western House S., Nottingham.
Cates, F. E. S.	Kingsdown High School, Bristol.
Cook, M. A.	North London Coll. S. for Girls.
Croggon, E. M.	Park School, Higher Broughton.
Cummings, M. E.	16 Gascoyne Terrace, Plymouth.
Curtis, L.	The Grange School, Buxton.
Dade, J.	56 High West Street, Dorchester.
Davis, E.	Girls' Middle Class S. Clevedon.
Dibb, C. I.	The Chestnuts, Craven Park, N.W.
Dickson, I.	Lansdown College, Notting Hill.
Dixon, V. K.	Christ's Hospital, Hertford.
Dunstan, G. K.	Lady Holles's School, Hackney.
Durden, B. K.	Blandford Girls' School, Dorset.
Durston, E. H.	Kingsdown High School, Bristol.
Elgood, K. L.	Private tuition.
Emmott, M.	Girls' Grammar School, Keighley.
Fieldgate, C.	48 North Hill, Colchester.
Genge, T.	High School for Girls, Tisbury.
Godbold, H. G.	Warlaby House School, Lee, S.E.
Graham, A.	Henry Street School, Bolton.
Greene, M. E.	Brighton House, Edgbaston.
Grimmer, G. A.	Collegiate S. for Girls, Norwich.
Grove, E. A. L.	Proprietary School, Dudley.
Hair, A. L.	North London Coll. S. for Girls.
Hellen, G.	The Laurels, Kensington.
Hoad, B.	Oaklands, West Hampstead.
Hobson, J.	Ladies' Coll., Savile Park, Halifax.
Hollingbery, M.	Abbey House School, Selby.
Isaac, M.	Windsor High School, Liverpool.
Jackson, L. M.	Elmswood College, Stretford.
Johnston, E. J.	Devonshire House School, Carlisle.
Johnson, L.	High School, Bournemouth.
Kirkman, E.	Collingwood College, Lee.
Knowles, A.	1 Clyde Terrace, Hull.
Langdon, A. S. M.	Coopers' Girls' School, Bow, E.

GIRLS, THIRD CLASS—*Continued.*

Leigh, L. E.	Elmswood College, Stretford.
Malyon, N.	Ladies S., Norbury, Eastbourne.
Millington, B. H.	Mecklenburg House, Putney.
Nelstrop, C.	Springfield House School, Edgeley.
Norton, B. E.	Sutherland House, Gt. Yarmouth.
Ochsenbein, A. L.	Royal Masonic Inst., Battersea.
Phillips, C. H.	Private tuition.
Pippel, V. L.	4 Charlotte Terrace, South Shields.
Rawnsley, A.	Girls' High School, Halifax.
Salmon, A.	Belle Vue House, Swansea.
Sheringham, H. S.	Eversley House School, Bognor.
Solomon, E.	Carleton College, Tufnell Park.
Spriggs, K. I.	Leigh Bank, Leamington.
Steed, E. M.	Sidcot School, Weston-super-Mare.
Toy, E. M.	Middle Class S., Littlehampton.
Ward, K. E.	Glyn Lodge S., Stoke Newington.
Wheeler, M.	Portland St. Ladies' S., Manchester.
Wills, L. M.	High School, Newton Abbot.
Alford C.	Byculla, Southsea.
Allison, G.	16 Broomgrove, Sheffield.
Basford, L. A.	Derby High School.
Brain, F. E.	Montrose House School, Margate.
Bullen, K. M.	Moseley High School for Girls.
Carter, E. N.	7 Hyde Terrace, Tollington Park.
Champion, E. A.	Larch Mount, Yatton, Somerset.
Christmas, K. A.	Sutherland House, Gt. Yarmouth.
Comerford, J.	Convent of Loreto, Hulme.
Dixon, E.	Mansfield House, Colchester.
Driver-Holloway, F.	M. Minshull House, Beckenham.
Dunlop, C.	Princess Helena College, Ealing.
Edwards, W.	Burlington House School, Clifton.
Forester, M. A.	The Manor House, Ultoxeter.
Forster, H. R.	Prestbury Mansion, Cheltenham.
Frost, C.	Girls' High School, Bridgwater.
Gardner, O. A.	Silverdale, Bootle.
Girton, A. G.	11 Tomlin's Grove, Bow Road, E.
Goddard, K. E.	Grey Coat Hospital, Westminster.
Harris, L. E.	Sutherland House S., Brixton.
Headon, H.	Private tuition.
Hetherington, M. G.	12 Reginald Terrace, Leeds.
Hitchman, E.	14 Green Lane Terrace, Kettering.
Holding, E.	Sydenham College for Ladies, S.E.
Holton, L. S.	Hartland House, Penge.
Jones, I. M.	Sidcot School, Weston-s.-Mare.
Lawford, C.	Twyford Ho., King Henry Rd., N.W.
Lloyd, E.	Lulworth Lodge, Birkdale.
Long, F. S. M.	Christ's Hospital, Hertford.
Marsden, E. M. O.	Elmswood College, Stretford.
Mitchell, E. E.	Licensed Victuallers' School, S.E.
Moore, E. E.	Private tuition.
Mountain, C.	Montpelier Girls' School, Bristol.
Palmer, E. F.	Broomfield School, Kew.
Peacock, K.	Portland St. Ladies' S., Manchester.
Perry, S. E.	Handsworth Ladies' College.
Phillipps, C.	Collingwood College, Lee.
Reavell, A. L.	Woodstock School, Windsor.
Rennick, G. F.	Fairford Villa S., Tunbridge Wells.
Rice, L. M.	Ion House School, East Molesey.
Rigg, B. A.	Summerhill House, Litherland.
Riggall, A. A.	Howard College, Bedford.
Roberts, A. M.	Girls' Grammar School, Keighley.
Robson, B. A.	Bushnell Ho., Stockwell Rd., S.W.
Rosser, E.	Milford House, Abergavenny.
Salmon, M.	Mansfield House, Colchester.
Smith, C.	St. Agnes' School, East Grinstead.
Smith, E. F.	Private tuition.
Soames, M. M. M.	The Grange School, Buxton.
Stewart, A. G.	The Elms, Finchley Road.
Stratton, F. M.	Belmont House, Derby.
Ugarte, M.	Convent of Loreto, Hulme.
Warburton, M. T.	Grove House, Heaton Chapel.
Webb, G. M.	Clarendon House, Kineton.
Wild, M.	Portland St. Ladies' S., Manchester.
Wilkinson, E.	36 Albany Street, Hull.
Wilson, A. J.	Maria Grey School, Fitzroy Square.
Wilson, E.	The Rowans, Watford.
Wilson, E. M.	Welbeck House, Bridlington.
Worsley, E.	Portland St. Ladies' S., Manchester.
Abbott, L.	Dean House, Mitcheldean, Glos.
Andrews, K. A.	Gatefield College, Lee, S.E.
Avery, G. M.	Private tuition.
Baldwin, M. A.	Victoria Road School, Tamworth.
Barlow, H. E.	3 Grove Terrace, Rochdale.
Bartlett, M. L.	Westhill, Brackley.
Bayfield, B. M.	The Hollies, Snettisham.
Bennett, V. H.	Barnet College.
Blakemore, E. L.	Ladies' Collegiate S., Leamington.
Blamires, R.	The College, Huddersfield.
Bullett, F. E.	North London Coll. S. for Girls.
Cook, C.	Sandholme, Oxton, Cheshire.
Davis, G.	Lyndthorpe, Romford.
Davison, M. S.	Stoke Newington Coll., Amhurst Rd.
Dawson, A.	1 Clyde Terrace, Hull.
DeStourdza-Zrinyi, F.	The Ferns, Leamington.
Dransfield, I.	Hanover House School, Ryde.
Dyer, A.	Alstonefield, Ashbourne.
Eva, A.	Redbrooke School, Camborne.
Evans, M. M.	St. Francis Xavier's Conv., Grimsby.
Fenton, E.	Westbourne, Sheffield.
Fergusson, A. M.	High School, Bournemouth.
Fletcher, E.	Cambridge House, Clifton, York.
Griffiths, E.	Sandholme, Oxton, Cheshire.
Harvey, P. M.	Acock's Green Ladies' Coll. S., B'ham.
Hepburn, E. M.	West House High S., Forest Hill, S.E.
Hillyard, S. E.	West End House, Wellingboro'.
Holdsworth, A. E.	Brunshaw Seminary, Burnley.
Hunt, M. H.	Private tuition.
Jago, E. A.	Barnsbury High School for Girls.
Kirby, M.	Middle Street School, Driffield.
Ledsham, E. A.	Norfolk House, Gosport.
Leverington, M.	Camden House, Biggleswade.
Long, M. H. N.	Bath High School.
Makepeace, E.	Merevale House, Newport, Salop.
Martin, W. M.	9 Cambridge Terr., Nunhead Lane.
Martyn, M. C.	Atherfield House, Clifton.
Mitchell, J. F.	Fairfield Head House, Chesterfield.
Murdoch, C. S.	Belmont House, Norwich.
Odell, A. L.	Wilber House Girls' S., Biggleswade.
Parkinson, M. E.	27 Stepney Green, E.
Piercy, A. E.	Moseley High School for Girls.
Power, K.	Trebovir House S., Earls' Court.
Rouse, A. L.	Girls' High School, Halifax.
Ryley, L.	Lady Holles's School, Hackney.
Sargeant, L. M.	1 Carlton Villa, Thornton Heath.
Sheppard, A. M.	High School for Girls, Hitchin.
Sims, E. C.	Rectory Place School, Woolwich.
Smith, M.	Belle Vue House, Swansea.
Spink, M. I.	Camden School for Girls.
Stainton, A.	Sydenham Coll. for Ladies, S.E.
Taylor, M.	St. Agnes' School, E. Grinstead.
Thoresby, H. E.	Sutherland House, Gt. Yarmouth.
Wallwork, M. M. M.	3 Grove Terrace, Rochdale.
Walters, N. L.	Royal Masonic Inst., Battersea.
Wanstall, B.	High School for Girls, Tenterden.
Westgate, E. M.	Norfolk House, Romford.
Woodward, E.	Buckingham Crescent S., M'chester.
Woodward, M.	Royal Masonic Inst., Battersea.
Wynne, J.	Windsor High School, Liverpool.
Barber, B. A.	Clare House School, Northampton.
Baynham, A. C.	Arrow House, Kington.
Blakeway, F. M.	Severn Bank, Shrewsbury.
Boss, E.	Jewish High School for Girls, W.C.
Brightman, M.	Anglo-French Ladies' S., Bristol.
Brittain, A.	City of Durham School for Girls.
Broad, A. E.	17 Tavistock Place, Plymouth.
Brown, I. M.	Pembroke House, Lee, S.E.
Chambers, L.	Archdale College, Southsea.
Cruickshank, C. M.	Eagle College, Hornsey.
Cummins, E. C.	North Bristol School for Girls.
Debnam, B. E.	Manadon Villa School, Plymouth.
Dicken, K. M.	Diocesan High School, Derby.
Dowd, I. M.	Girls' High School, Folkestone.
Eason, M. C.	Sydenham College for Ladies, S.E.
Fletcher, E.	Diocesan High School, Derby.
French, E.	2 Victory Terr., Coatham, Redcar.
Gardner, E. B.	St. John's Coll. S., Stoke Newington.
Giles, A. L.	Kendrick Girls' School, Reading.
Harty, J. E.	Brighthelmston, Birkdale.
Heins, A. M.	Harley House, Hereford.
Heyes, B.	North Ho. Coll., Stoke Newington.
Hiller, A. E.	Margate Ladies' College.
Hiscock, M. L.	E. Southsea Collegiate School.
Hoare, F. E.	Grosvenor College, Bath.
Hobson, F. Y.	St. John's House, South Shields.
James, E. A.	Tamar House S., Stoke Devonport.
Jones, E.	Haddo House S., Scarborough.
Jones, M.	High School, Holyhead.
Kendall, R.	Alton House, Harrogate.
Kershaw, L. E.	Private tuition.
Lord, M. L.	East Sandfield House, Guildford.
MacKay, J.	Lancaster Mansion, Margate.
Mortimer, E.	St. Winifred's, Southampton.
Mullins, I. L.	Montague House S., Weymouth.
Murray, A. M.	Camden School for Girls.
Norman, M. W. M.	Linden Hall, Clapham Road.
Overton, L.	Gresham College, Brixton Road.
Pearse, W. M.	Cambridge House, Chichester.
Phillips, F. A. F.	Stoneygate College, Leicester.
Pollard, F. E.	Private tuition.
Robinson, L. A.	Belmont House, Boston.
Sellers, L.	Salcombe House S., Loughton.
Simmers, I. B.	Aberdeen House, Ramsgate.
Simmonds, E. G.	North London Coll. S. for Girls.
Sirett, M. L.	Westbourne House, Dudley.
Smith, E.	Glan Dyfi House, Wisbech.
Smith, E. A.	Mecklenburg House, Putney.
Tarr, M. E.	Dinmont House School, Kilburn.
Taylor, A. H.	Girls' High School, Halifax.
Walker, M.	South Grove, Rotherham.
Walton, E.	Girls' Grammar School, Halifax.
Ward, B.	Girls' High School, Hastings.
Weatherburn, B. E. K.	North London Coll. S. for Girls.
Wilson, M.	Sydenham Coll. for Ladies, S.E.
Wood, S. S. H.	10 St. Stephen's Cres., Westbourne Pk
Amoore, C.	Townley House, Ramsgate.
Anstwick, D.	Portland St. Ladies' S., Manchester.
Asquith, M. E.	Ladies' Coll., Savile Pk., Halifax.
Barrett, M. P.	Handsworth Ladies' College.
Batchelor, E. F.	St. Bernard's College, Southsea.
Blunt, K.	Girls' Collegiate School, Leicester.
Brightwell, H.	Private tuition.
Campbell, G.	Byculla, Southsea.
Carlyle, J.	Girls' College, Seaseale.
Cary, E. C. G.	The Chestnuts, Craven Pk., N.W.
Collier, E.	Trebovir House S., Earl's Court.
Colson, C. C.	Lewisham College, Lewisham.
Cornwall, L.	Merton College, Croydon.
Edwards, E.	High School for Girls, Tenterden.
Franks, L.	Eastbourne House, Devizes.
Gartrell, L. W.	West Cornwall College, Penzance.
Godfray, A. R.	Jersey Ladies' College.
Knowles, M. J.	Hope House, New Leeds.
Lawley, F.	Charlemont House, W. Bromwich.
Lickfold, E.	Camden School for Girls.
Lidgard, C. B.	Chestnut House, Lincoln.
Locking, M. P.	High School, Temple House, Hull.
McIntyre, M.	Leigh Bank, Leamington.
Musto, E.	Coopers' Girls' School, Bow, E.
Nolan, F.	11 Chelsea Gardens, S.W.
Park, J. M.	Lady Holles's School, Hackney.
Pettitt, A. J.	Woodstock School, Windsor.
Porter, E. M.	26 Ashley Road, Hornsey Rise.
Pring, M. S.	76 The Mall, Newport, I. of Wight.
Read, F. M.	Lady Holles's School, Hackney.
Reckless, M. A.	Northbury Ho., Bury St. Edmunds.
Riches, G. M. A.	Melbourne Coll., Thornton Heath.
Rogers, I. C.	Stoke Newington Mid. Class School.
Smith, C.	Friar House School, Derby.
Smith, C. K. G.	Clarence House, Filey.
Smyth, A.	1 Hurst Villas, Watford.
Spratt, E.	Claremont House, Kilburn.
Stock, M. M.	Highgate College, N.
Storrs, P.	Elmhurst, Rock Ferry.
Strutt, M.	Southampton Girls' Coll. & High S.
Sykes, E. A.	Marlborough House, Sheffield.
Thomas, E. E.	Caerleon Ho. High S., Aberystwith.
Trembath, H. M.	Gresham H., Spring Grove, Islew'th.
Vincent, S. F.	Connaught House S., Attleborough.
Wallis, E. M.	Haberdashers' Girls' S., Hoxton.
Wood, B.	Church S., Old Steine, Brighton.
Aldrich, M.	High School for Girls, Tenterden.
Birtwistle, L. M.	Kidderminster High S. for Girls.
Brickwell, F. L.	Somerville School, Highgate.
Brookes, A. S.	208 Brook Hill, Sheffield.
Burgoyne, A. M.	Waverley College, Strond Green.
Cornish, S. J.	Girls' High School, Bridgwater.
Dawson, A.	Sunny Bank, Bolton.
Durden, L.	Blandford Girls' School, Dorset.
Edwards, E. M.	Red House School, Barnstaple.
Grattan, E. M.	Shelley House School, Ongar.
Hacking, C. M.	Park School, Higher Broughton.
Hall, M. S.	Wear Terrace S., Bishop Auckland.
Hammond, M. E.	Royal Masonic Inst., Battersea.
Harding, E. F.	Broomfield School, Kew.
Heafield, S. E.	Girls' School, Ashby de la Zouch.
Hookins, E.	Carlton House, St. John's Wood.
Hooper, E. E.	Mill Wall House, Sandwich.
Hunt, A.	Courtenay House, Crediton.
Hunter, G.	Merton College, Croydon.
Ingram, L. M.	Minshull House, Beckenham.
Jones, E. E.	57 Ladbroke Grove Road, W.
Jones, E. G.	Ronhilda Ladies' School, Rhyl.
Lee, E. A.	Beech House, Ripley, Derby.
Mabane, A. G.	St. John's House, South Shields.
Major, E. M.	Kingsdown High School, Bristol.
Massey, M. B.	Hope Lea, Heaton Norris.
Mitchell, C.	Buena Vista, Weston-super-Mare.
Morley, H. M.	24 Malvern Road, Leeds.
Mott, E. L. C. M.	Gatefield College, Lee, S.E.
Nellist, A.	Cambridge House, Clifton, York.
Nunneley, E. M.	Stoneygate College, Leicester.
Packham, E.	Howard College, Bedford.
Page, A. D.	Western House S., Nottingham.
Paine, L. K.	3 Marquess Grove, Canonbury.
Parsons, M. J.	Wylde Green S., Birmingham.
Parton, E. M.	Grove College, Betley.
Peacock, J.	Portland St. Ladies' S., Manchester.
Peace, L.	Malvern House, Blockley.
Perrett, M.	2 Duke Street, Bath.
Perrin, E.	Stanmore College, Balham.
Pether, L.	Paignton Modern School, Paignton.
Rawle, M. A.	Sidcot School, Weston-super-Mare.
Ricketts, M.	Brighthelmston, Birkdale.
Robinson, A.	Mansfield House, Colchester.
Robinson, M. J.	Cromer House, Upper Teddington.
Rodgers, F.	Thornpark, Teignmouth.
Rutter, H. M.	Carisbrook House, Twickenham Pk.
Scott, E. R.	Elm Lodge, Leytonstone.
Smith, F.	Byculla, Southsea.
Smith, G. E.	Dalestorth House, Mansfield.
Smith, M. E.	Private tuition.
Stoltenhoff, A. M.	Welbeck House, Lewisham, S.E.
Sweet, O.	Girls' Middle Class S., Clevedon.
Toppin, E. M.	Ellenborough House, Clifton.
Welsford, M.	The High School, Waltham Cross.
Woodhouse, A. I.	Sydenham College, S.E.
Woods, E.	Slepe Hall, St. Ives, Hunts.
Woofenden, H. M.	Girls' Grammar School, Bingley.
Wyatt, L. A.	The Ladies' College, Wellington.
Barker, G.	The Laurels, Nottingham.
Barnes, B. H.	Connaught House S., Attleboro.
Christian, E. M. J.	Girls' College, Seaseale.
Clark, I. L.	The Cross, St. Neots, Hunts.
Coates, E.	Haddo House School, Scarborough.
Cutting, B. M.	High S. for Girls, King's Lynn.
Edwards, F. L.	Shelley House School, Ongar.
Ellis, L. T.	High School, Newton Abbot.
Evans, E. A. F.	Clarence House, Filey.
Evans, F.	Margate Ladies' College.
Fenton, K.	Westbourne, Sheffield.
Gibson, A.	Studley House, Hull.
Harris, J.	Merevale House, Newport, Salop.
Hindley, M. E.	North London Coll. S. for Girls.
Hitchings, M. E.	Harborne Ladies' Coll., Birmingham.
Horton, S. C.	Showellhurst High S., Moseley.
Howling, F. M.	9 Kingsgate Street, Winchester.
Hunter, K. E.	St. Catherine's, Cardiff.
James, F. E.	Private tuition.
Johnson, C.	Burlton House, Reading.
Jones, C.	Cross Hayes House, Malmesbury.
Jones, E.	Bath High School.
Legg, K. J.	Christ's Hospital, Hertford.
Morgan, F.	St. Francis Xavier's Conv., Grimsby.
Palmer, E. S.	Camden School for Girls.
Peacock, E. J.	Gresham College, Brixton Road.
Perks, I.	The Hollies, Birmingham.
Platten, E. M.	Park House, Lee, S.E.
Pringle, E.	Merton College, Croydon.
Reeknell, M.	3 Thornbury Terr., Stoke Newington.
Scarr, F. D.	Welbeck House, Bridlington.
Sendamore, A. E.	Grosvenor College, Bath.
Sellwood, E.	Summerbrook, Reading.
Sloan, I.	Claremont Coll., Corsham, Wilts.
Solomon, A.	Sidcot School, Weston-s.-Mare.
Solomon, B.	Endsleigh House S., Endsleigh Gdns.
Tibbitts, E.	Peterborough House, Handsworth.
Verity, E. A.	Ennoor Lodge Coll. S., New Leeds.
Walton, T.	Girls' Grammar School, Keighley.

GIRLS, THIRD CLASS—*Continued.*

Ward, E. J.	Stoke Newington High School, N.
Ward, M.	Berkeley Villas, Newport, Salop.
Wilburn, B.	St. George's House, Doncaster.
Wilson, F. L.	Cambridge House, Chichester.
Wright, B.	Montague College, Salisbury.
Young, M. C.	44 Shakespeare St., Nottingham.

Apsey, R.	Claremont House, Kilburn.
Armstrong, E. K.	The Highlands, St. Anne's, Lewes.
Ashburner, L.	278 Gt. Cheetham St., Hr. Broughton.
Bartle, G.	Redbrooke School, Camborne.
Bernfeld, E.	Park House School, Manchester.
Brennand, S. J.	Handsworth Ladies' College.
Carrier, T.	Wandsworth High School for Girls.
Carwardine, E. E.	Highgate College, N.
Clarke, A.	2 Victory Terr., Coatham, Redcar.
Clarke, E. M.	High School for Girls, S. Norwood.
Cox, A. M.	St. John's Coll. S., Stoke Newington.
Cuthbertson, H. M.	Educational Home, Plymouth.
Dahl, R. C.	Castle Hall School, Northampton.
Daniels, V. E.	Collegiate S. for Girls, Norwich.
Doman, A. E.	Cambridge House, Chichester.
Edbrooke, F. H.	North Bristol School for Girls.
Engall, E. A.	Somerville School, Highgate.
Evans, J. E.	Rose Hill House, Whittington.
Freelove, E. M.	E. Anglian Girls' Coll., Bp's Stortford
Goodall, M. G.	Margate Ladies' College.
Griffiths, M.	Yetwyth House, Aberystwith.
Grove, G. E.	The Lydiate House, Bromsgrove.
Hawke, E. E.	Ivy House S., Stoke Newington.
Hindon, E.	Ladies' College, Ealing Common.
Hammond, E.	St. Mary's College, Hornsey.
Haslam, C. M.	Uppingham High School for Girls.
Hough, L.	Brunshaw Seminary, Burnley.
House, F. E.	Girton House, Brentford.
Humphries, F. M.	Enville Street S., Stourbridge.
Huntly, E. M.	Private tuition.
Jones, G. M.	South Front Acad., Southampton.
Keevil, M. M. C.	Camden School for Girls.
Keith, B.	Montpelier House, Brentwood.
Knight, R. O. C.	Simla House, Lee Park, S.E.
Luson, K.	Merton College, Croydon.
Mardon, K.	E. Anglian Girls' Coll., Bp's Stortford
Martin, B. A.	The Oaks, Chesterfield.
Morgan, M. H.	Clarendon House, Kineton.
Musters, K.	Collingwood College, Lee.
Nicholl, A.	Leigh Bank, Leamington.
Ryder, I.	Royal Crescent College, Margate.
Spence, M. E.	Hope House, New Leeds.
Stanley, M. A.	7 New London Road, Chelmsford.
Stephenson, B.	1 Clyde Terrace, Hull.
Stobart, E.	West Kensington High School.
Stuckey, E. P.	Drayton House School, Richmond.
Sunter, A. M.	Brean Down House, Burnham.
Thomas, G.	St. Winifred's, Southampton.
Wadsworth, A.	25 Hampden Place, Halifax.
Walker, A.	Highfield, Harrogate.
Wallice, K.	11 Stopford Place, Stoke, Devonport.
Williams, C. L.	Hill House College, Haverfordwest.
Woolley, J.	Crouch Hill High School for Girls.

Arnold, M. E.	1 Southernhay West, Exeter.
Aston, B. A.	High School, Temple House, Hull.
Beakbane, S. E.	Sidcot School, Weston-s.-Mare.
Blackstock, K.	Portland St. Ladies' S., Manchester.
Bomford, L. J.	Court House School, Atch Lench.
Booth, A.	The Ladies' College, Wellington.
Burgess, A. L.	Avonbank House, Bath.
Carter, E. T.	Duncan House, Clifton.
Cheetham, M.	St. John's High S., Foxley Rd., S.W.
Churchyard, A.	N.W. London Coll., Primrose Hill.
Clemson, M.	Mercvale House, Newport, Salop.
Davis, M.	Convent of Mercy, Chelsea.
Davis, R.	Belmont, Dover.
Dean, M. S.	Ladies' College, Ealing Common.
Dennington, K.	Belmont House, Norwich.
Dion, F.	Merton College, Croydon.
Edmeston, M. C.	Harcourt Lodge, Auerley.
Eidmann, B.	Henley House, Penarth.
Fernie, G.	Duncan House, Clifton.
Fraser, M.	Castle Buildings, Oswestry.
Gavey, E.	St. Catherine's, Cardiff.
Gaze, A.	Merton College, Croydon.
Gelling, E. M.	Sunny Bank, Wilmslow.
George, F. A.	Private tuition.
Goss, J.	70 Gainsborough Terr., Plymouth.
Gunn, E. E.	North London Coll. School for Girls.
Hedges, M. L. C.	Leybourne House S., Aylesbury.
Heggs, A.	Clevedon School, Northampton.
Hirst, M. H.	Royal Masonic Inst., Battersea.
Hodson, L. N.	Stoke Newington Mid. Class School
Hughes, A.	Harrow House High S., Cardiff.
Hughes, D.	1 Richmond Terrace, Liverpool.
Jones, L. J.	Beach Mount School, Criccieth.
Jordan, F. C.	Grove House, Heaton Chapel.
Kirkbride, K.	14 Chatsworth Square, Carlisle.
Macgregor, A. M.	North London Coll. S. for Girls.
Mellier, M.	Carlton House, St. John's Wood.
Miller, F. C.	Elmhurst, Rock Ferry.
Murray, E.	Neotsbury School, Scarborough.
Nelson-Edwards, M. E.	Kemmendine House, Shrewsbury.
Nicholson, L. G. B.	18 Marlborough Rd., Tue Brook.
Osborne, A.	Claremont Coll., Corsham, Wilts.
Perrett, A. D.	Garfield House, Paignton.
Plato, M.	The Rowans, Watford.
Radclyffe, S.	Burlington Mid. Cl. Girls' S., W.
Ridge, E. A.	Dorchester House, Clacton-on-Sea.
Roberts, L. M.	1 Acton Terrace, Rock Ferry.
Rodgers, A.	Welland Hall, Spalding.
Say, A. O.	Hill House Coll., Haverfordwest.
Simes, A. M.	Lady Holles's School, Hackney.
Stoltenhoff, E. L.	Welbeck House, Lewisham, S.E.
Swinton, G. A.	London College, Stratford.
Symons, E.	17 Tavistock Place, Plymouth.
Wilkinson, E. A.	Girls' Grammar School, Keighley.
Winter, M.	Girls' High School, Folkestone.
Wooldridge, E. J.	Enville Street S., Stourbridge.
Woolston, M.	St. Helier's Coll., Wellingborough.

THIRD CLASS.—3RD DIVISION.

Baldwin, F. P.	Malvern House, Blockley.
Bate, E. B.	Walthamstow Hall, Sevenoaks.
Batty, R. A.	Trebovir House S. Earl's Court.
Bealey, A. M.	Devonia House, Exeter.
Boothroyd, L. W.	Collegiate and Tech. S., Crouch Hill.
Britten, H. E.	Christ's Hospital, Hertford.
Burrage, A. A.	Lady Holles's School, Hackney.
Cape, E.	Eastwick, Lincoln.
Candwell, D.	Ladies' S. Norbury, Eastbourne.
Candwell, F.	The Laurels, Nottingham.
Cotton, E.	Burslem High School for Girls.
Cowan, A.	Cambridge House S., Liverpool.
Crosland, H. M.	24 Malvern Road, Leeds.
Davidson, C.	Merton College, Croydon.
Dow, D. A.	Havelock House S., Southsea.
Fletcher, W.	14 Chatsworth Square, Carlisle.
Gent, A.	Kenilworth House, Birkdale.
Gwyther, D. M.	Newnham House, Sherborne.
Hodgson, F.	Haddo House School, Scarborough.
Inglis, H. N.	The High S., Tue Brook, Liverpool.
Ingram, M. J.	Minshull House, Beckenham.
Jenkins, K. L.	17 Tavistock Place, Plymouth.
Johnson, M.	Ladies' Collegiate S., Aldershot.
Jones, E. L.	Sydenham College for Ladies, S.E.
Judd, E. M.	St. Kilda's, St. Leonards.
Leaning, E. C.	48 North Hill, Colchester.
Ledger, C. M. B.	11 St. Mary's Road, Canonbury, N.
Lord, A.	Highfield, Harrogate.
Lowe, A. M.	Berkeley Villas, Newport, Salop.
Mardon, F. M.	E. Anglian Girls' Coll., Bp's Stortford
Meses, C.	North London Coll. S. for Girls.
Owers, B. L.	Shelley House School, Ongar.
Newman, A.	Duncton School House, Petworth,
Richardson, J.	Camden School for Girls.
Rowe, A. C. L.	Elm Lodge, Leytonstone.
Salmon, S. E.	Winterdene School, West Kirby.
Savory, E.	Merton College, Croydon.
Stratford, M.	School for Girls, Farnham.
Stroud, B. E.	Colville House, Swindon.
Watkins, F. M. L.	Cloud's Hill School, Bristol.
Wellburn, L.	Welbeck House, Bridlington.
West, H.	Ladies' School, Ripley, Derby.
Whitford, O. M.	Kingswood Pk. School, Gunnislake.
Wilks, A, E.	Middle Class School, Knutsford.

Andrews, E.	Ladies' Coll., Savile Pk., Halifax.
Aust, M. E.	Abbey House School, Selby.
Bax, G. R.	The Cross, St. Neots, Hunts.
Bedingfield, C. E.	Dore and Totley High S., Sheffield.
Bexfield, F.	Summerland College, Honiton.
Black, D.	Mayfield Lodge, Nottingham.
Bolwell, L.	The Ferns, Leamington.
Brown, E. R.	Lady Holles's School, Hackney.
Brunsdon, G. E.	2 Oxford Villas, Cheltenham.
Buckman, F.	Ivy Ho. S., Lady Somerset Rd., N.W.
Burland, B.	Somerset House School, Bristol.
Cookson, B.	Lancaster Mansion, Margate.
Cooper, A. E.	Lowestoft High School for Girls.
Davis, J. M.	Falkner College, Liverpool.
Densham, E.	Merton College, Croydon.
Edwards, N.	Torquay High School for Girls.
Elb, M.	Milford House, Abergavenny.
Ellis, E. M.	Vernon, Pembridge Villas, W.
Emlyn, M. J.	Walthamstow Hall, Sevenoaks.
Evans, H. K.	Downs College, Clapton, E.
Gibb, F. M.	9 Kingsgate Street, Winchester.
Geary, M. A.	Bank House, Over.
Hamilton, B.	The High School, Altrincham.
Harrison, B.	The Hollies, Birmingham.
Heape, M. E.	Victoria Rd. School, Tamworth.
Heather, J. P.	Red House School, Barnstaple.
Hewett, E.	School for Girls, Farnham.
Hoare, M. R.	Garfield House, Paignton.
Hudson, V. B.	Mecklenburg House, Putney.
Jack, J. S.	Rutland School, Dublin.
Jenkins, M. C.	Welsh Girls' School, Ashford.
Kefford, G. E.	Northbury Ho., Bury St. Edmunds.
Mallett, F.	Henry St. School, Bolton.
Malzard, S. M.	High School, Temple Cres., Jersey.
Martin, E. M.	Stanmore House, Weston-s.-Marc.
McClenaghan, M.	Cumberland Lodge, Croydon.
Miller, M.	High School, Bournemouth.
Muir, A. I.	Gresham College, Brixton Road.
Newton, M.	Girls' Collegiate S., Macclesfield.
Norman, F.	Down End, Clifton.
Oliver, E. V.	Collingwood College, Lee.
Oliver, J. S.	The Hollies, Snettisham.
Palk, A.	Educational Home, Plymouth.
Payart, L.	Stanmore College, Balham.
Perry, E. M.	Duncan House, Clifton.
Price, E. B.	S.E. District College, Kennington.
Rapkin, N.	Merton College, Croydon.
Sedgwick, M. K.	Fellenberg School, Maidstone.
Smith, G. B.	E. Southsea Collegiate School.
Thomas, E.	Brooklyn House, Wellington, Salop.
White, L.	Girls' College, Seascale.
Willcocks, D. J.	E. Southsea Collegiate School.
Williamson, E. G.	School for Girls, Farnham.
Wood, H. R.	Lady Holles's School, Hackney.
Woodworth, J.	88 Bloomsbury, Manchester.

Burnett, A. M.	Trafalgar Square S., Scarborough.
Dunman, W. H.	Educational Home, Plymouth.
Elliott, R. E.	Carrick House, Brampton.
Fendick, M. E.	Grey Coat Hospital, Westminster.
Fippard, E.	High School, Bournemouth.
Fox, G.	Stanmore House, Weston-s.-Marc.
Gardner, E. G.	Albion School, Newmarket.
Gason, K. M.	Bellevue, Binstead, near Ryde.
Hanna, C. L.	Holdstock Coll., Up. Holloway.
Haslam, G. S.	Beech House, Ripley, Derby.
Hatchwell, A.	Bishopsgate Girls' School, E.C.
Hill, N. M.	Scotland Place S., St. Helier's.
Hodges, G.	Lancaster Mansion, Margate.
Holdgate, H. F.	Ladies' S., Cauldon Place, Shelton.
Holness, F.	36 Hilldrop Road, N.
Hopkinson, A. E.	North London Coll. S. for Girls.
Hulbert, H.	Merton College, Croydon.
Kentish, G. A.	Montgomery House Coll., Dalston.
Kruger, S. J.	St. Catherine's, Cardiff.
Mills, C.	Grey Coat Hospital, Westminster.
Moore, B. H.	Highleigh House S., St. John's, S.E.
Morris, B. E.	Private tuition.
Morris, K.	Pembroke House, Lee, S.E.
Naylor, B. M. C.	Western House S., Nottingham.
Palmer, E. Y.	Coll. and Tech. S., Crouch Hill.
Pauli, A. M.	The Orme Girls' S., N'Castle, Staffs.
Peck, E.	Highfield, Harrogate.
Pethick, M. L.	Southside House, Weston-s.-Mare.
Pittard, F. A.	Weirfield School, Taunton.
Pole, A. M.	High School for Girls, King's Lynn.
Richardson, L. M. L.	Hamfrith Coll. School, Stratford.
Robbins, E.	Lynwood Villa S., Trowbridge.
Rudderforth, E. F.	Christ's Hospital, Hertford.
Sedgley, M.	St. Helier's Coll., Wellingborough.
Siddons, K.	St. Helier's Coll., Wellingborough.
Slade, M. A.	The Elms, Crewkerne.
Stephens, L.	Girls' Middle Class S., Clevedon.
Taylor F. K.	Private study.
Thompson, E.	1 Clyde Terrace, Hull.
Vial, E.	Courtenay House, Crediton.
Westwood, P. F.	Hurst Street School, Birmingham.
Whitby, M. L.	Salcombe College, Longhton.
Willis, A. W.	Townley House, Ramsgate.
Wills, I. A. H.	Walthamstow Hall, Sevenoaks.
Wilson, E. L. M.	Fosbury Farm, Hungerford.
Woolls, D.	Byculla, Southsea.
Worth, M.	75 Grosvenor Road, Aldershot.

Bacchus, E. E.	4 St. Ann's Pk. Ter., W'dsworth Com.
Bayfield, G.	Warwick House, Brixton Hill.
Brandreth, M. L.	Private tuition.
Brasnett, K.	78 Guildhall St., Bury St. Edmunds.
Brittan, R. A.	Everard House S., King's Lynn.
Browne, L.	9 Well St., Bury St. Edmunds.
Burroughes, K.	Summerland College, Honiton.
Clark, A. C.	Kendrick Girls' School, Reading.
Clark, H. M.	The Westlands, Scarborough.
Clarke, M. T.	Lady Holles's School, Hackney.
Cooper, A. E.	Burlington Mid. Cl. Girls' S., W.
Emmerson, M.	South London Coll., Brixton Rd.
Fullard, G.	Slepe Hall, St. Ives, Hunts.
Gamblen, H. G.	Havelock House School, Southsea.
Gittins, E. M.	Ryton Fields, Dorrington, Salop.
Hamilton, M. A.	Stoke Newington Mid. Class School.
Heselton, E. L.	Welbeck House, Bridlington.
Holbech, A. M.	28 Castle Street, Salisbury.
Hoult, G. M.	Ryton Fields, Dorrington, Salop.
Kent, E. M.	St. John's Colleges, Brixton.
Lord, M.	Royal Crescent College, Margate.
Matthes, C. L.	Broomfield School, Kew.
Morgan, E.	St. Helen's Lodge, Swansea.
Pearce, E. M.	Victoria Street School, Stourbridge.
Plowman, E.	St. Helier's Coll., Wellingborough.
Porter, A. E.	Kingsdown High School, Bristol.
Redfern, A.	The Oaks Coll., Greenheys, M'ter.
Ridler, F. M.	North Bristol School for Girls.
Ruthen, H. T.	13 Albion Terrace, South Shields.
Scott, M. E.	Everard House S., King's Lynn.
Smith, H.	1 Clyde Terrace, Hull.
Standfast, F.	Highgate College, N.
Stickland, L. J.	Blandford Girls' School, Dorset.
Stockman, N. M.	High School, Newton Abbot.
Strawson, E. A.	Girls' Collegiate School, Louth.
Taylor, L. M.	Private tuition.
Waites, K. G.	Raglan House, West Hartlepool.
Walker, M. H.	Girls' Collegiate High S., Lytham.
Webster, L.	Enmoor Lodge Coll. S., New Leeds.
Woodford, N. E. A.	The Elms, Stony Stratford.

Baile, G. F.	Private tuition.
Blackstock, F.	Portland St. Ladies' S., M'chester.
Blake, E.	Mayfield Lodge, Nottingham.
Caulcutt, F.	Clarence House, Wood Green.
Clulow, S. E.	Handsworth Ladies' College.
Cornelius, W. H.	Princess Helena College, Ealing.
Crisp, A.	83 Brodrick Terrace, S. Shields.
Engledue, M. F.	Private study.
Esp, J.	Ladies' Collegiate S., Worcester.
Green, I.	Vale House, Whalley, Lancashire.
Hargreaves, M. E.	1 Stanley Villas, St. Anne's-on-Sea.
Howard, M. F.	Melbourne House, Hackney.
Imrie, A. E.	Gresham College, Southsea.
Jewell, M.	St. Helen's Lodge, Swansea.
Lloyd, M. F.	The Elms, Finchley Road.
Longhurst, H. M.	Cambridge House, Guildford.
Mackinney, A. E.	Clyde Villa, Kilburn.
Maurice, J.	Hill House Coll., Haverfordwest.
McKerron, M.	1 Richmond Terrace, Liverpool.
Mitchell, M.	Raglan House, West Hartlepool.
Myers, M.	Copthorne, West Brighton.
Niven, L.	Leigh Bank, Leamington.
Pritchard, F.	Bishopsgate Girls' School, E.C.
Riddell, E. D.	Devonshire House School, Carlisle.
Rose, A.	Slepe Hall, St. Ives, Hunts.
Smith, L. A.	Glenelg, West Green, Tottenham.
Smith, T.	Convent of Mercy, Chelsea.
Thierry-Creton, E.	Montgomery House Coll., Dalston.
Thomas, A. F.	Lady Holles's School, Hackney.

GIRLS, THIRD CLASS—*Continued.*

Twamley, J. G.	High School for Girls, Hornsea.
Williams, E. M.	Ellenborough House, Clifton.
Wilson, F. E.	Fairfield House, Watford.
Aldridge, E.	Woodleigh Lodge, N. Kensington.
Armstrong, A. A.	Devonshire House S., Carlisle.
Barritt, A. R.	Friends' School, Saffron Walden.
Brown, S. J.	Howard College, Bedford.
Buckley, A. H.	Royal Masonic Inst., Battersea.
Burroughs, E. A.	High School, Temple House, Hull.
Comely, L. A.	Enville St. School, Stourbridge.
Cox, V. M.	Anstey Villas, Alton, Hants.
Dion, E.	Merton College, Croydon.
Ewing, E. F.	St. Winifred's, Southampton.
Gray, W. M. P.	32 New St., St. Helier's.
Greenwood, L.	Girls' Grammar School, Ripon.
Hildyard, M.	Mansfield House, Colchester.
Ingram, M. F.	Stanmore House, Weston-s.-Mare.
Lawless, L.	Convent of Loreto, Hulme.
Le Mottée, B. L.	17 Old Street, Jersey.
Lithler, M. E.	The Oaks, Chesterfield.
Mabin, E. W. L.	Girls' Modern School, Torquay.
Moggs, B.	Handley House, Newark-on-Trent.
Pearce, C. M.	Rose Hill School, Bowdon.
Pilkington, S.	Oak Mount, Burnley.
Price, L.	Milford House, Abergavenny.
Scott, E. E.	Scotland Place S., St. Helier's.
Smith, E. A.	Richmond House, Penkhull.
Southall, K.	Neotsbury School, Scarborough.
Staveley, W. C. H.	Claremont House, Waterloo, L'pool.
Stevens, J.	Erme House, Mutley, Plymouth.
Sutcliffe, C.	The College, Huddersfield.
Taylor, E. M.	Camden School for Girls.
Veale, E. M.	Educational Home, Plymouth.
Wormald, L.	25 Rhodes St., Halifax.
Young, M.	Girls' High School, Folkestone.
Ashton, A.	Belle Vue House, Swansea.
Baker, L.	Victoria Road School, Harborne.
Barber, M. L.	Waterloo College, Northampton.
Bell, C. E.	Ladies' College, Ealing Common.
Berry, R. J.	St. Winifred's, Southampton.
Blake, H. M. S.	Sutherland House, Gt. Yarmouth.
Brandreth, M. S.	Private tuition.
Brooking, M.	Cambridge House S., Liverpool.
Carter, K. E.	Cross Hayes House, Malmesbury.
Coleman, M.	De Montfort House, Leicester.
Davies, T.	Varteg House School, Penarth.
Dixon, E.	Portland St. Ladies' S., Manchester.
Eilcome, G.	Edinburgh House, Midhurst.
Farr, N. R.	Camden School for Girls.
Gilbert, L.	Redbrook School, Camborne.
Greswell, E. M.	Clifton Ladies' College.
Hansen, A.	Saint Andries, Penarth.
Hearn, H. S.	Malvern House, Blockley.
Hudson, H.	Hope House, New Leeds.
Hulbert, O. M.	Howard College, Bedford.
Kaye, E.	Dalton Girls' School, Huddersfield.
Kebby, C.	Longford Girls' School, Bristol.
Kosminski, J.	Jewish High School for Girls, W.C.
Lubbock, A. M.	South Western Coll., Fulham Rd.
Mardon, E. L.	Burlington House School, Clifton.
Murdoch, M. E.	Eagle College, Hornsey.
Parker, M. L.	St. Lawrence Coll., N. Kensington.
Pierson, F.	High School for Girls, Hitchin.
Pigg, L.	Martin's Villa, Sandhurst, Berks.
Rapson, B.	Blandford Girls' School, Dorset.
Rean, E.	Hawthorn House, Stoke Newington.
Routley, L. M.	Kingsdown High School, Bristol.
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Carey, L.	*ger.*	Southampton Girls Coll. & High S.
Drew, C. M.	*d.*	Montrose House School, Margate.
Huxham, P.	*mu.*	Lewisham College, Lewisham.
Rayson, H. B.	*f.*	Hughenden Hall, Wimborne.
Shaw, C. M.	*d*	All Hallows' Orph., Ditchingham.
Soutter, G.	*mu.*	Albert Villa School, Ramsgate.
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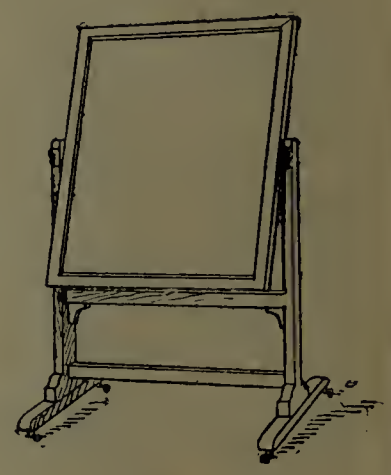

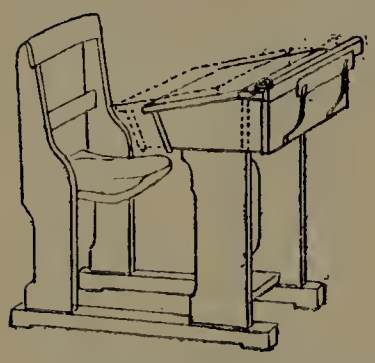

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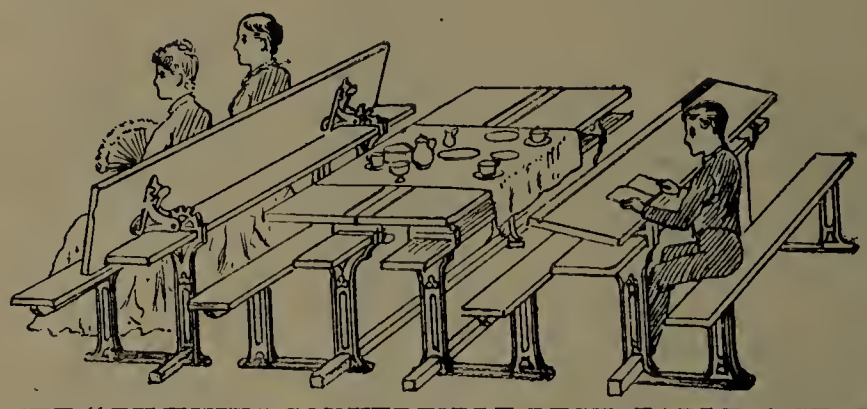

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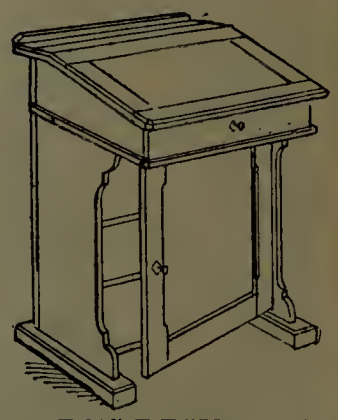

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The Educational Times.

COLLEGE OF PRECEPTORS.
DISTRIBUTION OF PRIZES AND CERTIFICATES.

The Public Distribution of Prizes and Certificates to the successful candidates at the Christmas Examination took place at the College of Preceptors, Bloomsbury Square, on Monday, 18th February.

The Chair was occupied by the Right Hon. the Lord Mayor, who was accompanied by the Lady Mayoress, and was supported on the platform by Mr. H. W. Eve, Dean of the College: Mr. E. Pinches, Treasurer; Dr. Wormell, Vice-President; Miss Bailey, Mrs. Pinches, Mrs. Robinson, Mr. Atkinson, Mr. Bidlake, Rev. R. H. A. Bradley, Dr. Cuthbertson, Dr. Dillon, Mr. Hagreen, Mr. Howard, Mr. Kimber, Mr. Langler, Mr. Lee, Sir Philip Magnus, Mr. Nasmith, Mr. Reynolds, Mr. Robinson, Mr. Rule, Rev. Dr. Scott, Mr. Swift, Rev. R. O. T. Thorpe, Mr. Turpin, Dr. White, Dr. Weymouth, and others.

The Chairman, in opening the proceedings, said:—Ladies and Gentlemen,—I am told that it is usual in connection with this annual gathering for the Chairman for the day to make something like an address to those whom he has the honour of appearing before, and I may say that when I was honoured with an invitation to distribute these prizes this afternoon, I felt a little doubt whether such share as I may have taken in the promotion of better education in this country was an adequate qualification for my assuming, though it may be but for a few moments, the office of Preceptor. I was aware that some who have occupied this position before me have been more actively engaged, and have assumed a more prominent *rôle* in educational work than my own pursuits have left me leisure for, and, although I have myself been for between twenty and thirty years actively engaged in the educational problems of this country, and have from time to time assisted in their solution to the fullest extent of my power, yet, from the standpoint of the educationalist, I am conscious that I am not so well fitted as some others to view this question. Still, on further reflection, I was of opinion that this was not, and is not, altogether a drawback. It is better to discuss questions from many aspects; and this afternoon I have decided to speak, not about the hopes of the theorist, but about the requirements of practical life. I will look at the question of education as the representative of our commercial classes—as one who can test the influence of education in the affairs of daily life—as one who has learned from personal experience what are the present needs of business men; and if, whilst I do this, you notice that I repeat from time to time what has been said by other men when viewing education from a different basis, you will, I hope, feel that my words and their words receive a greater emphasis from the coincidence of opinion, and our advice becomes more worthy of your consideration.

The College of Preceptors is, I believe, mainly an examining body; and if the muttered criticisms about the examination system which are coming into vogue represent more than a passing protest against excess, it may possibly fall to the lot of this institution to actively defend itself. No doubt, if examinations are treated as the object of education, whether in the interests of teachers or from a mistaken notion of benefit to the child, more harm may be effected than good. But as a means to an end, regular examinations may be of the utmost service. They set a standard of excellence, not necessarily rigid, but yet fixing a normal type. They give definiteness to study. They compel the condensation of knowledge and make it handy; they form a rough and ready test of aptitude, and they produce emulation amongst those who are being taught. But, in addition to these advantages, they are the link which creates mutual confidence between parent and teacher. In the worry of modern life, parents seldom have time for a proper enquiry into the mental development of their children, and the examination test provided by such an institution as this relieves them from any misgivings with regard to the efficiency of the instruction which their children receive. To the teachers also it is a boon. The removal of parents' anxiety, if not mistrust, gives confidence to teachers, and thereby increases their power of good work. Whilst, finally, I believe that boys and girls, in applying for situations, are in a distinctly better position if they can produce a certificate from this College as a guarantee of their possessing the elements of knowledge.

But thus far I have glanced at only one part of your examinations—the examination of pupils. That of the teachers is at least equally important, and an institution such as this performs a service of the greatest value to the country when it undertakes the duty of conducting such examinations. Preceptors who are unable to receive a University education acquire a recognised status and become independent of caprice. Those who employ them have the assurance that they have reached a definite standard of knowledge, and their pupils are saved from the misfortune of ignorant instruction. Finally—and it is here that your great responsibility lies—and it is on this point that for a few moments I would wish to catch your ear—finally, you do something towards (since you have some power of laying down) a standard of teaching for the middle-class schools of England. This is an influence fraught with great power for good or evil, and, as a practical man, I exhort you to see that you use it well.

The object of education, I take it, is equipment for life; and, as we battle with the forces of a new epoch under the influence of elements which our fathers never knew, it behoves us to continue what you yourselves have already done—the adaptation of our equipment to the circumstances which it is destined to meet. This sounds almost like a truism; but, if reduced from the abstract to the concrete, it often provokes opposition. England's greatness in the future, as in the past, depends on the continued development of her commerce. A full recognition of this involves the substitution of commercial for classical learning, as the backbone of English education. I have no desire to depreciate in the slightest degree the refining influences of the ancient writers. For the education of public men—of literary men—of men of leisure who have both time and wealth to learn first-hand the best that has been said and thought by the great minds of the past—who can afford the exquisite luxury of a highly-cultured mind—classics are beyond doubt the best. But such men are comparatively few; and in this utilitarian age we have to legislate for the many, not the few. To the many happiness and comfort in the main, spring, not so much from the possession of a philosophical mind, as from the freedom from harassing cares, and from the sense of security and from the physical comfort which moderate wealth can assure. To obtain this—to equip our young men and young women for realising this, which, speaking broadly, is the probable requirement, the probable aim of their life—you have the designing of our educational system. Classics must go, commerce must grow.

Now, technical education is fairly well started; the public mind has been aroused, and is now acquiescent with regard to that portion of this question; and, although it is still incumbent on us to watch with care and assist in its growth, yet those who are looking ahead see already that other portions demand attention. Modern languages, are, I am glad to say, being taught more and more in our schools. The Report of your College exemplifies this in a striking way. For every boy who chooses Greek as the subject of examination at least one hundred choose French; whilst even Latin, with all its historic claims, has only one supporter where French has three or four. This is a most hopeful

augury. But in itself it is not enough. To be of any real use, modern languages must be acquired conversationally. There is, I understand, some difficulty attending the examination by this College orally. I hope, however, that these difficulties may be overcome, and that this College may again set an example and fix a standard for English education. But, whether that be effected or not, of this I am confident—of this I speak with the authority of one who marks the daily demand of business life—modern languages, taught conversationally, have become an essential for English supremacy. There is a custom in some schools in Germany which is, I think, worthy of imitation, and by which conversational facility is acquired. Where the boys are boarders at a school they are compelled to carry on any conversation at the table in the language which happens to be fixed upon for the day of the week; whilst, if they are simply day scholars, the same result is achieved by their being taken out for walks by their masters in small groups, and all conversation conducted on the same lines. In this way they acquire a readiness which writing and reading alone cannot give, but rather retard. They grow accustomed to use words of daily conversation rather than the literary phrases of books. It is to this in no small degree that Germany owes her vast strides in commerce, and England the recent upgrowth of a serious rival. But the knowledge of foreign languages is only the removal of barriers; it is not itself a motive power. It merely places our merchants almost on a level with the residents in different lands. It gives them no positive advantage. It confers no business aptitude and no commercial knowledge. This, however, may be acquired, and it is the duty of England, looking to her commercial supremacy, to give it. Instruction in the geographical conditions of foreign lands, in the character of their products, in the nature of their imports, in the possibility of creating demands, in the advantages and disadvantages to be met with, and, speaking generally, in commercial opportunity,—all this, and more than this, it is, it seems to me, our duty to teach. And, if time is short, if it seems difficult to teach all this about all lands, let the preference be given to those which are undeveloped. The European continent is close to us, the needs of its inhabitants and the opportunities of trade are known by foreign merchants so well that great developments of English commerce must not be hoped for there. It is in backward lands —in lands where no commercial supremacy has yet been achieved by any foreign power—in lands like Brazil or Peru, Mexico or Chili, in lands like China or Japan that our opportunity lies. It is about these lands, therefore, that we should first teach. We must adapt our tools to the work which lies before us.

Finally, let me suggest two small points—the former the acquisition of shorthand, and the granting of opportunities for learning it in all schools; the latter, the importance of handwriting. The writing of young men is growing worse and worse. Illegibility is not a necessary counterpart to a literary mind, and bad writing adds so considerably to the labours of those who, like myself, receive much correspondence, that improvements in this direction would by many of us be recognised as a great boon. Besides, a well-written letter has its influence and its value, and it is of great value, in the commercial world.

Ladies and Gentlemen, it is a sincere pleasure to me to have had the opportunity of saying these few words at this gathering, because, mingled with my earnest advice, I am able to add hearty congratulation. The College has already anticipated much that I have said. It has already done much in the cause of national progress. It promises to do more. Upon what it has already achieved, I congratulate the College. Upon what it promises, I congratulate the nation. But when I add that this body, working as it is in the right groove, is yearly adding to the numbers of those who come under its influence; that, unlike most of the agencies for good with which a Lord Mayor is brought into contact, it is in a sound financial position, and has a large balance in hand for widening the sphere of its usefulness, then I think we may congratulate it again and again. This College has already instituted an examination in commercial knowledge. It has undertaken to award certificates for efficiency which will be recognised by commercial men. It is in touch with the leaders of our commercial classes, is recognised by the London Chamber of Commerce, and has undertaken to conduct examinations on behalf of that great body. All this is worthy of congratulation, and, more than that, it is full of hope. Speaking as a commercial man, I wish this institution all success. May its members increase, may its influence deepen and widen. May England have reason to be proud of its work. May Englishmen feel the comfort and happiness which its work may help to achieve. It is in the forefront of a great movement. May its leadership be rich in blessing for our land. And may you and I, each of us, never forget that—

"He who seeks the world's improvement,
Aids the world in aiding mind;
Every great commanding movement
Serves not one, but all mankind."

The Prizes and Certificates were then distributed, after which the Dean of the College, Mr. H. W. Eve, said:—It was his agreeable task to ask the meeting to thank the Lord Mayor and the Lady Mayoress for their kindness in coming that day, and the Lord Mayor for the extremely interesting address which he had given. It was a happy augury that, just at this moment when the College of Preceptors was setting itself to do all that it could to promote commercial education, and when it had begun to work in union with the United Chambers of Commerce of the country, the first Distribution of Prizes since these steps had been taken should be presided over by the Chief Magistrate of the first city of the world. He thought, too, that it was an excellent thing for schoolmasters to be brought more and more into contact with the practical type of men who are making the fortunes of the country. They were, perhaps, a little too apt to shut themselves up in their studies, and not notice how the world is moving around them. He did not say that he agreed with everything the Lord Mayor had said, though there was a good deal with which he heartily sympathised. The subjects, at least, of our education must change as the world changes. We were living in a very different time to the days when a great deal, not merely of culture, but of real knowledge, was accessible mainly through the ancient languages. But he should be very sorry if, with a change of subjects, an entire change of spirit should come over our education. He considered that, besides that education that was wanted directly to produce bread-winners, education was also required to enable men to think on the innumerable subjects that a man has to deal with as he goes through the world. He had not only to make a living, but he had to bring up a family. He had to give a vote—to give probably more and more votes on more and more important subjects. And, therefore, he wished that, however much we made our education directly practical, there should always be in it the literary element. Readers of Matthew Arnold would remember how he was always enforcing on practical men, on theoretical men, on everybody—the importance of literature, the importance of reading accurately, and reading widely in order that whatever subject came before them, and however practical it might be, they might have at their disposal at least a part of the best which has been thought and written on it. He trusted the Lord Mayor would pardon him for differing so far from him, if, indeed, he did differ, as he did not think they differed much in spirit. He only wished that a larger number of the prize-winners had come forward to receive their prizes, but, unfortunately, it happened that the most distinguished on this occasion resided at a great distance from London, and could not appear in person.

Dr. Wormell, in seconding the vote of thanks, said it was not the first time that he had seen the Lord Mayor presiding over an educational meeting. It was his privilege to direct a school that was called into existence by a movement begun at the Mansion House. Every year, during the past twenty-three years, the governors and friends of the school had met at the Mansion House, under the presidency of the Lord Mayor, to discuss the circumstances of the school, and he had learned that it is a rule, with scarcely any exceptions, that year by year the Lord Mayor takes a keen interest in educational matters, and he had many reasons to know that the present occupant of the chair was not one whit behind any of his predecessors in that respect. His presence here was exceedingly appropriate at the present time, and, as the Dean had reminded them, it was an outward and visible sign of a certain agreement between business men and educationalists. On both sides at present they were admitting that it is fitting that the representatives of economic interests should foster and promote education. It had been said that school life at the present time was determining what home life in the future should be. It was still more true that it was determining what business life in the future should be. The destinies of a nation were in the hands of its youth, and the youth of our schools were at the present moment gradually working out the problem what would be the position of England amongst the nations of the world in the next and following generations. This was admitted in the City amongst business men now to an extent which it has never been admitted

before. They had heard that the Chamber of Commerce—the merchants of the City—had asserted the claims of their own special subjects to systematic study. They had done wisely in this, and they had done, he thought, still more wisely in calling to their counsels teachers and examiners to assist them in framing their scheme. They had blended the mercantile and academic elements, and in doing this they had made the phrase "town and gown," if they might import it into London, not, as it is in some places, a war-cry, but a symbol of mutual goodwill and cordial co-operation.

The vote of thanks having been carried by acclamation,

The Lord Mayor said:—I beg to thank you most sincerely on behalf of the Lady Mayoress and myself for the cordial vote of thanks you have passed in our favour. I can assure you that her ladyship is as much interested in the cause of education as I am, and that on all occasions when she has an opportunity she takes care to assist me to the best of her ability in the advance of our country's interests in this respect. In the few remarks I made at the commencement of this meeting, I referred more particularly to the character of education in regard to boys. Let me say that it affords me very sincere pleasure to see such a large number of ladies assembled to-day in connection with the cause of education. We all recognise that in our early life, at any rate, our education depends upon our mothers, and there are very few of us who do not all the days of our life feel the influence which has been exercised upon us by our mothers and our sisters in our youth. I think it may be fairly taken as one of the best signs of the times that the education of woman is so much considered as it is just now. I am one of those advanced educationalists who believe that education fits a woman better for the duties of life in every respect; it makes her more practical, it makes her more business-like; and, if the time should come for her to be a wife, it makes her a better wife and a better mother: and certainly education does give to a lady a spirit of independence and an ability to earn her own living, which she can attain in no other way. We all know, too, that there are many things, even connected with mercantile pursuits, which ladies perform far better than men. We know, of course, that quite recently the very highest honours of Cambridge have been taken by ladies, and in educational matters there is no doubt that, in many respects, women are better fitted for training youths in educational pursuits than men are. And I am inclined to think that the continued prosperity of our country very largely depends upon the higher education of women. Therefore I hope that it will be felt on all sides that it is our duty, not only for their sakes and for their benefit, but for the benefit of the country at large, that women should receive a good, practical, sound education that will fit them to earn their own living and thus add to the wealth and prosperity of the country. I have to thank you again on behalf of the Lady Mayoress and myself for the honour you have conferred upon us in inviting us here to-day, and I beg to assure you that it has given us very sincere pleasure to come amongst you, and, if in any degree our presence has given one single impulse to the cause of education, we shall feel that we are amply repaid for our trouble.

COLLEGE OF PRECEPTORS.

Evening Meeting, February 20th, 1889.

The Chair having been taken by Mr. H. W. Eve, Dr. Francis Warner, F.R.C.P., read the following paper:—

MENTAL PHYSIOLOGY—A STUDY OF THE GROWTH OF MENTAL FACULTY AND ITS CULTURE IN CHILDREN.

The purpose of this lecture is to enquire whether it be possible to advance our knowledge concerning mental phenomena by pursuing the methods used in conducting physical enquiry; that is, by observation of physical facts, by analysing them, and making logical inferences without any reference to metaphysical questions. Such methods would have the advantage that practical results would be likely to follow.

It is obvious that in the proposed enquiry we shall observe, not "mind" itself, but its physical signs or outward manifestations. We need not be deterred from our purpose by finding ourselves in this position; similar objections might be urged with regard to the enquiries of the physiologist, but he does not wait till he knows what "life" is before studying and experimenting on phenomena produced in living beings. Light, heat, and electricity were experimented upon before they were regarded as modes of motion.

We have to study the signs of the action of mind in man, and these are movements and results of movement. Thus, movement produces speech, writing and written records, gesticulation, and mobile expression, and the outward manifestations of the emotions, while the so-called voluntary acts are obviously movements.

We pass on to consider the brain itself, and the modes of action of its parts or nerve-centres. The brain is a soft and delicate structure, seated in the brain-case and carefully protected; it consists essentially of two kinds of material, the nerve-cells and the nerve-fibres. The nerve-cells, when duly nourished, are the makers of nerve-force; for their proper nutrition they need a good supply of blood in their vessels. A nerve-fibre passes off from each cell and conveys the force generated in it, which is then called a nerve-current; there are millions of such cells in the structure of the brain. When the nerve-force, generated by a nerve-cell, is carried by a fibre to a muscle, say in the face or in the limbs, this nerve-current causes the muscle to contract or shorten, and visible movement results, the movement being stimulated by the force sent from the nerve-cell. The movement seen indicates to us the time and quantity of the discharge of force from the nerve-cell: such movement is conveniently called a nerve-muscular movement.

The substance of the brain is thus mainly made up of groups of nerve-cells, many of which are connected with one another by nerve-fibres, and many of them are connected with the muscles of the body and send nerve-currents to them, thus causing the movements of the members. The nerve-cell generates force as the outcome of its nutrition.

While the brain is giving out force, it must be replenished by nutrition, or it will run down and be less capable of producing energy after a short time; it will then need food and rest.

We have spoken of the nerve-cells of the brain as being connected with one another and with the muscles of the body which produce movements of its parts; it must now be explained that there are other nerve-fibres which connect the organs of special sense—the eye, and the ear, etc, and the skin all over the body—with the cells of the brain, and convey currents of force from these parts respectively to the brain. Such nerve-fibres are called *afferent*, because they convey currents to the nerve system; in distinction from these, the fibres which convey currents from the nerve-cells to the muscles are called *efferent*. The fibres which pass in both directions are collected into bundles or strings, and are commonly called the nerves of the body; the ingoing or afferent nerves convey stimuli to the brain, the outgoing or efferent nerves carry motor currents from the nerve-cells to the muscles.

All movements are due to muscular contraction, stimulated by and immediately sequent to the discharge of force from the nerve-centres; hence they are conveniently termed nerve-muscular acts. It follows, then, that all signs indicating the action of the mind in man are nerve-muscular acts.

In a nerve-muscular act the principal agent is the nerve-centre; the contraction of the muscle and the movement following are produced by the action of the centre.

Concerning the action of a nerve-centre stimulating muscular contraction we may observe the following characters:—

(1) The part acting, indicated by the part moved.
(2) The time of its action.
(3) The quantity of its action.

In the living man, or child, we observe movement, defining it in terms indicating the part moved; then we note the time and the quantity of the movement as indications of the time and quantity of the action of the nerve-centre corresponding. It is thus seen that we propose to study movements as signs of the action of mind. We shall also endeavour to point out the antecedents and sequents of such movements.

We may now try to make observations illustrating the methods proposed. It is commonly said that some movements in man show more intelligence than others, while certain movements are purely spontaneous or intuitive. Let us take two examples. The respiratory movements of the infant are not said to indicate mind. An infant aged five months can hold up its head, its fingers are constantly moving, usually without effecting any apparent purpose. Such movements are not considered to be signs of the action of mind. Now hold a red ball within the child's field of vision, and observe the special movements sequent to the sight of the object. The child's head and eyes turn towards the object, then the movement of the fingers is quelled. Such movements will probably be acknowledged to be early signs of the action of mind; it will be said that "the attention" of the child has been attracted by the sight of the object. An

idiot's attention would not thus be easily attracted. Why do we consider the respiratory movements unintelligent, and the movements of the older child as signs of mind?

These examples have been sketched; they must be described more accurately before we can answer the question put.

We spoke of the respiratory movements as being unintelligent. An uniform series of movements is seen, without any special antecedent stimulus except that of the air around, etc.—this is why they are called unintelligent. When in the adult the respiratory movements are modified, in the time and the quantity of the successive members of the series—as in laughter,* or in weeping, or sighing, etc.—then they do express some facts concerning the man's mental state. In the child five months old we may distinguish several distinct movements—those of the head, the eyes, and the individual digits, we observe not one movement but many movements acting in certain combinations and series. The attention of the child is indicated by combinations and series of movements of certain parts.

It will be found that often it is the antecedents and sequents of combinations and series of movements constituting an action, that makes us consider it a sign of the action of mind.

Let us consider the antecedents and sequents of some *motor* actions expressing mind in the subject studied. Respiratory movements, if they effect only the ordinary processes of pumping tidal air, are considered automatic, because they are a uniform series, not varying with surrounding influences; but if arrested by the sight of an object, or if rendered rapid, convulsive, and accompanied by widening of the mouth, etc., such alterations in time and quantity being sequent to the sight and sound of two children at play, then the man is said to be laughing, and the series of movements is taken as evidence of a "joyous mind." We consider this modification of the respiratory movements as a sign of the mental state, because the sight and sound of an adjacent object modifies them without producing any special sequent in the respiratory act useful to the man.

Common observation of a healthy infant shows constant slow movement of its various parts while it is awake. Respiratory movements continue with uniform regularity, except when some impression is followed by the infant crying; spontaneous movements are seen in the limbs, especially in the fingers—they are slower than most of the movements in adults and are almost constant, they occur in no apparent order, but appear to be quite irregular and not controlled through the senses. Each movement in the child represents spontaneous action of certain groups of nerve-centres; whether they are accompanied in the infant by "thoughts" I do not know, but experience shows that this spontaneous movement in the infant is the forerunner of intelligence.

In the young infant the constant movements of the fingers are called spontaneous, because no special antecedents modify them, and because their sequents do not directly benefit the child, as far as we know. At the age of five months these spontaneous movements are easily modified, in their time and quantity, by light and sound. If we observe a child at nine months we observe the former signs and, in addition, those movements which, as a sequence, lead to the object being grasped by the child. The antecedent incident forces, light and sound, are followed by the definite sequence observed; such act is said to be an early sign of the action of mind in the child. When the child is slightly further advanced in development a further sequence may be observed—the object seized is, as the result of the impression it produces, carried to the child's mouth or placed by it in the other hand. This secondary sequence is considered a further sign of mental action. The relation of antecedent to the sequent is the sign of the mental action.

Similar examples of the mental character of actions in the adult may be cited. A man takes a pen and moves it over the paper, then dips it in the ink. Such an action is a sign of absent-mindedness. Whatever may have been the impression that produced that series of movements, the sequence shows the absent-mindedness. The absurdity of the series of movements is the relation of the *time* of the various acts composing it, the pen should be dipped in the ink before the movements of writing. Again, if the pen charged with ink be unduly moved in extent up and down at certain parts of the written line, stupid large letters are made; this is a relation of the *quantity* of the acts in the series.

The quick reply to a question shows the shortness of interval between the sound of the question and the movements producing the reply.

This essay, dealing with a very wide subject, must necessarily be incomplete; we cannot deal here with many examples of the motor signs indicating the action of mind. The purpose in view is to show how, in my opinion, useful knowledge may be gained by direct observation of movements in man; elsewhere this branch of scientific study has been enlarged upon and illustrated.*

We are dealing with physical signs and phenomena as much capable of analysis and scientific study as any mode of reflex action, or any signs in inorganic subjects due to heat, light, or electricity. I wish to suggest a branch of scientific study likely to lead to practical results.

In practice, if we determine to observe the character of the signs of mental action, indicated by their quantity, it will be most convenient to note the postures seen in the limbs, face, etc., for postures are easy of observation. A posture is due to the balance of the muscles acting on the part, and shows us the ratio of the quantity of action of various motor nerve-centres. In studying the expression of those mental states called the emotions, certain postures are found to correspond and serve as signs of the brain action.†

In observing movements as signs of the action of mind, the greatest number of signs will probably be found in the small parts of the body, the eyes, the face, the hand, and the fingers. Variations in the combinations and series of movements sequent to special stimuli, such as special sounds and the sight of objects, are important; often movements of but few parts together are more significant than coincident movements of many parts.

One of the most interesting and important functions of the human brain is that of giving man the faculty of mental action. Modes of action of nerve-centres in displaying action of mind, may be inferred from observation and study of the movements expressing mind. Some special classes of movements, and the modes of action of the centres corresponding, must now be described.

Double action.‡—It is common to find evidence that an impression received by the brain is followed by two results: (*a*) A movement immediately following the impression; (*b*) a delayed result, indicated by a subsequent series of movements. It seems that the nerve-centres affected by an impression may undergo some local molecular change, and also send efferent currents to muscles producing visible movements.

A nerve-centre when stimulated, it may be through the ear, produces force, which overflows by efferent fibres to the muscles leading to their contraction. A double result may follow this stimulation of the centre, local molecular changes in the centre and efferent currents passing from it to certain muscles. When we study movements we study the outcome of efferent currents; in studying brain action expressing mind (psychosis) we shall mainly consider the local or molecular changes in the nerve-centres. The evidence of a permanent local impression is its expression when the subject is stimulated. Evidence of local impression in the centres, as produced by the sound of a word, is seen when immediate action follows in the hearer, and later signs of memory of that word are seen. The stimulus of the sound of the word may produce efferent currents from the centre leading to movements, and also a permanent impression in the centre itself; such expression of the impression must be by movements, as by speech.

Double action, as thus explained, probably does not always

* See the author's "Physical Expression," Chapter V. (International Scientific Series.)

* See author's "Anatomy of Movement," Kegan Paul, Trench, & Co.

† See "The Children: How to study them," F. Hodgson, Farringdon Street.

‡ In explaining the modes of action of nerve-centres, the Lecturer used the accompanying mechanical diagram, representing a certain area of the brain. The circles represent brain centres; when a centre is presented as black, it is sending out force to muscles, and producing visible movement in the body as expressed by elevation of signals at the side, the full action of *A* causes elevation of signal *a*, etc. Centres *C*, *G* are supposed to be active, but not to be sending nerve-currents to muscles. Centres *B*, *D*, *E* are not acting.

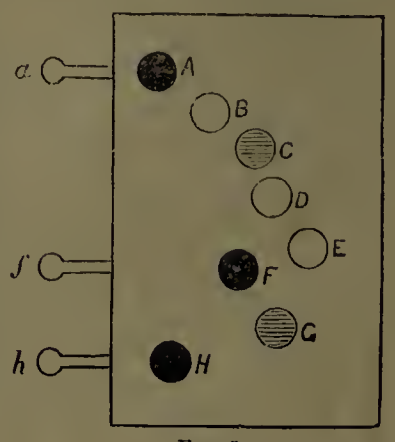

Fig. 1.

occur, as in the case of simple reflex actions and other unintelligent movements. When an impression has been produced in a nerve-centre, the time of observation must be prolonged to see if you may find any delayed expression. Delayed expression of impressions is very common in mental phenomena, the expression is always by movement. Memory is due to impression on nerve-centres; the expression of an impression may be often repeated.

Delayed expression is a relation in time between the impression produced in the centre and its visible expression, showing that some impression produced by the antecedent of the delayed expression may be fairly assumed. Retentiveness preserves the impression till it is expressed in visible movement.

A child four years old quietly looks at some one putting a letter into a pillar-post; we cannot at the time see the impression produced on the child's brain, but we guess that an impression has been produced because the child's head and eyes turned towards the pillar-post. We know that an impression has been made when next day, on the child finding a letter on the table, "he takes it and posts it behind the door."

Innoting the relations of an observed series of movements to its necessary antecedents it is very usual to see a long series of acts involving many parts follow upon some slight stimulus, such as the sound of some word of command, or even a gesture seen in another person. The compound series of movements does not necessarily terminate in a strong movement, but in one, as it is commonly said, well adapted to the circumstance. In all such cases, however, it will be found that impressions had been made antecedent to the slight stimulus which immediately started the compound series of actions observed. Such compound action may be in part an example of delayed expression of previous impressions upon the brain, and in part a reinforcement. Such cases of compound movements do not occur in the infant at birth or in very early life; the arrangements for such action must be built up in the brain.

It seems that a stimulus acting upon the brain through one of the senses may be followed by currents passing from certain cells to other groups of cells, to be finally succeeded by movements well adapted to the circumstances which produced the primary stimulus.

Reinforcement.—A series of movements may occur, sequential to some stimulus, in which the final movement is much stronger than would be expected from the force of the primary stimulus—each group of movements, as the series progresses, increasing in number and in force. It is the spreading of the area of movements, or the number of parts moving as the action proceeds, that is here specially indicated, such augmenting series of movements being started by a very slight stimulus, the force expended in such series being out of all proportion to the strength of the original stimulus.

Crying.—The sound of a sharp word to a child may be followed by depression of the angles of the mouth, alternate tonic contraction and relaxation of the orbicularis oculi, altered respiratory movements causing screaming, flushing of the face, and finally clonic contractions from action spreading to all the motor areas of the brain.

It appears, then, that a nerve-centre may be excited by a stimulus from an organ of sense, and may then discharge its efferent impulse to more than one centre, so that the nerve-currents become reinforced or strengthened as they proceed finally to the muscles which produce visible movement. Such reinforcements occur at the earliest stages of existence, whereas "compound cerebral action" occurs only at a later stage of development.

A very interesting and important form or mode of impressionability in nerve-centres is their susceptibility to coordination or functional union for action. When we place an object in an infant's hand the fingers close around it, grasping the object—this is a combination of nerve-muscular acts sequent to the stimulus of pressure. We infer a combination of acts of nerve-centres corresponding. The stimulus caused by the *sound* of the dinner bell is followed by certain movements seen in the boy, certain combinations and series of acts. The sight of food placed before him is followed by his eating it; sight of the cricket ball coming towards him is followed by the combination of movements getting ready to catch it.

I assume as my *hypothesis* that such actions are due to some kind of functional union of the centres produced by the stimulus antecedent to the movement. The act of getting the nerve-centres ready for action is here supposed to be the formation of some kind of union among the centres for the passage of nerve-currents through the cells which govern the particular combinations of movements. Referring to Fig. 2,—let *a*, *b* be the muscles acting together to produce the observed movement which follows the sound of the bell. Then the sound at its incidence to the centres first causes the functional union (*AB*), and if the stimulus be strong enough the stimulus is followed by efferent currents passing to *a*, *b*.

Fig. 2.

The brain is represented by the shading as divided into areas *A*, *B*, *C*, *D*, *E*, which can act more or less separately; each area or section of brain is represented as connected by nerve-fibres, with a muscle corresponding—thus brain-area *A* sends its force to muscle *a*, &c. Each section of brain may receive a stimulus from the eye or the ear. The representation is purely diagrammatical for the sake of clearness of description.

Let *A*, *B*, *C*, etc., be nerve-centres, and *F* an incident force. Observation shows that (*AB*) always follows on action of *F*, and that after a certain number of repetitions the action (*ab*) follows the action of *F* with greater certainty than at first, and also that (*ab*) often occurs spontaneously, *i.e.*, without stimulation by *F*. The assumption is then made that an organic union (*AB*) has been formed, and that a stimulus acting on either *A* or *B* will cause (*AB*) to act.

Examples of unions among nerve-centres are seen in the symmetrical movements of the eyelids on either side, and also of the mobile features of the face; we infer that the centres for the two sides of the face usually form a union because the sound or sight which precedes facial expression is usually followed by equal movement on either side.

When we observe a case of functional union among nerve-muscular signs, that which we in reality see is special combinations and special series of acts. After recording such observations of facts, we may infer something as to their causation and make generalisations. It is very necessary to distinguish in this consideration between our observations and our inferences. We make direct observations upon the child, noting the combinations and series of its movements as it puts out its hand to take an orange. These are nerve-muscular acts; hence we infer the time of the acts of the nerve-centres corresponding. This inference enables us to say that we observe the combinations and series of acts in the nerve-centres. Observing the incident forces, we find that upon successive occasions the same series of nerve-muscular acts or functional unions of centres occur. Now we may discuss any theories as to the causation of such functional union among the centres.

The evidence as to the functional union occurring is the combination of action, or the series of combinations. We observe the combination of movements and infer combination of action in the centres. The term "functional union" is convenient, it involves a theory; we must explain rather than define the meaning of the term; it is an inference from the time of the acts; it is

probably the outcome of the common impressionability of the subjects.

As additional evidence that some kind of physical union among the centres is formed, we refer to the following facts:—Repetition makes all actions quicker and more precise; they follow more readily and certainly upon the same stimulus; practice makes the actions precise and perfect.

To understand the theory of psychosis, or action of brain in expressing mind, which I am about to advance, it is essential to remember what has been said about double action in nerve-centres and delayed expression. Movements expressing the action of mind, imply local molecular change in the nerve-centres and currents passing from them to the muscles. The former, or formation for action, must always precede the movement; it is this formation for action in the centres, or getting ready for action, that I believe to represent the physical act of psychosis. We cannot define a thought; that is a metaphysical term. We can describe the expression of thought by movement, and infer the attributes of the act of psychosis preceding it. I can only know the thought of another man by its expression in movement or the results of his movements, the thought preceding its expression. The nerve-mechanism for the thought is probably a part of mechanism for its expression by movement.

Studying processes of growth in living beings and movements in man, teaches us much as to the action in the brain; observation of the motor action of the brain enables us to make generalisations as to the processes occurring in its parts, or nerve-centres. From studying the expression of mind, we shall argue as to the action occurring in the brain which corresponds to the physical action called thought, which is known to us by subsequent expression in movements; from studying processes of growth in many living things, movements in man, especially movements expressing mental action, and observing the antecedents and sequents of such acts, the theories to be advanced have been deduced as working hypotheses. It was while studying the motor acts expressing mind that I was led to frame the working hypothesis that every mental act is the outcome of a group or combination of nerve-cells acting together. My hypothesis is not an imagination, but a translation of what is seen in nature's work, expressed in terms implying what we see.

The hypothesis is, "That every mental act, as every motor action, depends upon the formation and action of a certain combination of the nerve-cells."

The sum of the phenomena of mind may be considered as a mass of separate mental acts. It is very generally admitted that in some way the organisation and functions of the brain are concerned in displaying mind. It is assumed here that a mental act is not the act of one mass of brain which does nothing but produce that one act, but the outcome of the particular set or combination of cells which happen at the moment to act together; the union of cells for such act being temporary, though capable of recurring. It has been shown that one group of cells acting together produces one particular movement, and it is believed that similarly one group of cells can produce one particular act of mind—the particular thought thus depends upon the particular group of cells acting. It is also believed that groups of cells can be caused to act together in mental acts, as for certain movements, by a very slight stimulus of sound or sight. The expression of a thought consists in the motor action of a group of cells; the thought (act of psychosis) consists in the formation of the union of cells whose motor, or efferent action, produces expression of the thought. Thought precedes, and is known by subsequent movement; thought is a part of the cause of the movement, and must correspond to some physical (it may be temporary) arrangement among the cells. I do not know what that "arrangement" may be, but, as it leads to associated movements, I suppose that it consists of associations among cells; thus, "thinking" is the getting ready for action; it is the molecular or functional formation or arrangement of unions among nerve-cells. A special combination or series of movements may occur, and then may not be called up again till some special stimulus recurs—*i.e.*, a special associated action of cells or union among them does not recur till that special stimulus recurs. These associations, ties, or unions among cells may be dissolved.

The theory given is not a philosophical explanation as to what Mind is; it is a temporary working hypothesis, and suggests methods as to examination of the physical structures concerned in producing the manifestation of mind, and it may help us to see how we can aid such processes in the child.

The mental function of nerve-centres appears to be merely the faculty for the formation of combinations for action; it is a form of impressionability, such that forces acting through the senses can produce unions among the centres, controlling the special centres in the union, and deciding how long the union shall last, whether it be quickly dissolved or rendered permanent.

The term "micropsychosis" is here used to imply the brain action which corresponds to the earliest forms of thought in the child, spontaneous or uncontrolled by impressions from outside. Observation of spontaneous actions shows that spontaneous combinations of nerve-cells are formed, and it may be shown that spontaneous movements and irregular uncontrolled thoughts often occur together in children. I imagine that the nerve-cells concerned in the display of mental action act more or less separately and independently of control by the senses, as in the spontaneous movements of the infant, and that their coordination, as development proceeds, produces the definite acts called thoughts. We do not speak of the infant's early movements as actions, and the earliest formations of unions among its nerve-cells cannot be called thoughts. As rough analogies—a child is fidgety (full of uncontrolled movements) and is inattentive (uncontrolled thoughts); during sleep impressionability is lessened and dreams are spontaneous. Nervous children are full of spontaneous movements, and often have many strange, disconnected, imaginative, precocious thoughts. In adult life there are wandering, unbidden, wild, ungoverned thoughts, a mass of thoughts, a cloud or a rush of thoughts through the brain. In healthy people these are best controlled by things seen and heard. This micropsychosis is fatiguing, and may lead to exhaustion. We do not see any action in the child worthy of being called thought, till we see in its movements the signs of co-ordinated action.

Having sketched the work to be undertaken in making a study of mental action by the processes of physical science, and described some of the modes of brain-action necessary to the display of Mind, we may proceed to further illustrate the application of the views expressed in the study of mental faculty and the methods of cultivating it.

In educating a young child, the first thing is to gain its attention. When studying the development of mental faculty in an infant, the first indication of the mode of brain action called attention is when a sight or sound temporarily quells the spontaneous movements; a further development is seen when such quelling of spontaneous movement is followed by a set of movements, controlled and regulated by that sight or sound (compound cerebral action). When at five months old the infant's movements are quelled by the sight of a toy, then head and eyes are turned towards it, the hand passes towards the toy, the fingers grasp it, and the toy is seized and conveyed to the other hand and then placed in its mouth; then we say "the child's attention was attracted," and we hope it will develop the further signs of intelligence.

I have seen a little boy, five years old, standing before me in a Kindergarten, with a narrow forehead, mouth open, teeth grinding, face dull and expressionless, with creases on his forehead from irregular muscular action and frowning, his eyes directed towards me but constantly moving irregularly; he was thin and of slightly defective make. When spoken to, these irregular movements ceased and his facial expression was good. When he sat down to his paper-folding, he worked away readily. Teacher said "he was dreamy, and did not work well." There is great hope of improvement for such a child, for his irregular actions can be controlled; suitable training may make a good man of such a boy, and the teacher is cultivating his power of attention by Kindergarten work. To quell spontaneous movement for the moment is the first act in getting the attention. To cultivate aptness for mental action in children we must prevent the appearance of the signs of exhaustion, encourage spontaneous action (microkinesis and micropsychosis), and for short periods of time quell such movement through the senses, replacing it by regulated movement. We want, in fact, to make the young child impressionable to the action of surrounding objects, especially to the sight and sound of the teacher—hence the great use of well-arranged callisthenic exercises, and organised play. Look to see spontaneous movement, and do not quell it unnecessarily. The least amount of stimulus from teachers that will effect these objects the better. A sharp word or an angry look may produce one of two results—it may stop the brain action and thus render the child stupid; it may stimulate a great many nerve-centres in the brain to irregular action, a storm of action may occur, the angles of the mouth being depressed, the face flushed (now is the time to stop the storm), the eyelids screwed together, the forehead crumpled, the head bent, fingers clenched, fists put to

the eyes (cerebral reinforcement). The word of command is a very important form of stimulus to the child's brain. The least force in it that will effect the purpose the better; a gesture may do better than a word; the fewer words the better; a simple, quiet word may produce the coordinated action; many words may produce too much diffused action. Watch the effect of the command on each child, and act accordingly.

The faculty of imitation needs to be cultivated. Sir Gilbert Blane said, "The only objects of imitation are gestures and sounds, and by these are also transferred from one individual to another the emotions of the mind of which they are the natural expressions" (Croonian Lecture, p. 268). Gestures are imitated before sounds. This is one reason why teachers would do well to study gestures and movements, both in their pupils and in themselves. Imitation is one of the most important means of controlling action in children's brains. Let me explain how it acts.

The children seen in the following observation varied from seven to thirteen years of age; they were about forty in number, engaged in a drilling lesson. I saw the first, second, and third divisions go through the same exercises to the same words of command, and took notes. While the children stood motionless in rows in front of the teacher, she performed the exercise, and spoke quietly to the children; then, following the word of command, similar combinations and series of movements were seen in the children. The first division had been similarly drilled about fifty times, the second division thirty times, and the third division only twenty times. In the first division the exercises were followed in the detailed series of movements with great uniformity, exact in the time and quantity of action in each part. The word of command was in each child followed quickly and uniformly by the particular series of movements called for. Movements were less exact in the second class. In the third division the movements following the same words of command were very uncertain, and various in the different children.

In teaching the class, the spontaneous movements of the children are quelled as the nerve-centres are impressed by the sight of the teacher's movements; after this period of suppression of movement, the children perform series of actions similar to those previously seen in the teacher. It appears that during the period of arrest of all movement the nerve-centres were being prepared to perform these special series of movements. The series of movements in the children are similar to those seen in the teacher. Here it appears that the sight of certain movements in another individual is followed, in the child, by actions in the nerve-centres which correspond to those whose action in the teacher produced the visible gestures imitated.

As an example, I hold up my hand in front of a child; at the sight of me the child does the same, performs the same gesture. Frequent repetition of the same observation demonstrates that the sight of my gesture is the stimulus causing his movements. What influence passes from me to the child? Gestures are imitated only under the stimulus of light; prevent light from being reflected to the child from my body, and any further gestures he performs are not the result of direct imitation. In a similar line of argument it may be shown that sounds are directly imitated only under the stimulus of air vibrations passing from the object imitated to the subject imitating. Plug the ears of the child, and any gestures or sounds occurring in him are not from direct imitation by the stimulus of sound.

Imitation is, then, a form of reflex action, the movements resulting being similar to those of the object imitated. When the sight of an object stimulates a movement, this is a reflex action, *i.e.*, the movement is the effect of an external force on the subject. It is said above, "When I hold up my hand, at the sight of me the child does the same." This is an observed fact, a proof of the child's power of imitation. The explanation offered is that the child's movements are reflex, due to the stimulus of the sight of my upraised hand.

Prof. Bain says: "The primary attributes of intellect are (1) consciousness of *difference*, (2) consciousness of *agreement*, and (3) retentiveness." As an exemplification of the use of my hypothesis concerning the action of the brain centres in giving faculty for intelligence, let me show its application to a mental act of comparison resulting in difference or agreement. A proposition consists of at least two thoughts—"All *men* are *kind*"; each thought is represented physiologically by the union of a group of nerve-cells in action; two such groups are active when the proposition forms a part of the mental action. If past impressions of the individual have been such that the sight of man has always been accompanied by the sight of his kind expression and action, the union of cells corresponding to "man" and that corresponding to "kind action" are readily called into play and are maintained in synchronous action, the proposition is admitted. Retentiveness of impressions on the brain (which time has prevented me from treating of) is of course necessary. If the proposition be presented, "All men are unkind," the nerve unions corresponding to "man" and "unkind action" are called up together; but immediately the latter group of nerve-cells ceases to be active, because the two unions have not previously been functionally active together and will not co-exist, the proposition is denied.

It follows from this explanation that the inherited character of the brain, or the impressions received by the individual, determine to a large extent what propositions will be granted, and what comparisons will be rejected. Mental training and the experiences of life have much to do with the mental character. Every thing seen, and every sound heard, especially those resulting from the action of men, tends to leave a mental impression, though the outcome of such impressions may long be delayed.

In conclusion, I would offer some practical suggestions on the conduct of mental training founded on my own experience as a teacher, and in a less degree upon the studies of which I have given a brief sketch. Observe the pupils always, noting not only what are commonly called signs of their physical condition, a subject upon which I spoke in this place upon a former occasion, but also the physical signs of their mental action. Time, involving the accurate order of acts, is a most important element in mental action; this may be trained in many ways besides literary culture. In all science teaching, and in object-lessons, accuracy as to the order of events is most important; do not teach that the dog runs after a rabbit to catch it, but that he runs after seeing the rabbit—he catches it after running. I believe it would be good mental training to make pupils analyse literature, distinguishing the terms which imply things that can be seen, or actions that can observed, from those terms which do not connote what is observable by the senses.

Education must largely be conducted by the use of words; it seems to me that from the point of view of educational value there are three classes of terms used:—

1. Terms corresponding to impressions produced by objects of still-life, inanimate objects, toys, plants, stuffed animals, models and pictures, etc.

2. Terms corresponding to impressions produced by nerve-muscular acts, or mobile expression in others. In reading *Romeo and Juliet*, we hear Benvolio say, "A *troubled mind* drove me to *walk abroad*." A child may be readily impressed by the description of "a man walking abroad"—a man exhibiting such action may have been seen by him; until experience of events has impressed him with the sight of the signs of "a troubled mind," the words will not produce much impression.

3. Verbal terms correspond to mental acts, ideas, thoughts about what cannot, never has been seen. Benvolio continues, "Measuring his *affections* by his own." These words may produce no impression, or various impressions, according to the previous experience of the child as to the expression of *affections* in other people.

Again, Romeo says:—

> "Tut, I have lost myself; I am not here;
> This is not Romeo, he's some other where."

This is not the expression of thought directly produced by the sight of anything; it cannot be understood by a child who has never been impressed by the sight of a distracted man's face and action. Thoughts may, however, tend to rise spontaneously from the inherited tendency to certain modes of brain action corresponding to the brain arrangements for certain series of movements known to be inherited.

In reply to some remarks by Mr. Orchard as to the influence of the will in fixing the attention of the child, Dr. Warner explained that he had purposely avoided all reference to the will, or to any metaphysical problem, and had confined himself entirely to physiological appearances in relation to mental processes.

A vote of thanks to the Lecturer concluded the proceedings.

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

The Reports on the Examinations in Law have been completed by the issue of the Honours and the LL.D. lists. At the Intermediate Examination for Honours (Jurisprudence and Roman Law) ten candidates have

been successful; five of these are in the first class, and the first of them (Mr. E. I. Watson, a private student) obtains the exhibition. At the Ll.B. Honours (Common Law and Equity) only five candidates have been successful, none of whom are in the first class. In the Ll.D. list there are only two names, and neither of the gentlemen obtains the medal.

The pass-list of the Preliminary Examination in Medicine shows that 17 candidates have passed the whole examination, 14 have passed in two of the three subjects, and 27 in one subject. At the Intermediate Examination in Medicine, 21 candidates have passed the whole examination, 6 have passed in all the subjects but physiology, and 5 have completed the examination by taking up physiology only. One lady has passed the Preliminary and one the Intermediate—each in the second division. No Honours Examinations are attached to the Medical Examinations held in January.

The Matriculation Lists have also been published during February. We are informed that the total number of candidates was 1,243 (against 785 last year, an increase of above 58 per cent.); but their average quality appears to have been very low, for only 608 (or not quite 49 per cent., against more than 55 in January, 1888) have passed. Of these, 47 are in the Honours Division, 419 in the first, and 142 in the second. Of the Honours candidates, only six are above the prize-mark; and as four of the six are too old to take an exhibition or a prize, only the first and second exhibitions are awarded, viz., to the first and sixth candidate respectively. Of women, we are informed that 169 presented themselves (against 113 last year). Of these 80 (47·3 per cent.) have passed, only 1 in honours (twelfth), 56 in the first division, and 23 in the second. It would thus seem not only that the lightening of the Examination by a Language-paper has tempted a large number of ill-prepared candidates to rush in, but also that the general preparation of successful candidates is, to say the least, not higher in relation to the nine papers now given than it used to be in relation to the ten papers formerly set.

There are rumours abroad that the minimum standard of marks for the Honours Division at Matriculation is forthwith to be further screwed up very considerably; and also that the number of papers among which candidates are allowed to exercise an option is to be increased by the addition of Botany. Such organic changes, if finally determined on, will no doubt be officially announced, and should then be noted by teachers. Three other alterations, however, in what may be called the mechanical arrangements, have already been announced: (1) That the June Matriculation Examination will, in the present and subsequent years, begin on the *Second* Monday of the month (instead of the Third, as heretofore); (2) That the issue of the preliminary (alphabetical) pass-list of both the January and the June examinations will henceforth be discontinued; (3) That a classified list will be published, and no other, on *Wednesday* in the *Fifth Week* after each examination. These changes result in an extension, by ten days, of the time between the close of the Examination and the issue of the classified list,—an extension which has probably become absolutely necessary to enable the examiners to cope with the answers of the large and ever growing number of candidates; but they are not without their inconveniences,—especially the first of them, which throws the June Examination a week earlier. Hitherto, for example, candidates who completed their sixteenth year by the 21st of June were admissible; in future (unless any relaxation be allowed this year) all candidates must be 16 years old on or before the 14th; and again, in the present year (and the same thing will happen hereafter at intervals), the examination will begin on Whit Monday, a bank-holiday; but this inconvenience might be obviated by making the examination begin on Tuesday morning, and giving out the two short Latin papers on one half-day.

On Saturday, the 23rd of February, there took place, in the Theatre of the University, a public performance of the "Exercise" for the Degree of Doctor of Music (referred to in our January number), lodged by the candidate, Mr. C. J. Hall, as part of his qualification for the degree. The exercise was in the form of a cantata, in regular form, for soli voices, chorus, double chorus, and full orchestra. The libretto was based on Dante (chiefly the Purgatorio), and was apparently intended rather to be sung than to be read; but the musical composition, especially the orchestration, was particularly good, and gave great satisfaction to the numerous audience. The composer himself conducted.

It may here be mentioned that such a performance has taken place only once before, viz., in February, 1886, when two candidates presented as exercises, the one a "Requiem," the other a "Stabat Mater," and each conducted the performance of a part of his composition. As, however, degrees in music are of comparatively recent institution in this University, and as each candidate must pass (including Matriculation) five severe examinations, and must present two somewhat formidable compositions, it should rather be wondered at that Mr. Hall is already the third candidate who has succeeded in obtaining the highest degree.

Oxford.

In the Women's June Examination the numbers were as follows:—At the first examination, of 35 candidates 23 passed; at the second examination (Pass), of 20, 8 passed; while in Honours all the 18 candidates passed. In Natural Science, of the 6 candidates 5 passed; and the solitary candidate in the Rudiments of Faith and Religion also passed. In the Local Examination for boys and girls the total number examined in 1888 was 2,904—namely, 2,089 juniors and 815 seniors; of these 1,406 juniors and 587 seniors passed, 67 who entered failed to present themselves, and one was disqualified for "taking unfair advantage during the examination." Of the new subjects introduced this year—shorthand, *précis* writing, and commercial correspondence (French and German)—but few had reached the point at which shorthand becomes useful; the meaning of *précis* writing was often misunderstood; and in commercial correspondence, especially French, the results were not satisfactory. The report makes the practical observation that ability to read German handwriting is a *sine quâ non* for the aspirant to the place of a foreign correspondent in a commercial firm.

Convocation has passed a decree conferring the degree of M.A. upon Sir W. W. Hunter, K.C.S.I., late Vice-Chancellor of the University of Calcutta. A decree was also passed constituting a Perpetual Visitor of the Ashmolean Museum Mr. C. D. E. Fortnum, whose munificent donation to the University of works of art of the classical and Renaissance periods was a short time since acknowledged by a vote of thanks by Convocation. The collection is now placed in the Ashmolean Museum.

An election will be made by Convocation on March 13th of a clergyman to be rector of Brockley, Somerset, the patronage of which living has lapsed to the University under the Act of James I. A person already in possession of a benefice is ineligible. The Rev. H. J. Ferrier, D.D., Merton College, late Headmaster of the King's School, Stafford, and Buxton School, and the Rev. G. G. Ross, M.A., D.C.L., Dyke Scholar of St. Mary Hall and now curate of Ewelme, are candidates for the appointment.

The statement of the income and expenditure of the common University fund for 1888 has been presented to Convocation. The income was derived from the contributions of the colleges, amounting to £3,990 after deduction of law charges, a payment by the Geographical Society of £150, and interest on deposit £29, making a total of £4,170. The expenditure of the year was as follows:—Readers in various subjects, £2,500; special payments to lecturers, £758; apparatus and libraries for professors and teachers, £972. The balance at the beginning of the year was £2,226, and at its close £2,270.

Mr. Pelham, Fellow of Exeter, and Reader in Roman History, has been elected a professorial member of the Hebdomadal Council, to supply the vacancy caused by the resignation of the President of Corpus.

Mr. Robinson and Mr. Wakeman, Fellow of All Souls, have been elected as delegates of the Common University Fund.

Cambridge.

The Local Examinations and Lectures Syndicate report that an examination for commercial certificates was held simultaneously with the ordinary local examinations in December last. Forty-nine candidates entered at 23 of the entries. Certificates have been awarded to eight of the candidates.

The Council of the Senate has re-appointed Professor Kirkpatrick a governor of Harpur's Charity, Bedford, and the Rev. J. W. Cartmell, of Christ's College, a governor of the Grammar School, Bury St. Edmunds.

The Fellows of King's College met last week in the College Chapel for the purpose of electing a Provost of the College in the place of the late Dr. Okes. The qualifications of the Provost are by the statutes as follows:—"The Provost shall be a Master of Arts, or of some equal or superior degree in the University of Cambridge or Oxford, and of not less than 30 years of age. The electors shall choose some person distinguished for his attainments in theology, literature, or science, who in their judgment is also best qualified by his piety, discretion, and knowledge of affairs to secure the good government of the College as a place of education, religion, learning, and research." The result of the election was that the Rev. Augustus Austen Leigh, M.A., Fellow and Vice-Provost of the College, received 34 votes, while 11 votes were given to Professor Sidgwick, of Trinity College. Mr. Austen Leigh was consequently declared duly elected, and he will be in due course admitted by the Visitor, the Bishop of Lincoln. The new Provost was born in 1841, and educated at Eton, from whence he proceeded to King's College, where he graduated B.A. in the Classical Tripos, 1863. In that year, out of the first six in the first class of that tripos no less than four were members of King's College; Sir R. K. Wilson was senior classic, and Mr. Austen Leigh was bracketed fourth. He entered into Holy Orders, and from 1865 to 1867 was curate of Henley-on-Thames. In the latter year he came back into residence at King's; and was appointed tutor of the College, holding that important post for the long period of 14 years. It was due to his energy and popularity that the number of undergraduates steadily increased; but, although the College was thrown open, none were admitted unless they intended to proceed to an honour degree. In the affairs of the University, he has for some years done excellent service on Syndicates and as a member of the Council of the Senate. He was an examiner for the Classical Tripos in 1875 and 1881, is a member of the Special Board for Classics, and one of the *Sex Viri*, a judicial body to whom is entrusted the duty of investigating charges made against members of the Senate. He has filled the office of Vice-Provost of the College for the last ten years. He is extremely popular among all classes in the University, and is well known to the younger members in his capacity of president of the University Cricket Club. The stipend attached to the office is the dividend of two fellowships together with a sum not less than £1,000 per annum to be determined by the governing body. He has also a lodge provided.

The Rev. Edward George King, D.D., of Sidney Sussex College, vicar of Madingley, and late Tyrwhitt Hebrew Scholar, has been elected to the office of Hulsean Lecturer.

The Chancellor's Medals for Classics have been awarded to Edwin Joseph Brooks, B.A., Scholar of St. John's College, and William Loring, B.A., Scholar of King's College, who are declared to be of equal merit.

EDUCATIONAL NOTES AND SUMMARY.

When speaking lately to a gathering at the Yorkshire College, Leeds—held in connection with the classes for the training of assistant-masters unable to go into residence at training colleges—Dr. Fitch made some remarks which will be specially interesting to those who believe in the value of systematic training. He said:—

"As inspector of training colleges, nobody has better reason than I to know how valuable the special professional training in those institutions is. It is not only the regular study, but the moral discipline, the companionship, the seclusion of a student's life, which makes the two years' residence at a training institution so effective both on the character and on the attainments of the future teacher. I wish that all who enter on the profession of a teacher could enter it by this portal. I am just fresh from the examination of a large number of the papers and exercises prepared last Christmas by the candidates who presented themselves for teachers' certificates. Nothing can be more striking than the contrast between these two classes of candidates. When I tell you that of the candidates who came up last year for examination from training colleges, about 30 per cent. passed in the first class, 60 per cent. in the second, and 10 in the third, while scarcely one failed to pass, you will easily understand what is meant by the further fact that of the candidates who came up for the same examination, but not from training colleges, less than 1 per cent. passed in the first class, a little less than 10 per cent. in the second, and 35 per cent. in the third, while more than half failed altogether."

With regard to the quality of our schools, Dr. Fitch said:—

"Englishmen have one habit in which they indulge far more than any other people I know—that of disparaging their own institutions and constantly complaining that in other lands schools are better than in our own. For my part I don't believe it. I have seen many schools on the continent of Europe and in America, and I believe that for accuracy and solidity in acquirement, for mental activity, and for interest in their work, the scholars in the best of our English elementary schools would hold their own, and compare most favourably, age for age, with the scholars in the best schools I have ever visited; while for the general maintenance of a good standard of primary instruction in the remotest and least favoured districts in the country, there is scarcely any country known to me—certainly not the United States—which possesses equally efficient provision. Still, there is much room for improvement, and there are many details on which we may learn much from foreign systems."

Lastly, turning to the future, Dr. Fitch sketched what he considered to be the task before us:—

"The school of the future must do more than we have done hitherto in the direction of mental development—must furnish better training for the hand and for the senses; must do more for the cultivation of taste and the love of the beautiful; must kindle in children a stronger appetite for reading and personal cultivation; and at the same time bring them into a closer contact with the facts of life, and with the world of realities as well as the world of books. And the public will look to you, and to such as you, to fulfil this ideal. There are many grave problems in education which remain unsolved, and which yet await speedy solution, and the answers will depend largely on the degree in which the experience and judgment of our ablest teachers are brought to bear upon them. We are yet only at the beginnings of a true science of education. Many of the deepest principles and laws of that science have yet to be discovered. It is in the laboratory of the schoolroom, and in a closer study of child-nature by teachers, that the most fruitful discoveries will be made."

There are two arguments which can be used in defence of competitive examinations, and both of them (says the *St. James's Gazette*) were brought out in Lord Derby's speech at Preston when he was giving away the prizes at the Harris Institute. The first argument is that we cannot dispense with competitive examinations, because in their place we should have to put another system which would be much worse. Appointments in the public service would have to be given by favour—not, perhaps, to the friends and connexions of great noblemen (that was the old system, and it was bad enough), but to the nominees of political parties. In theory, the appointments would rest with the Ministers at the head of their several departments; in practice, the patronage would be exercised by election agents and party wire-pullers. That by itself would be reason enough why we should retain examinations in the public service. But the evils of the competitive system have been greatly exaggerated. If a boy or young man breaks down under the strain, it is generally because he has been badly taught, or has been idle and is trying to make up in a few months the ground which ought to have been covered by the work of years.

Early last month a conversazione was held at the Mansion House in aid of the Homes for Little Boys at Farningham and Swanley, Kent. At Farningham there are, in separate homes, nearly 300 boys, but two of the houses have had to be closed for want of funds. The orphanage at Swanley was designed for 200 orphans and fatherless boys who have seen better days. The committee are very anxious to proceed with the erection of three more houses.

Efforts are being made (says the *Globe*) to induce the Government to bring in a measure early in the session to make provision for the establishment of continuation schools as part of the educational system in connection with the elementary schools of the country. Memorials to the Prime Minister are being prepared for signature, asking that children shall not obtain total exception until they are thirteen, and half-time until they are eleven.

Mr. T. Adolphus Trollope sends the following epitaph upon a schoolgirl to *Notes and Queries*:—

"Oh! weep not for me, friends, for I am a-going
Where there'll neither be reading, nor writing, nor sewing.
No! weep not for me, for though we must sever,
I'm going to do nothing for ever and ever!"

A good deal has been written of late about the legal proceedings taken by the London School Board against the theatres where children under age are employed in pantomimes, and much good sympathy seems to us to have been wasted. It is many years since we made up our minds, and gave definite expression to them in law, that children shall not be converted into wage-earners till they have reached a certain age; and we can see no reason why exception should be made in the case of pantomime-children. Indeed, reason seems to us all the other way; for evening employment stretching on till near midnight, is distinctly prejudicial to the health of young children, especially in such an atmosphere as that of a theatre. While, to talk of education being carried on at the same time, appears little less than absurd to teachers who have had some experience of the effect of late hours on their pupils' next day's work. No doubt there are pathetic individual cases. No doubt money is sorely needed. But this was the case with factory children; and the same plea applies with greater force to many other kinds of child-labour much healthier than that of a theatre. The matter must be looked at as a whole, and not as the mere generalisation of a few striking and pathetic cases. And so viewing it, and holding strongly that every child should have a fair chance of education up to the time when it is fit to work, we think that the School Board has acted rightly. We cannot help suspecting that in the obscure recesses of the minds of some good people there still lurk the ideas that education is not really of prime importance, and that the chief function of children is to amuse their elders.

On the afternoon of Saturday, February 23rd, at the Mansion House, the thirteenth session of the London Society for the Extension of University Teaching was opened by an annual address, delivered by Professor Max Müller, on "Some Lessons of Antiquity." The Lord Mayor presided. The secretary, Mr. R. D. Roberts, M. A., read the annual report, which stated that the progress of the Society during the past year had been more remarkable than in any previous year. There had been an increase in the number of centres, the number of courses, the total of entries, the number of certificates awarded, and also a continued improvement in the work done. The Council had obtained the Gresham College Lecture Hall for the use of the more advanced students. The Council was of opinion that the London Society for the Extension of University Teaching should be incorporated into a University system in order to obtain a more complete and efficient development. They noted with much satisfaction the appointment of a Royal Commission to consider the question of a Teaching University for London. During the two terms 80 courses were given at 38 centres, as against 65 courses given at 33 centres in 1887; while the total of entries was 7,150, as against 5,662 in 1887. There was also an increase in the number of certificates awarded, there being 859 in 1888, against 612 in 1887. Professor Max Müller, in describing the lessons of antiquity, said that the alphabet was obtained from the Egyptians, our numerals from Hindoos, the marking of time by cuneiform characters was invented by the Babylonians,

as well as our present system of coinage. The marking of coins, however, was not without a little uniformity to our present bimetallic system. He dwelt principally upon the manners and customs of the Egyptians, Babylonians, and Hindoos, from whom he traced our present learning and research. His conclusion was as follows: — "But think what a lesson of antiquity had here been thrown open to us. We learnt that we were bound together with all the greatest nations of the world by bonds more close, more firm and fast, than flesh, or bone, or blood could ever furnish. With the light which the study of the antiquity of languages had shed on the past, the whole world had been changed. It was this historical knowledge of language, and not of language only, but of everything that had been handed down to us by an uninterrupted tradition from father to son—it was that kind of knowledge which he held that our Universities and schools should strive to maintain. It was the historical spirit with which they should try to inspire every new generation."

Under the direction of Lord Cranbrook, inquiry has been made during the recess into the circumstances of certain colleges (including University and King's, London), as a preliminary to granting some assistance in the dispensation of higher scientific education. It has been decided to make a grant, the particulars of which Mr. Goschen will in due course communicate to the House of Commons.

The Queen's Speech does not forecast any important legislation on Educational questions during the present session. Naturally, those members of Parliament who interest themselves with such questions do not approve of this silence. Mr. Samuel Smith, for example, complained that there was no allusion in the ministerial programme of legislation to the subject of technical education. He also urged the expediency of giving effect to the recommendation of the Royal Commission of last year with reference to evening continuation schools, and he referred to the necessity of dealing with the question of intermediate education in Wales. Sir Wm. Hart-Dyke defended the omission of technical and elementary education from the Queen's Speech, and pointed out that very considerable reforms could be effected under the Education Code. He added that the recommendations of the Education Commissioners had been carefully considered, and he hoped before long to be able to lay on the table a new Code that would be an important modification of the existing system of education. Meantime, any measure for the establishment of evening continuation schools, or for any other educational purpose, would have his full and fair consideration. Legislation by the instrumentality of the Code is, it seems, in many ways very effective. It embodies the results of experience in an unobtrusive fashion, and makes for the continuity and development of all that has been found wholesome in practice, whilst eliminating what has been found retarding or injurious.

The London Chamber of Commerce has at last circulated its final scheme for junior and higher commercial education. The committee appointed for the purpose of drawing up the scheme rather more than a year ago was strong and representative, comprising many eminent and well-qualified persons. The Committee first prepared a draft scheme for the organisation and regulation of commercial education, and circulated this draft among commercial firms, bankers, schoolmasters, and others, for the purpose of criticisms and suggestions. The scheme as finally settled is the result of these criticisms and suggestions. It has been approved in its present form by the Council of the London Chamber of Commerce and by the Association of Chambers of Commerce of the United Kingdom. The Council of the College of Preceptors has agreed to undertake the examination of candidates under the scheme, so that the whole thing is now in working order. The scheme consists of a curriculum of studies and regulations for examinations. The curriculum provides for a junior and senior course of commercial education. The former is designed for boys above ten years of age and less than fifteen or sixteen, and extends over six years, with a time-table of 29 hours' work per week in the first year and of 30 hours' per week in the five succeeding years, with an examination in each year, followed by a final examination at the end of the whole course, on the result of which it is proposed that certificates, to be called Junior Certificates, should be awarded. The Senior Course, for youths over sixteen years of age, is designed to extend over three or four years, and to be followed by an examination of those who, having previously obtained a Junior Certificate, desire to qualify themselves in a higher degree by obtaining a Higher Commercial Certificate, which is intended to be a stamp and proof of a first-rate training in those special subjects and studies which fit a young man for the pursuits of modern commerce. The following are the subjects of the proposed examinations, but the dates of the examinations are not yet fixed.

Junior Examination.—At the end of the sixth year of secondary commercial school life, *i.e.* at the age of 16 or 17, students should pass an examination as follows, the standard of knowledge expected being that of the final year: Compulsory subjects—1. English; 2. (*a*) French and one other modern foreign language; (*b*) German; (*c*) Spanish, or (*d*) Italian; 3. History; 4. Geography; 5. Mathematics; 6. Accounts; 7. Drawing. Optional subjects, of which every candidate must take at least one, but marks will be given for each subject taken—8. Mechanics and Physics; 9. Chemistry; 10. Natural History; 11. Commerce; 12. Political Economy. Upon passing this examination (of which further details are given below), the student should receive a Junior Commercial Certificate, upon which should be entered a list of the subjects in which he has passed, with special mention of those in which he has distinguished himself.

Senior Examination.—At the age of 18 or over, and after having passed the examination for the Junior Certificate, a youth should pass an examination as follows: Compulsory subjects—1. English; 2. Two of the four following modern foreign languages, being French, German, Spanish, Italian; 3. Mathematics; 4. Commercial Geography; 5. Commercial History; 6. Drawing, freehand, or geometrical, or mechanical, or Designing, or Photography. One subject from each of the following groups—1. Commerce; 2. Commercial and Industrial Law; 3. Banking and Insurance; 4. Mechanics and Hydrostatics; 5. Physics; 6. Chemistry; 7. Mineralogy and Petrology; 8. Metallurgy; 9. Botany; 10. Zoology; 11. Microscopic Manipulation. For passing this examination, a youth should receive a Higher Commercial Certificate, on which should be entered the subjects in which he has passed, and those in which he has particularly distinguished himself.

The friends of the Higher Education of Women will be glad to observe that the University of St. Andrews has resolved to establish Professional classes for the University Education of Women during the coming summer. In future years the classes will be held during May, June, and July; but in 1889, they will be held only in June and July. The subjects of instruction will be those now taught in the University, and in addition the Languages and Literatures of France and Germany. The lectures will be of the same character as those given to the students of the University in winter; but they will also educate for the L.L.A Diploma of the University. The subjects to be taught in 1889 will depend upon the number of the applicants, as no class will be established unless a minimum number of students enrol themselves for it.

Elementary education is free in Victoria, but fees are paid by parents for children who receive instruction in "extra subjects." The following table taken from the "Minister's Report" of 1886-87 is interesting as showing the relative importance attached by the Colonial public to the various extra subjects taught. The table gives the number of scholars receiving instruction in each of these subjects:—Book-keeping, 1753; Algebra, 1051; Latin, 837; Euclid, 835; French, 717; Mensuration, 72; Physiology, 51; Physics, 44; Painting, 42; German, 35; Ornamental Printing, 33; Shorthand, 24; Drawing, 22; Advanced English, 9; Physical Geography, 9; History, 7.

A Royal warrant has been recently issued approving of alterations in the statutes of the Royal University of Ireland. The alterations in reference to the election of fellows are:—

"The senate may elect fellows of the University. The number of such fellows shall not exceed twenty-nine. The salary of a fellow, if he be not also a fellow or professor of some other University, or college attached to a University, or college endowed with public money, shall be £400 per annum; if he be a fellow or professor of such other University or college, and in receipt of a salary in respect of his fellowship in this University, such annual sum as, with the salary of his other fellowship or professorship, shall amount to £400 a year. The senate shall appoint to the office of fellow by open voting. Fellows appointed prior to the 6th day of June, 1888, shall hold office for seven years from the respective dates of their appointments, and shall, subject to the provisions hereinafter contained, be eligible for re-appointment on the expiration of such period. From and after the 6th day of June, 1888, appointments and re-appointments to fellowships shall be for such periods, not exceeding seven years, as the senate may from time to time or in each case determine, provided always that every fellow whose office shall expire by lapse of time shall be eligible for re-appointment. In the event of a fellowship becoming vacant by the death or resignation of the present holder prior to the 18th April, 1891, it shall be lawful for the senate, instead of electing a fellow to fill such vacancy, to appoint an examiner who shall be bound to discharge such duties of teaching and examining as the senate may direct, and shall be paid the same salary as if he had been appointed a fellow."

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THE EDUCATIONAL TIMES.

LONDON, MARCH 1, 1889.

THERE is no evidence in the Queen's Speech that the Government intends to press forward any educational reforms this session, and there is reason to fear that the recommendations of the Commissioners' report, which can be carried out only by legislation, will have to wait, as probably will the promised Registration Bill and other matters affecting secondary education. Expectation is, however, being centred on those of the recommendations which can be adopted in the New Code. The report furnishes ample material for a very thorough revision of the Code. The most important of the reforms which can be effected by this means, and which require no special legislation, are connected with the curriculum and the training of teachers. The following are the chief suggestions having reference to the subjects of instruction. More and better reading ought to be provided; the requirements for spelling should be relaxed; hand-writing should have more importance attached to it; and the standards in arithmetic ought to be recast and arranged on sound educational principles. They should be graduated so as to be well within the compass of the scholars of both sexes, and a choice of rules should be given in the higher standards, so as to meet the industrial requirements of different districts. The Code should insist that the exercises set at the examinations should resemble closely the problems which are likely to be met with in every-day life, and encouragement should be given to the teaching of principles. The reconstruction of the pupil-teacher system, and the regulation of the training and certification of head teachers, are matters of primary importance. No pupil-teacher in his first year should teach more than half the day. At the age of 16, or 17 at latest, every pupil-teacher who shows no special aptitude, or no love for the work of teaching, should have his indentures of apprenticeship cancelled. Measures should be taken to secure that each pupil-teacher is thoroughly instructed in the subjects of the Pupil-teachers' Schedule by duly qualified head teachers.

As to certificated teachers, one regulation of the existing Code needs speedy modification. Untrained are indirectly but effectually keeping trained teachers out of the field. Such facilities are now given for ex-pupil teachers becoming assistants, and in due course being examined for certificates, that the number of duly trained teachers who are now certificated every Christmas is actually below that of the untrained teachers who are annually awarded the same professional diploma.

The absurdity of this arrangement will be apparent at once if it be applied to some other scheme. Imagine, for example, that the regulations for the B.A. examination at

London ran thus:—"Students attending affiliated colleges must pass three examinations—Matriculation, Intermediate, and Final; but candidates who have not attended any college may obtain their degree by passing the Final examination only." Such a regulation would directly discourage residence at a college; and, similarly, the present arrangements with regard to certificates discourage training. It is very desirable that the way into the profession shall be open to all duly qualified men, and to insist on a two years' residence at a training college might exclude some really able and zealous teachers; but such men will never desire to creep in on a lower test qualification than their more fortunate brethren. The right solution is to leave the way open as it is now, but to require of both trained and untrained candidates equal evidences of ability, as regards both difficulty and number. The Code should require all "acting" or untrained teachers first to pass the "admission" examination; then, after a suitable interval, to gain a satisfactory place on the class list of the first year's certificate examination; and lastly, after another interval, to pass in the subjects of the second year. No man should be considered capable of taking a post as head teacher in a school with 60 or more children in average attendance, unless and until he has been placed at least in the second class of the second year's certificate list. To bring training within reach of a larger number, the Code might make provision for the reception of day students in existing training colleges where the managers are willing to try the experiment; but we must not lower the standard of qualifications to be insisted on.

The late Mark Pattison in his essay on Wolf, recently published by the Clarendon Press, points out that the only way of raising the schools is to send them better prepared schoolmasters. School reform means schoolmaster reform. When the masters are better able to teach, the scholars will be better prepared. "How," he asks, "are well-prepared schoolmasters to be got for our schools? How, that is, are able young men to be got to take the trouble of educating themselves as schoolmasters? Partly by exterior inducements, by better payment and higher distinction—*honor et praemium*. No regulations can make good schools; we must have men. Even training cannot do all. To make a sucessful teacher there belongs a special *charisma*. A zeal for his occupation, a love for youth, a genuine, deeply seated religous devotion to the service of the young, can alone make the toilsome occupation of a school teacher endurable." When these are found in combination with trained skill in teaching, they should be accorded liberally and ungrudgingly both honour and reward.

The lecture, which we print in full, by Dr. Francis Warner, on "Mental Physiology—A Study of the growth of Mental Faculty and its Culture in Children," deals only with the physical phenomena associated with mental action. They are in no way opposed to the philosophic or metaphysical investigations with which many of us have been long familiar. The two lines of enquiry differ only in their range, and it is surely well worth while to look directly at the facts which the physicist brings before us from his own point of view, which has regard exclusively to things seen and observed, and from which certain inferences can be logically drawn. The ultimate object is the same, namely, to attain a better knowledge of the mind and its attributes; but attention is here directed to the physical signs and outward manifestations which *indicate* mental operations, rather than to "the mind" itself. We cannot for a moment regard such phemonena as uncaused or happening by chance; assuredly, even the least of them has its ordered place in nature, and their true significance can only be learnt by special and systematic study. The field of enquiry is indeed, in the sense referred to, strictly limited, but science has gained, and will yet gain, much by this expedient for concentrating its energies on special subjects of interest.

"Movements and the result of movement, as signs of the action of the mind in man," are the object of the study to which we are invited. All nerve-force is generated in nerve-cells which require a large amount of blood for their proper nutrition. The substance of the brain is made up, for the most part, of groups of such cells, many of which are connected by nerve-currents with each other and with the muscles, the contraction of which is the sole proximate cause of the movements of the body. All visible signs, including those indicating the action of the mind, are nerve-muscular acts. Certain movements, such as those of breathing and other apparently unconscious movements of the limbs in very early infancy, are regarded as automatic, and are evidence merely of vitality; but spontaneous movements which modify this action are known by experience to be the forerunner of intelligence. These are first excited by the stimulus of external sounds and objects, which afford the only indications that we have that the child is beginning "to take notice," and is learning to correlate the actions of its various members so as to grasp, with both hands, the object which has excited its attention, or to recognise familiar sounds, and so on.

With growing intelligence the action of the brain becomes more complex. Many previous impressions, and these of various kind, remain—are remembered,—and upon these it has to work, so that the absence of movement may be the first outward indication of this concentration of energy. What its "train of thought" may be, is a question beyond the range of the present enquiry. The expression of the result may not always be immediate, but is eventually shown by movements which can only be attributed to the action, more or less closely combined, of many nerve-centres, which are all roused into activity by one apparently very slight stimulus. Thus, a very great augmentation of nerve-excitement may follow such a stimulus as a sharp word spoken to a child. We can see that the angles of the mouth are drawn downward, the brow is contracted by a frown, the hands are clenched, eyes and voice unite in crying. These may together indicate a disturbance so extensively diffused over the brain as to be a source of imminent peril. These are physical signs which it would be out of place to refer to "moral" causes, though it is fully recognised that moral agencies may be brought to bear to control the spread of excitement of so pernicious a kind. In a minor degree, stammering also is often a purely physical sign, not indeed of such a "nerve-storm" as has just been indicated, but of a special eddy of a misdirected nerve-current.

Moreover, the several signs referred to have (as Dr. Warner has pointed out in his Froebel lectures) a special local significance as regards specific actions of the brain. There

may be, as common experience shows, defects in the original constitution of the brain, and also defects arising from the way in which it is worked. The latter are more readily under control, but, even in the former case, much may be done by calling the stronger powers into action to aid those which are torpid or weak. We do not all arrive at the same ends by the same means, and we may learn that one part of the brain may apply the needful stimulus to another part more effectually than we can do by attempting to act directly upon it.

The doctor warns us against too readily checking the purely spontaneous movements of a child. They are purposeless, it is true; but our object is not to repress this energy by closing these outlets, but to divert it to some good purpose. Hence it is that drill, and especially musical drill, is of so much value. The stimulus afforded through the eye and the ear calls forth the response of imitation—this instinctively leads to the habit of sustained attention, and the habit once acquired is of far wider application in the formation of character, albeit that it was first engendered by purely physical means.

This very brief notice may be sufficient to afford some indication of the lines upon which these most interesting investigations are entered upon.

As regards the use of them by practical teachers, we may well ask the question suggested by the old proverb, "Is a a little knowledge a dangerous thing?" All depends on the degree of common-sense brought to bear upon the knowledge gained. It is mere folly for any one without much study and long experience to attempt to interpret the many varied symptoms of the action of the brain as shown by physical movements. In this respect, knowledge engenders much caution in coming to absolute conclusions. But much good may be done if the general truth is more fully realised, that what we call "minds" are very variously constituted. It is not our own knowledge, or our way of looking at things, that is in question. Subtle and obscure as are the manifold workings of a child's brain, they are dependent on diverse physical conditions which are revealed to us only by physical signs. We have, as it were, to play on different instruments variously attuned, and sympathetic experience will be the best guide in finding out when the right note has been rightly struck. A steady persistence towards the necessary ends to be attained, and a willing adaptation of the means to be used for their attainment, becomes an easier task as the true process of mental development is better understood in all its branches.

We have heard a good deal about "manual training" of late years, and are likely to hear a good deal more for some time to come—especially if, as we are told is likely, the Government re-introduces its Technical Education Bill during this session. Moreover, the enthusiastic advocates of Sloyd are stirring actively up and down the country; and their appeals inevitably give rise to the previous questions, What do you mean by manual training? and does this system of Sloyd really satisfy all its demands? It is, perhaps, rather premature for us to attempt—at any rate on this side the Atlantic—to frame a definition of manual training which shall be acceptable to everyone. But meanwhile, as a contribution towards the final definition, we think that that formulated at a recent meeting by the New Jersey Council of Education may be found useful. It is, at any rate, clear and decided, and includes what seem to us the most important points. We quote the definition from our contemporary the *New York School Journal*:—"Manual training is training in thought-expression by other means than gesture and verbal language, in such a carefully graded course of study as shall also provide adequate training for the judgment and the executive faculty." This may not be exhaustive, but, at any rate, it makes the most important point most prominent—it is a training in thought-expression—a point which many of our talkers somehow drop out of their illustrations and examples, however careful they may be to put it forward as one of the pleas for their system. It will be at once clear, if this point be allowed, that it will make a great difference whether the system be introduced for adults whose thought is well developed, or (as at Näas) for children of fourteen years of age whose thought is partially developed, or for infants whose thought is only beginning to develop. The thought must govern the expression, and not the expression the thought. You must produce your thought (however imperfect) first, and then seek to give it expression, and not try to produce a thought by forcing a particular kind of expression; and so manual training must form part of the general education, and not be constituted as a thing apart, having its own ends. For education aims at producing thought, the power to think; and we can only produce the power to think by thinking, and the means we use is the *expressing* of thought—one of the modes of which is supplied by manual training. That the human being requires *every* mode he can get for expressing himself, few will question, and this is one of the chief pleas for manual training; while the experienced teacher knows well that the human being who is limited to one mode of expression is seldom so able to express himself as well as another who is practised in more than one mode, even though these modes may not differ so widely as ordinary school-work and modelling or wood-work.

Again, this idea of manual training being a training in the expression of thought would lead us to abstain from trying to force into the manual work what the thought itself does not possess. For instance, accuracy is not a characteristic of the beginner, particularly of the *young* beginner. It is a growth—and comes at the end and not at the beginning. To insist upon accuracy at first would, therefore, be a great mistake. And it is seen to be more than ever a mistake when we remember that the stimulus of interest—of continued interest—is an absolute necessity in all mental activity; and this is sure to be destroyed by a pedantic and tiresome insistence on accuracy in the early stages. It would be precisely the same mistake as we obstinately commit in the teaching of languages with all our wearisome exercises in grammar. But we have no intention of writing a treatise of manual training. We only wish to bring this definition before our readers, and to ask them to consider it. One thing, however, is quite clear to us, and that is, that manual training, in whatever shape we adopt it, must form an integral part of general education. Sloyd is but the continuation into later life of the work of the kindergarten; and we regret to find, amongst some of the advocates of the new system, an inclination to ignore this fact and to keep their movement apart. This seems to us a great mistake, and one likely to

do harm both to Sloyd itself and to the cause of sound education. But we trust this error will soon be remedied.

The School Board Budget for the coming financial year was presented by Sir Richard Temple, the chairman of the Financial Committee, on the 7th ult., and was adopted, after debate, by a majority of 27 a fortnight later. Had the figures of this Budget been known at the time of the recent triennial election, each of the contending parties would have been deprived of its most serviceable electioneering weapon. Mr. Diggle and his party could as reasonably boast of their economical achievements, with an ascending rate, as the opposite party could declaim against the stupid parsimony which they would have us believe was seriously checking the work of education in London. As it happens, the economical victory at the polls has been quickly followed by an increase of £60,000 to the burden to be laid on the London ratepayers in the year beginning March 26. This increase of expenditure is accounted for by an increase of 2,354 in the number of children, an increment in the rate of teachers' salaries, and an increase in the interest on loans, arising from the fact that either additional schools had been built or old schools had been enlarged. Indeed, as far as this latter item of expense is concerned, we have not only overtaken the educational need of London, but we have actually outrun it. There are at the present time seventy-five thousand school places in excess of the average attendances of scholars. The multiplication of school places may, therefore, wait on the supply of scholars to fill them.

This pause will, however, be of no great duration, and there is no reason to believe that the school rate can, without injury to the efficiency of the schools, be reduced below its present amount until the heavy debt accumulated by former Boards is paid off.

It will be seen from Sir Richard Temple's statement how serious is the amount of interest to be paid on that debt. The estimate for the coming year shows a gross expenditure of £1,631,884. Of this large sum 65 per cent. is set down to school management, and 24 per cent. to interest on loans. In fact, the London School Board has incurred a debt as large as some considerable States. It stands at no less a sum than £7,000,000 sterling, and is increasing, so the chairman of the Finance Committee says, at the rate of £130,000 a year. The annual charge for interest and sinking fund was already £389,774, and was increasing at the rate of £14,000 a year.

This is a very grave matter. Administration by popularly chosen bodies is on its trial, and it requires no great foresight to see how that trial must end if such bodies cannot develop the necessary strength and skill to control expenditure. The ratepayers will be driven to seek refuge from incompetent or indifferent administrators in a State bureau, just as wearied, disenchanted republicans welcome a very indifferent Cæsar.

REVIEWS, NOTICES, &c.

Two Essays by Arthur Schopenhauer. (1) *On the Fourfold Root of the Principle of Sufficient Reason.* (2) *On the Will in Nature. A Literal Translation.* (*George Bell & Sons.*)

We fancy that even the name of Arthur Schopenhauer is little known in England. It is true that his most elaborate work, "Die Welt als Wille und Vorstellung," has been lately translated into English; but it can hardly be said to have attracted much attention, except from specialist students in philosophy. His works, "Die beiden Grundprobleme der Ethik" and the "Parerga und Paralipomena," have not yet been translated; and the book before us contains the first English rendering of the "Two Essays." It is well to point out at once that, in the second of the two Essays before us, Schopenhauer has himself said that he has therein expounded the fundamental doctrine of his system more clearly, exhaustively, and stringently, than in any other book. Indeed, he further says, "Nor can I hope even to find a more correct or accurate expression for the kernel of my doctrine than the one given there." The Essay "On the Will in Nature" is an investigation of the results obtained by empirical science in the departments of physiology and pathology, comparative anatomy, physical astronomy, animal magnetism, and magic. Schopenhauer claims that on a review of the progress made by scientists in these various fields of knowledge, empirical science, without any collusion on its part (so he ungrudgingly allows in his Introduction!) or on his, confirms his metaphysic. Put shortly, Schopenhauer's main thesis is that, dividing the whole world of existence into noumena and phenomena, the noumena, the reality that persists after all the fleeting conditions of time and space are removed, is will in some form or other. In the human mind, for example, will is the substance, the thing-in-itself; thought or intelligence, contrary to the usual doctrine, is accident, phenomenal. On this he has much to say, and, whatever may be thought of his theory, it is undeniable that he speaks with much force and perspicuity. He points out that thought tires, will is indefatigable. The determination to self-construction simply uses thought as a means, and this holds of all sentient creatures. In considering the various stages of animal life, we find as we descend that thought gets weaker; will, on the other hand, often becomes stronger and fiercer. The will, again, is the basis of personality. It is not difficult once having reached the conclusion that mind in itself is "one enormous will, constantly rushing into life," to understand Schopenhauer's basis for pessimism. If the very substance of life is volition, thought or intelligence must find means for the fulfilment of every one of the constantly arising impulses of the will if life is to bring satisfaction. In fact, Schopenhauer seems to view desires in somewhat the same fashion as Silas Marner did his guineas. "Marner wanted the heaps of ten to grow into a square, and then into a larger square; and every added guinea, while it was itself a satisfaction, had a new desire." It is clear that this Marner-like view of the will logically leads to the necessity for the suppression of all desires, as far as this is possible. Accordingly, Schopenhauer, as the outcome of the theory, is driven into some form of either Christian quietism or the Buddhistic ideal of *Nirvana*, as the supreme bliss of man—a distinctly negative rather than positive ideal. But Schopenhauer does not stop at the conclusion that will is the essential element in mind; he unhesitatingly maintains that will is also *das Ding an Sich* of matter. He recognises volition "in every effort or tendency which proceeds from the nature of a material body." He explains that by "will," he means, not "consciousness," but the manifestation of a tendency to exist, or to burst into existence from an embryo or incipient form. If the will of a body manifests itself in accordance with motive, it is a conscious being; if in accordance with "stimulus" from without, it is material. Hence, then, is "only one uniform, universal, and exceptionless principle of all movement, whose inner condition is will, and whose outer occasion is cause." By "cause," of course, he means either motive or stimulus.

The points to which we draw attention in Schopenhauer are:—1. That he has pointed out strenuously the unwarranted self-complacency of optimism. 2. He has clearly shown the inadequacy of empirical science to pose as philosophy, however wide may be the content. He would ask at once anyone who proposed to discuss philosophical questions with him, "Have you read Kant's 'Critique of Pure Reason'? If not, you cannot be treated seriously." 3. A leading characteristic is his defiance of all (especially theological) authority. He makes a distinct appeal to the Court of Truth, even if that should lead to the confusion and overthrow of theology. 4. As the translator of the book before us points out, Schopenhauer has been ranked, for the high literary clearness and elegance of his writing, as among the very first German prose authors.

No account of Schopenhauer would be complete without referring to his irritating egotism. It would, indeed, be difficult to find a modern writer who has a more copious supply of terms

of vituperation against theologians and "trade" philosophers, together with terms of more emphatic satisfaction with himself. It is noteworthy that in this latter aspect of satisfaction and faith in himself and his work we have, perhaps, the only trace of pure, unadulterated optimism to be found in our author.

In conclusion, we must say a few words as to the way in which the translator has done his work. It is only just to affirm that Schopenhauer's meaning is quite recognisable in his English dress. Sentences here and there, it is true, read more like German than English in their construction, and occasionally a sentence occurs which we feel the translator would have been glad to discard if he could honestly have done so. Sentences of 10, 12, or 19 lines may be necessary, but they are a burden to the English mind. The translator, however, has restrained himself in the infliction of these, and is to be congratulated on the general clearness of his rendering—a feat of great difficulty in a translation of a German philosophical work.

Commercial Geography. By Dr. Carl Zehden, of Vienna. Translated by Findlay Muirhead, M.A., from the Fifth German Edition. (Blackie & Son.)—The title of this handbook affords a correct description of the mass of information contained in it. It purports to be "a complete manual of the countries of the world, their chief centres of trade and means of communication, their natural productions, mineral resources, exports, manufactures, &c., based upon the latest researches and statistical returns." The work has been honestly done, and practical experience will approve of the form in which the instruction is conveyed. In the present keen rivalry for commercial supremacy, this subject claims special attention, but text-books have hitherto been either scarce, incomplete, or dear. In this cheap, though complete, work the student will find not only facts to acquire, but matter for reflection. The original work has been considerably modified to adapt it to English readers. The sections on Great Britain and its colonies have been revised and expanded, and numerous foot-notes have been added. Among the appendices will be found lists of some of the principal steamship companies of the world, railway guides and time-tables for the principal countries, a map of the chief trade routes, and indexes to the places, products, and manufactures mentioned in the book. The chapters on commerce are well written up to date. As an illustration of how others see us, it may be to free us "from foolish notions,"—we will quote at some length:—

"A very important factor in English life is the inter-relation of the various classes of society into which the people are divided, notwithstanding all their individual freedom. Noble birth is of extraordinary importance, and commands almost mediæval privileges for the aristocracy. Nobility is hereditary in families, and titles pass to the eldest lawful male heir, who in most cases inherits all the landed property of his predecessor, and maintains the dignity of the family. The younger children receive portions from the savings of the father, or from non-entailed parts of the estate. This recognition of primogeniture explains in great measure the enormous wealth of some members of the aristocracy. Several dukes reckon their incomes by hundreds of thousands of pounds. It must not be forgotten that almost the entire land is the property of the aristocracy, the Church, or the plutocracy. The cultivators of the soil, formerly serfs, are now free, but have no property in the soil; they hire it for rent, and cultivate it as farmers. There is no class of free and independent peasant proprietors, such as is met with in France or Germany. Only 6 per cent. of the whole area is owned by proprietors holding less than fifty acres each. Even in towns the ground can be obtained from the landlords only on lease. London, excluding the City, stands on land belonging to some 72 persons, and entire quarters are built on leases expiring after 90 years or other periods. Single proprietors thus come to own hundreds, if not thousands, of houses. Besides the aristocracy of birth, there is a plutocracy (an aristocracy of capitalists), who do not indeed enjoy the privileges of the nobility, but are daily acquiring more and more influence from the control of all the great industrial and commercial undertakings. But as the dark reverse to this bright picture of British opulence stands the constant poverty of the lower classes. In Ireland, where the landlords are English, and the labourers Irish, a pitch of misery has been reached hardly paralleled anywhere on the Continent. The prevalent national characteristics of the British people are solidity, energy, endurance, enterprise, strict respect for the law, and, finally, great industry in their selected professions. As true islanders, the British cling to their own manners and customs with an often ludicrous tenacity. As a nation, shut out from all direct foreign influence, they have mainly directed their attention to their own narrow home and to its improvement. The object of their foreign policy has always been the maintenance and extension of British power and of British trade.

"It has been a characteristic of English manufacturers to aim at solid and practical workmanship, until the phrase 'English goods' has become almost synonymous with 'reliable goods.' Finish and taste have been somewhat neglected, but even in these qualities an advance has been made within recent years. To this day it is a high recommendation for metal goods, just as it is for cotton or woollen goods, when they can be described as 'English.' Even in the days of Elizabeth, Britain was merely an insular kingdom in the west of Europe; to-day it is a world-wide empire with possessions in every continent. Britain owes to its colonies the greater part of its trade, its manufactures, its wealth, and its power. These colonies, along with the mother-country, form a systematically-arranged organism, whose separate parts are bound together by a thousand ties. Perhaps the strongest tie of all is the resolution with which Englishmen cling to their national peculiarities whatever their circumstances. Thus England's might stands and falls with her colonies. They are, first of all, cheap producers of raw materials, and solvent purchasers of the manufactured articles. India is regarded merely as a source of wealth, worked to its fullest extent by the English; but Europeans remain in it only until they have amassed enough money to live at ease at home, or until they succumb to the climate. The natives are not yet entrusted with any measure of self-government, even now that the country is directly under the crown, and although the Government has done much for the intellectual and material interests of the Hindoos. The English owe a great degree of their success in ruling India to the ability of their civil and other Government officials. India is of great importance to England as a source whence raw material can be cheaply obtained, as a large market for English manufactures, and as an important centre for the trade with China, Japan, and Persia. But it must be admitted that the British free-trade system has allowed numerous Germans, French, Americans, and Chinese also to establish themselves as traders in India, so that, with the consequent competition, the 'Good old times of the Nabobs' have departed."

The author, a German, writes originally for German States.

"In few other countries has education so penetrated all classes of the community as in Prussia. That country possesses the most numerous and the best organised schools of all kinds to be found in any country in the world; elementary instruction is universal, extending to the small hamlet. Nearly everyone in the German districts and in most of the Slavonic districts can read and write. Secondary education is provided by numerous middle and high-schools, besides which technical and other special schools, academies, and learned associations abound. Many of the Prussian educational establishments enjoy a well-earned world-wide reputation. In addition to the practical schools, we find an attention bestowed on the teaching of the arts and exact sciences, such as is found in few other countries. It is impossible for such efforts to remain without effect, and we are probably justified in tracing Prussia's commanding position among the most highly-cultured nations of the earth to her great and highly-developed intelligence. The attention paid to the study of foreign languages is of the greatest importance not only in Prussia, but also in all Germany. The Germans owe, in great measure, their increasing influence in commerce to their command of foreign tongues. Germans are now met with in all centres of trade, sometimes as the assistants of foreign merchants, but now generally in independent and influential positions."

Chaucer: The Minor Poems. Edited by the Rev. Walter W. Skeat, Litt. D., LL.D. Edin., M.A. Oxon. (Clarendon Press, Oxford.)—When Bardo, in George Elliot's *Romola* foresaw in Tito's reminiscences of his travels, a work which might, with his own valuable aid, rank with the *Itineraria* of Ciriaco, he suddenly stops his glow of enthusiasm, to say, "We must prepare ourselves for calumny, young man;—if your book contains novelties, you will be charged with forgery; if my elucidations should clash with any principles of interpretation adopted by another scholar, our personal characters will be attacked." We could almost imagine that Professor Skeat had been reading Bardo's warning immediately before concluding the very substantial introduction to his scholarly edition For he quotes Chaucer's own words, "I nam but a lewd compilatour of the labour of [othere men]; and with this sword shall I slen envie." Moreover, Professor Skeat says with overwhelming humility, "I beg leave to assign the credit of anything that *seems* to be new in the present volume to anyone who cares to claim it; and I hope it may be clearly understood that, wherever I differ from any eminent critic, I am willing that he shall consider me to be in the wrong (unless I can completely prove the contrary); and wherever I agree with him, let him assume that the discovery was his own." We have a great respect for Professor Skeat, and confess we should have much pleasure in acquiescing with any literary desire of his. But we do not find ourselves able to give him the leave he begs, nor do we feel justified in claiming any discovery as our own where we agree with him; otherwise, we should hold ourselves, in the world of Chaucer, as veritable Columbuses. One thing, and that the most important possible, which seems to be new in this edition, and which, despite the editor's renunciation, we persist in ascribing to him is the *thoroughness* of the work. There may be wrong opinions given;

there may be omissions of facts which, if known and stated, would alter the leaning of the evidence; there may be wrong conclusions from the facts given, though of all these we venture to think comparatively few will be found—but it would have been mere justice had Dr. Skeat even claimed that in this book we have the most complete collection of facts, the most carefully formed opinions, in a word the most judicious edition of the Minor Poems of Chaucer which 500 years have produced. As to the minor poems, the following are included: "An A. B. C.," "The Compleynt unto Pite," "The Book of the Duchesse," "The Compleynt of Mars," "The Parliament of Foules," "Merciles Beaute," "Anelida and Arcite," "Chaucer's Wordes unto Adam," "The House of Fame," "The Former Age," "Fortune," "Truth," "Gentilesse," "Lak of Stedfastnesse," "Against Women Unconstaunt," "Lenvoy de Chaucer a Scogan," "Lenvoy de Chaucer a Buxton," "The Compleynt of Venus," "The Compleynt to his Empty Purse," "Proverbs." All these poems are submitted to a searching enquiry, and have to justify their authenticity before Professor Skeat allows them to remain. The student will observe the absence of a number of poems usually attributed to Chaucer. Here again, with the exclusion as with the inclusion, Professor Skeat brings upon the reader all the ascertainable evidence as to the authorship; he also presents his own standards of judgment, and his decision. In all cases of evidence, naturally, he attaches to the testimony (such as we have left to us) of Chaucer the chief place. He next discusses the evidence which can be adduced from Lydgate, John Shirley, the scribes of the MSS., and Caxton. Then follows an exhaustive account of the early editions of Chaucer's works. Next comes a more detailed discussion of each poem, long and short, contained in Stowe's edition, 1561. In like manner, the poems added to Speight's edition fall in for close consideration. Finally, Morris's edition of 1866, up to now the most satisfactory, added a few poems to the previous editions, and these attract Professor Skeat's attention. Still, the manuscripts remain to be described, and these Professor Skeat dwells over with loving care. Any student dissatisfied with a reading can soon find out all the possible manuscripts to be consulted, and make his choice. The amount of labour Professor Skeat himself must have gone through in finding and discriminating the value of MSS. will for the future be greatly saved to the student. At the end of the text of the poems (which occupy 222 pages) follow notes, taking up almost as many more pages, filled with the riches of the writer's learning. In the last place, there is a glossarial index. Of course, every student of Chaucer will at once obtain this book. It is not the outpouring of a few months' enthusiasm, but the rich fruit of years of study. It is not only right to congratulate Professor Skeat on the completion of this edition, but it is also an occasion of satisfaction to ourselves as a nation that Professor Skeat has "attempted," as he puts it, "to forestall the inevitable German" in giving us a critical and standard edition of the "Minor Poems of Chaucer."

Manuals of Catholic Philosophy. The First Principles of Knowledge. By John Rickaby, S. J. (*Longmans, Green, & Co.*)—In accounting for our knowledge we are always confronted by the dilemma that we cannot explain experience by experience, and to go beyond experience is stepping on uncertain ground. The empirical school of philosophy, therefore, simply presents the phenomena of experience, reduces them to their simplest terms, and leaves them more or less unexplained. This is a safe course to adopt, but it will not, while human nature is as it is, satisfy the most curious and enterprising intellects. It would be a safe course to adopt to stay indoors and never go into the street for fear of getting wet or meeting with an accident, but a conviction of such safety would not keep an athletic young man for ever in his home. Now, this is true even if we assume that there is no warrant for conviction on that which is outside of our actual experience. But if, on the other hand, a man has a firm conviction that he is safe on an extra-experiential foundation of knowledge, nothing can restrain his ardour in rejoicing at the fact. He is like a little child in the joyful delight at the sea washing around the hill of sand which he has raised up by his own hands, or found ready for this purpose, raised by the labour of another. So it is with the author of this book. He is not satisfied to leave the world of phenomenal experience unexplained, and he does not find that it altogether explains itself. He urges that it is not sufficient, however usual it may have become, to suppose that the only possible philosophy is a history of the opinions which have formerly prevailed. It is also necessary to attempt, at any rate, the construction of a system of philosophy to explain experience. Father Rickaby does not, indeed, construct a new system; he gives a modern statement of the old scholastic doctrines. Philosophers who have come to regard scholasticism as dead and buried, must awake to find it not only surviving, but strenuously asserting itself in our author's words, it must become "militant." We cannot here follow the course of the argument. We must simply state it, and leave those of our readers who have a taste for metaphysics to read the book through, only assuring them that from the point of view taken the treatment is able and judicious. Briefly then the problem discussed as the very foundation of knowledge is this: "What are the ultimate grounds for holding that man may regard his knowledge about objects as undoubtedly correct?" The author first asks, "What is Truth?" The answer given is the definition of the Schoolmen, "Truth is an equation or a conformity of thought to thing." This seems simple enough perhaps, but the difficulty of establishing it becomes evident when it is pointed out that the Berkeleyan denies the existence of "the thing," and the materialist denies the existence of "thought," except as ultimately a mode of matter and motion. Father Rickaby, at any rate, recognises the difficulties, and does not hesitate to point them out in detail to the reader.

Deductive Logic. By St. George Stock, M.A. (*Longmans & Co.*)—Mr. Stock has the courage of his opinions. He tells us in the preface that a critic who looked over his book while in manuscript recommended him to abandon the design of publishing it. Mr. Stock did not take the advice. Hence we have at one and the same time this new book on Deductive Logic, and a proof of Mr. Stock's courage. For his critic pointed out that the book was "too like other logics." This is so; and, seeing that there are many good books on logic (the author himself in his preface names a satisfactory list), there does not seem to have been any necessity for a new work. This preliminary objection, however, being passed over, the merit to which the writer might hope to lay claim would be simplicity of exposition. Are we mistaken in thinking that the following words are *not* simple for the tyro in logic?—"Language is the mirror of man's whole nature, whereas logic deals with language only so far as it gives clothing to the products of thought in the narrow sense which we have assigned to that term. Language has materials of every sort lying strewn about, among which the logician has to seek for his proper implements." This confusion of metaphors in distinguishing between language and logic is not, indeed, in all the logics. The *raison d'être* of this book should have been the entire absence of such confusion. There are two good points to be noticed. Firstly, it is neatly got up and well printed; secondly, most of the examples at the end of the book are interesting. But what is true of the exercises at the end, hardly applies to the illustrations in the body of the Logic. The latter suggests that illustrations in logical text-books are like the laws of the Medes and Persians: for instance, the hackneyed illustration of the *argumentum ad hominem*, "No case; abuse the plaintiff's attorney;" the equally hackneyed example of the fallacy of many questions, "Have you left off beating your mother yet?" reappear in all their monotonous familiarity. We could wish that yet more attention were paid to exercises in the logical text-books, for the practice in exercises is no less important in logic than in arithmetic.

(1.) *Plotting, or Graphic Mathematics. By R. Wormell, D.Sc., M.A.* (*Waterlow & Sons, London Wall.*) (2.) *Alphabet of Economic Science. By P. H. Wicksteed.* (*Macmillan & Co.*)—The grouping of two books with titles so dissimilar may at first sight appear extraordinary. An examination of their contents will, however, suggest the reason. The former illustrates in a very clear and able manner the many and various purposes for which "squared paper" is used. The earlier part is occupied with exercises in patterns, copying to scale, and the graphical representation of some properties of numbers. These are introductory to the treatment of the conic sections, and here the great value of the graphical method is at once apparent. The representation of the growth of functions of higher degree than the second naturally follows, and forms one of the conspicuous features of the book. Trigonometric functions receive their share of attention, and a number of miscellaneous propositions whose solution is simplified by graphs, closes the book. As a preparation for the work of the science laboratory, in which the plotting methods are used to represent or to discover natural laws, this book is admirable, and as such we heartily recommend it. The author tells us that the object of this book of exercises is to supply a course for practice in graphical methods for students who have just mastered the beginnings of algebra

and Euclid. It was made in the first instance as part of the preliminary training of pupils preparing for a technical college, but it has been found to possess great attractions and to be very helpful to a much wider circle of students. The charm of the method, as in the Kindergarten, is inherent in its nature. It gives something to be done by the hand and followed by the eye —keeping pace with the course of thought and reasoning. The proof of a rule or law often lies entirely in the process by which the rule or law is graphically illustrated, and the consequence is that the pupil while following the course is constantly on a voyage of discovery, and has all the pleasure and stimulus of an original investigation. The latter of the two books under notice exemplifies these principles in a most remarkable manner. Mr. Wicksteed has endeavoured to represent graphically the theory of value or worth, and, to a very considerable extent, has succeeded. For instance, the fundamental proposition of the book is that *the value in use and the value in exchange are two distinct, but connected, functions of the quantity of the commodity possessed by the persons or the community to whom it is valuable.* These functions, having been determined, are represented on the lines laid down by Dr. Wormell, and an examination of the resulting graph enables us readily to grasp the author's meaning. A large number of propositions, based mainly on the principles of Stanley Jevons, are treated in a similar manner; and the reader who has the energy or interest to master the mathematical introduction will acquire a good idea of this branch of economic science.

Mathematical Tracts. Part I. By F. W. Newman, M.R.A.S., Emeritus Professor of University College, London; Hon. Fellow of Worcester College, Oxford. (*Cambridge: Macmillan & Bowes.* 1888.)—We have here, from the pen of a writer who has achieved distinction in other branches of knowledge, the first part of a valuable series of Mathematical Tracts, containing much useful matter compressed into a volume of less than eighty octavo pages, but delivered in language eminently clear and perfect. In Tract I., on the Bases of Geometry, there is an interesting reference to the method of estimating the magnitude of an angle by the portion of *the infinite area* which it intercepts from a plane, which method Monsieur Vincent adopted (in 1837) as adequate to demonstrate the equivalent of Euclid's Twelfth Axiom without any new axiom at all. The same attempt has been made by others on different lines, as instanced on page 132 of Vol. XLII. of the "Mathematics from the *Educational Times*." Professor Newman questions whether Monsieur Vincent's view has received due attention in England, and accordingly gives a brief account of it. Tract II. contains the geometrical treatment of $\sqrt{-1}$, being based on the original work of Mr. Warren, published of 1826, but bringing out very clearly the geometrical meaning in the "imaginary roots" (so-called) of a quadratic equation. Tract III., on Factorials, is founded on Cauchy's elementary treatise of 1825, but greatly enhances the value of the instruction there given by the very beautiful notation employed, as instanced in $x^{\underline{2}}$ which signifies $x(x-1)$, $x^{\underline{3}}$ which signifies $x(x-1)(x-2)$; and the same system of notation is carried out for reciprocals, $x^{\underline{-2}}$ signifying $\frac{1}{x(x-1)}$, and so on. There is also a pretty investigation of $\log(1+x)$ in series, which furnishes the means of computing logarithms in elementary algebra before knowing the Binomial Theorem with negative or fractional exponent. Tract IV. is devoted to Superlinears (styled "Determinants" by Gauss for an unexplained reason), and by its simple treatment of the subject completely falsifies the late Professor De Morgan's remark to the author, that Determinants had no rightful place in common algebra, being *too difficult* for beginners. Professor Newman considers that "the modern method (of elimination), due eminently to the genius of the late William Spottiswoode, is quite adapted to elementary algebra; but its best range of utility cannot there be guessed," and he concludes his chapter by stating that "if Spottiswoode did not plant the first germ of this very valuable theory, he first investigated the laws and exhibited its vast power." The remainder of the volume consists of Tables I. and II. Table I. gives values of A^{-n} to 20 decimal places. Here A means 2, 3, 4, ... up to 60, and the odd numbers from 61 to 77; and n means 1, 2, 3, ... continued until A^{-n} is about to vanish. Table II. has values of x^n with 12 decimal places, where x means ·02, ·03, ·04, up to ·50, and n is continued from 1, 2, 3, ... until x^n is insignificant. In these days of exaggerated specialism, when it is no uncommon thing to meet with mathematicians who know next to nothing outside their own subject, and take no earthly interest in anything besides, it is quite delightful to welcome an author like Professor Newman returning to his early love, and we accordingly hope that he may go on successfully with the series of Tracts which he has here so well begun. And as mathematical books have perforce to be largely studied late at night, and by the aid of artificial light, we cannot conclude without expressing an ardent wish that all publishers of such works would do what is usually done by the publishers of the book before us—and especially so in the book itself—and that is, to print the books in clear type and on suitable paper, so as to spare, in every way possible, the eyesight of their readers.

Pestalozzi: his Aim and Work. By Baron Roger de Guimps. Translated from the edition of 1874 *by M. C. Crombie. Abridged and adapted for students.* (*Sonnenschein & Co.*) We mention this book mainly to warn our readers against it. A cheap second edition of the original was issued last year: although the alterations are slight, it ought surely to be the text for the translation. The plea of being too busy with teaching "to find sufficient time to write" hardly prepares for such pieces of slovenly work as the following:—Pestalozzi's wife enters in her diary the fine answer made by her husband when she feared his going to Stans, "Tu as attendu trente ans, attends encore trois mois." this actually becomes, "You have waited for thirty years, wait now for *thirty* months" (p, 80). "Le refus de bois de construction à prendre" becomes "The refusal of the timber being taken" (p. 110). For "Au lieu de chercher à professer devant ses écoliers, il se mit à apprendre avec eux," we have, "Instead of seeking to profess before his scholars he began to learn with them" (p. 114). "Le tribunal du district était précisément réuni dans l'auberge; son président fit circuler une assiette . . ." is translated by, "The Judge of the district had just come to the inn; its president had a plate sent round. . . ." (p. 117). The printers treat us to such new words as "phlay," "bp," etc. In two cases the commentary of the author has been made to look like portions of Pestalozzi's letters, and no clue whatever is given where the "abridgments" and "adaptations" occur.

OUR LIBRARY TABLE.

Educational Codes of Foreign Countries. By A. Sonnenschein. (*Swan Sonnenschein & Co.*) *Second Edition, Amended and Enlarged.*—The fact that a second edition of this book has been called for is in itself evidence of its value, for the English teacher is not as yet greatly interested even in the departments round about the small sphere in which he himself labours, much less in foreign teaching. However, reliable books, treating educational problems from the comparative point of view, are well calculated to rouse us from our apathy. Such a book is the one before us, including, as it does, an account of Mr. Matthew Arnold's "Special Report," 1886, together with abstracts of Government Standards in the principal countries of Europe.

The Schoolmasters' Calendar and Handbook of Examinations and Open Scholarships, 1889. (*George Bell & Sons.*)—In this, the third, issue considerable improvements and additions have been made. There is a concise list of the various public examinations in which boys, and to some extent girls, are called upon to compete. The book is full of information which cannot fail to be of great value to all persons who are interested in tuition.

Civil Service Calendar, 1889. *By W. Bussell.* (*Allen & Co.*)—Contains official regulations and instructions for candidates, sets of examination papers with answers, solutions, specimen essays, &c., and forms a complete hand-book and guide to the Civil Service.

The Republic of Plato. Book X. By B. D. Turner, M.A. (*Rivingtons.*)—A neat and clearly printed text-book, forming an introduction to the study of Plato's Philosophy. The absence of the more abstruse metaphysical discussions, and the simple form in which an outline of the ideal form is presented, have caused Mr. Turner to select this book of the Republic. He has supplied a useful introduction, and valuable Notes and Appendices.

Cæsar's Seventh Campaign in Gaul. By W. C. Compton, M.A. (*George Bell & Sons.*)—This edition of Cæsar's De Bello Gallico, Book VII., is an attempt to introduce into a school-book an element of pictorial interest, in order to make the author attractive to boys. It contains pretty little illustrations, drawings illustrative of fortifications, engines of war and weapons, taken from the most authentic sources. The notes tend more to the elucidation of the story than to grammatical and verbal criticism. The whole is a picturesque realisation of the narrative.

T. Lucreti Cari de Rerum Natura Liber Quintus. By J. D. Duff, M.A. (*Cambridge University Press.*)—Forms one of the Pitt Press Series. It contains an exhaustive introduction, in which the astronomical theories of Lucretius are simplified; and notes on the text which take up more than half the book. There is no reason why, with such a text-book as this, Lucretius should not be more frequently read in schools.

The Odyssey of Homer, Book X. By G. M. Edwards, M.A. (*Cambridge University Press.*)—Is another of the Pitt Press Series. It contains an outline of the story of the Odyssey, excellent notes on the text, and appendices on Homeric forms and grammar.

School Arithmetic. By F. E. Marshall, M.A., and J. W. Welsford, M.A., Assistant Masters at Harrow School. (*Longmans, Green, & Co.*)—Contains an unusually large collection of examples and many oral exercises. An admirable feature in the volume is the number of diagrams on the subject of Vulgar Fractions, which will be of great use to teachers and pupils. The Unitary Method of dealing with problems is adopted, and Commercial Arithmetic has due attention paid to it in view of the requirements of the Oxford and Cambridge Board of Examination.

A Course of Easy Arithmetical Examples for Beginners. By J. G. Bradshaw, B.A. (*Macmillan & Co.*) — The examples are numerous and easy. The student advances by easily graduated steps. The full course of arithmetic generally taught to boys under 14 years of age is covered in this volume. The printing is excellent, all figures standing out in bold type.

The Principles and Practice of Mental Arithmetic. By the Rev. A. D. Capel, M.A. (*Joseph Hughes.*)—The object of the book is rather to teach students to make their own rules for mental calculation than to supply them with such rules, and Mr. Capel has certainly succeeded in writing a book which is likely to do this. The examples are varied and numerous, with answers at the end of the book. As a text-book for pupil teachers, students in training, and acting teachers, we can heartily recommend it.

Solutions of the Examples in "A Treatise on Algebra," by Chas. Smith, M.A. (*Macmillan & Co.*)—This key will be extremely useful to teachers and students alike. The "Treatise" is specially famous for the collections of examples it contains, many of which are of more than ordinary difficulty. The solutions to these will save much valuable time to the teacher, and furnish excellent models for the private student. Mr. Smith is intimately acquainted with modern methods, and accordingly his solutions are exceedingly neat, and in many instances elegant. The artifices employed in the chapters on Equations are excellent, and furnish instances of nearly all the most approved "tips." A word of special praise must be given to Exercises xvi., Elimination and Miscellaneous Examples; xxix., Partial Fractions; xxxiv., Series; and xlii., Determinants. Furnished with the Algebra and key, students will be in a position to acquire a sound knowledge of elementary algebra.

Key to Mr. J. B. Lock's Elementary Trigonometry. By Henry Carr, B.A. (*Macmillan & Co.*)—A useful book to students who are studying the subject without the help of a teacher.

The Student's Atlas. By Richard A. Proctor. (*Longmans, Green, & Co.*)—This little work was prepared by the author to meet his own wants as a student; and is, practically, a one-scale atlas of the world. It contains twelve circular maps on a uniform projection and one scale, with an exhaustive introduction. It will be of great assistance to students in supplying clear and exact ideas of the relations of different parts of the earth's surface to each other. The contents of the several maps appear at the back of each.

Realistic Elementary Geography. By W. G. Baker, M.A. (*Blackie & Son.*)—This book contains over seventy simple illustrations and plans, and is arranged in short lessons suitable for quite young children. No advance is made beyond Direction, the Elements of Maps, and Definitions. One chapter is devoted to Hints to Teachers.

Latin Grammar. By J. B. Greenough and G. L. Kittredge. (*Ginn & Co.*)—A handy and strongly-bound volume. The small type is trying, but important points are brought out boldly. Particular attention is paid to the quantity of the Latin words, and great care has evidently been bestowed on its compilation.

French Grammar. By C. O. Sonntag. (*Blackie & Son.*)—Is published in four parts, which may be obtained separately, or in one volume. The book is arranged in lessons which are graduated with care. The model sentences are plain and intelligent. We can recommend it as a text-book for school work.

First Elements of French Grammar. By Emile Clare. (*D. Nutt.*)—Is an introduction to the study of the language. The author professes to have introduced 2,000 words of every-day use into his work.

Précis of Comparative French Grammar and Idioms, and Guide to Examinations. By A. Barrière. (*George Bell & Sons.*)—A second edition of this work is now issued. The author has profited by the suggestions of some of his colleagues in making various corrections and alterations.

A Short History of the English People. By J. R. Green. (*Macmillan & Co.*)—Green's History is here published in three parts, with Maps, Tables, and the corresponding parts of Mr. Tate's Analysis.

Outlines of English History. By Ince and Gilbert. Revised and corrected by A. Hassall, M.A. (*Allen & Co.*)—Recent researches in the pre-Norman period of English history, and the many additions which have been made to our knowledge of constitutional history, have necessitated a revision of this popular and widely circulated work.

English Verse. Selected and arranged by E. W. Howson, M.A. (*Rivingtons.*)—A collection of English poetry for use among the younger boys of Harrow School. Great care has been displayed in the selecting of the pieces, and also in the printing of the book.

An Outline of English Literature. By J. C. Wright. (*Heywood.*)—Is a *résumé* of our chief English authors and their works. It is likely to prove of use to pupil teachers, candidates preparing for the scholarship examinations, the Oxford and Cambridge Local Examinations, &c., and serves as an introduction to the study of English Literature.

How to Teach the Babies. By J. Bailey. (*Joseph Hughes.*)—The author has been prompted to write this book by the fact that there are, in the Public Elementary Schools of England and Wales, 150,000 children below the age of 4 years. It will aid infant school teachers in the discharge of the most delicate and most important part of their duty.

Life-Register. (*West, Newman, & Co.*)—A book of forms in which persons may keep a record of the state of their health, personal events, pursuits and attainments, the notification of which is likely to prove of value, not only to themselves, but also to their descendants.

Bar-bell, or Wand Exercise. By R. H. McCartney, A.Mus., T.C.L. (*George Gill & Sons.*)—This is Part II. of a series of books on Physical Exercise. There are 15 exercises, arranged with musical accompaniments. This musical drill claims to develop principally the various muscles of the arms and chest, and to check the tendency to roundness of the shoulders or contraction of the chest.

Shakespeare's Henry the Fourth, Part I. By O. Elton, M.A. (*Rivingtons.*)—The author has spared no pains in annotating this play. His introductory chapter and glossary, too, show signs of careful work.

Musical Anecdotes (*George Gill & Sons.*)—A book of stories of the great musicians, many of which are very amusing.

Light through the Crannies; Parables and Teachings from the Other Side. 1st Series. (*Longmans, Green, & Co.*)—A series of parables relating to spiritual problems. They are interesting and fanciful; considerable power of imagination is shown by the anonymous author.

Sums, Writing, and Spelling, for Standard I. (*Moffatt & Paige.*)—A packet of 30 large-sized cards, containing on the one side sums and tables; on the other, exercises in writing and spelling.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending February 28th, 1889.

Andrews's (T.) Scientific Papers, with Memoir by P. G. Tait and A. C. Brown, 8vo, 18s. cl.
Badoureau (A.): Les Sciences Expérimentales en 1889, 5fr.
Bertrand (P.): Lettres Inédites de Talleyrand à Napoléon, 1800-1809, 7fr. 50.
Callendar's (H. L.) Manual of Cursive Shorthand, 12mo, 2s.
Cardale's (Rev. E. T.) New Testament, with Variations of Type in the Use of Capitals, Marginal Notes, cr. 8vo, 10s.
Casquet's (F. A.) Henry VIII. and the English Monasteries, Vol. 2, 8vo, 12s. cl.
Chevillard (S.): Siam et les Siamois, 3fr. 50.
Daniel (A.): L'Année Politique 1888, 3fr. 50.
Dante's The Banquet (Il Convito), trans. by K. Hillard, 7s. 6d.
Deane's (Rev. W. J.) David: his Life and Times, cr. 8vo, 2s. 6d. cl. (Men of the Bible.)
Delahaye (P.): L'Année Electrique, 3fr. 50.
Dubuc (P.): Essai sur la Méthode en Métaphysique. 5fr.
Graham's (T.) Popular Commentary on the Book of Revelation, 8vo, 8s. 6d. cl.
Hamel (E.): Histoire du Règne de Louis Philippe, Vol. 1, 8fr.
Hartmann's (F.) The Principles of Astrological Germany, 8vo, 2s. 6d. cl.
Heine's Prosa, being Selections from his Prose Writings. With a Life of Heine, English Notes, &c. Second Edition. Extra fcap. 8vo, 4s. 6d. cl.
Herodotus, Book 6, Erato, with Introduction, Notes, &c., by E. S. Shuckburgh, 12mo, 4s. cl.
Klein's (Dr. J.) Handbook of English History for Public and Private Schools, cr. 8vo, 2s. cl.
Lange's (F.) Concise German Grammar, First and Second Course, cr. 8vo, 2s. each.
Levasseur (E.): Les Alpes et les Grandes Ascensions, 10fr.
Pattison (M.), Essays by, collected and arranged by H. Nettleship, 2 vols, 8vo, 24s. cl.
Peattie's (J.) Steam Boilers, their Management and Working, cr. 8vo, 5s. cl.
Rambert (E.): Les Alpes Suisses, 3 vols. 15fr.
Reynier's (E.) The Voltaic Accumulator, an Elementary Treatise, translated by J. A. Berly, 8vo, 9s. cl.
Selecta ex Justino, Cæsare, Cicerone in usum Regiæ Scholæ Etonensis, cr. 8vo, 4s. 6d. cl.
Sexton's (A. H.) Elementary Inorganic Chemistry, Theoretical and Practical, 12mo, 2s. 6d. cl.
Shaw's (Rev. W. F.) Ancient Saints, Examples for Modern Times, 12mo, 2s. cl.
Taylor's (Dr. J. E.) The Playtime Naturalist, cr. 8vo, 5s. cl.
Thompson's (R. A.) Thomas Becket, Martyr Patriot, 6s. cl.
Thomson's (Sir W.) Popular Lectures and Addresses, Vol. 1, cr. 8vo, 6s. cl.
Tissandier (G.): La Science Pratique, 3fr.
Wallon (H.): Les Représentants du Peuple en Mission (1793-94), Vol. 2, 7fr. 50.
Ward's (W.) The Counter-Reformation, 12mo, 2s. 6d. cl. (Epochs of Church History.)
Weber (R.): Problèmes sur l'Electricité, 5fr.
Welles's (A.) Genealogical Chronology, 4to, 25s. half-calf.
Whibley's (L.) Political Parties in Athens during the Peloponnesian War, 12mo, 2s. 6d. cl.
Wordsworthiana, a Selection from Papers read to the Wordsworth Society, edited by W. Knight, cr. 8vo, 7s. 6d. cl.
Workman's (Rev. G. C.) The Text of Jeremiah, or a Critical Investigation, 8vo, 9s. cl.
Wunschendorff (E.): Traité de Télégraphie Sous-marine, 40fr.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A Meeting of the Council was held on Saturday, the 16th ult. Present—Dr. Wormell, Vice-President, in the Chair; Mr. Bowen, Mr. Brown, Dr. Buchheim, Mr. Chettle, Rev. Dr. Conder, Rev. Canon

Daniel, Dr. Dillon, Mr. Eve, Mr. Maxwell, Mr. Pinches, Mr. Reynolds, Mr. Robinson, Rev. W. J. Savell, Rev. Dr. Scott, Mr. Stewart, Mr. Stièvenard, and Mr. Storr.

The Minutes of the last meeting were read and confirmed.

The Diploma of Associate was granted to Mr. J. H. Blakey, who had passed the required examination.

The Dean presented the Report of the Examination Committee. The report was adopted, and it was resolved (1) that Hebrew should be included among the optional subjects for 1st and 2nd Class candidates at the Certificate Examinations; (2) that the conditions of passing in the First Class should be modified so as to make a place in the Honours Division dependent on the total of a candidate's marks without regard to the subjects taken, and to allow to boys the same latitude in the choice of obligatory subjects as was now conceded to girl candidates.

The Treasurer presented the report of the Finance Committee, which was adopted.

The Moderators and Examiners for the year were re-appointed.

The Rev. T. W. Jex-Blake, D.D., was re-elected President of the Council, and Dr. R. Wormell, the Rev. Canon Daniel, and Mr. J. Stewart were re-elected Vice-Presidents. Mr. H. W. Eve was re-elected Dean, and Mr. E. E. Pinches, Treasurer of the College.

The following persons were elected members of the College:—

Rev. F. F. Buss, M.A. Camb., Shoreditch Vicarage, Hoxton Sq.
Mr. W. H. Munns, B.A., B.Sc. Lond., 44 Chancery Lane, W.C.
Mr. B. Hackett, Ripley College, Derby.
Mr. C. B. Gorman, St. Aloysius School, Oxford.
Rev. S. D. Timas, M.A. Dublin, The Charterhouse, Godalming.
Miss I. Mills, 106 Stockwell Road, Brixton, S.W.
Mr. M. Roderick, Grove House School, Highgate.
Mr. F. Baker, A.C.P., 97 Mont Durand, Guernsey.
Mr. H. W. Bleaney, 1 Bury Villa, Edgware.
Mr. H. T. Perkins, Church Street, Shipston-on-Stour.
Mrs. S. J. Bannister, West Bank, Stamford Hill, N.
Mr. A. O'Neill, 7 McKerrel Road, Peckham, S.E.
Rev. C. W. A. Brooke, M.A. Camb., The Clergy House, Balham Hill, S.W.
Mr. J. A. Stewart, M.A. Dublin, 183 Euston Road, N.W.

The following books had been presented to the Library since the last meeting of the Council:—

Ginn & Co.—Allen and Greenough's Latin Grammar.
Laurie.—Crombie's Translation of De Guimp's "Pestalozzi."
Longmans.—Proctor's Student's Atlas; Salmon's Junior School Grammar; Elementary Mathematics; Burrell's Building Construction and Drawing; Marshall and Welsford's School Arithmetic.
Marples & Co.—Edwards' "Commercial Education."
Education Department, Washington, U.S.—"Industrial Education in the South," by Rev. A. D. Mayo; Report of the (United States) Commissioner of Education, 1886—1887.
By the Author.—Norman's "Coin of the Realm: What is it?"

COLLEGE OF PRECEPTORS.—PUPILS' EXAMINATION.

Errata in Class List (Christmas, 1888.)

Second Class (Boys).

2nd Division: *insert* Davies, H., Park-y-velvet Grammar and Science S., Carmarthen, and *omit* in 3rd Division.

Second Class (Girls).

1st Division: *insert* Lock, A. J., Alexandra House, Newport, I. of Wight.
1st Division: *insert* Manlove, L. M., Private tuition, and *omit* in 2nd Division.
2nd Division: *insert* Moate, J. McK., Strathwillan House, Commercial Road, E., and *omit* in 3rd Class, 1st Division.

Third Class (Boys).

1st Division: *insert* Lucas, H. F., Bourne College, Birmingham, and *omit* in 2nd Class, 2nd Division.
2nd Division: *insert* Costigan, F. J., Waverley School, Liverpool, and *omit* in 2nd Class, 3rd Division.

Third Class (Girls).

1st Division: *insert* Gayton, E., Private tuition.
1st Division: *insert* Otter, A. E., Tewkesbury High School.

MATHEMATICS.

9892. (Professor Sylvester, F.R.S.)—Prove that, if any triangle of maximum area be inscribed in an ellipse, then the circle circumscribing it, the circles of curvature to the ellipse at its apices, and the ellipse itself will all five intersect each other in one and the same point.

Solution by R. F. Davis, M.A.; Rev. T. Galliers, M.A.; *and others.*

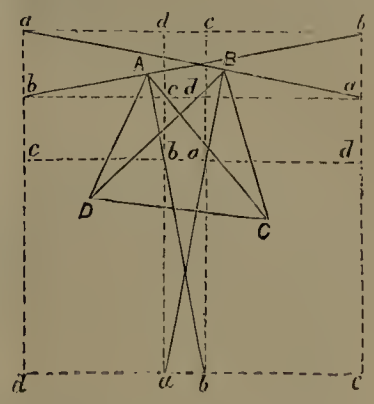
If P be a point on a circle whose eccentric angle (measured from a fixed radius OA in a fixed sense of rotation) is α, then the eccentric angle of a point Q, such that PQ and the tangent to the circle at P are equally inclined to OA, is easily found to be $= -3\alpha$.

For the three vertices P_1, P_2, P_3 of a maximum inscribed (equilateral) triangle whose eccentric angles are α, $\alpha+\frac{2}{3}\pi$, $\alpha+\frac{4}{3}\pi$, the associated points Q_1, Q_2, Q_3 each coincide with the point Q whose eccentric angle $= -3\alpha$; and the sum of the eccentric angles of the four points P_1, P_2, P_3, $Q = 2\pi$.

Hence, projecting orthogonally, &c.

9948. (W. S. M'Cay, M.A.)—A, B, C, D are four points on a circle. Omitting each point in turn, we have four triangles; prove that the sixteen centres of the circles touching the sides of these triangles lie in fours on four parallel lines and also in fours on four perpendicular lines, and that the two sets of lines are parallel to the bisectors of the angles between AC and BD.

Solution by Frederic R. J. Hervey; W. J. Johnston, M.A.; *and others.*

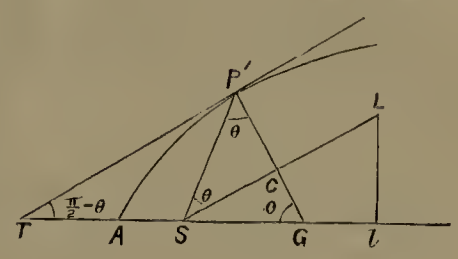


Let the four centres of the triangle formed by leaving out A be denoted by a, and so on. If B move to A, BC, BD turn through equal angles, and so therefore do the bisectors of the angles BCD, BDC. Hence the bisectors of the angles at the common base of the triangles ACD, BCD determine two concyclic and rectangular sets of points $abab$; aa, bb, being diameters. The diagonals aa, bb are in one rectangle, the internal bisectors, in the other the external bisectors, of the angles A, B; the bisectors of the angles between them (and hence the sides ab) are evidently parallel to those of the angles between AC, BD and AD, BC.

[The rest in Volume.]

8022. (J. Brill, B.A.)—PQR is a triangle circumscribed to a parabola whose focus is S and vertex A. P′, Q′, R′ are the points of contact of QR, RP, PQ. SL, SM, SN are diameters of circles passing through S and touching the parabola at P′, Q′, R′ respectively, and SK is a diameter of the circles circumscribing the triangle PQR. O is the centroid of the triangle PQR, O′ that of the triangle P′Q′R′, and H that of the triangle LMN. QR, RP, PQ meet the tangent at the vertex in X, Y, Z, and U is a point taken in the same tangent, so that $3 . AU = AX + AY + AZ$. Prove that $AS . HK = 3 . SU . OO'$.

Solution by G. G. Storr, M.A.; Rev. T. Galliers, M.A.; *and others.*



Let the coordinates of P′ be $(am_1^2, 2am)$ and the equation to the parabola $y^2 = 4ax$. Draw SL cutting the normal P′G at P′ in C, making $\angle P'SC = \angle SP'C$ and $CL = CS$; then SL is a diameter of the circle touching the curve in P′ and passing through S, and

$$\angle LSl = \pi - \theta - 2\theta = \pi - 3\theta.$$

[The rest in volume.]

2555. (The late Professor De Morgan.)—The following is a theorem of which an elementary proof is desired. It was known before I gave it in a totally different form in a communication (April, 1867) to the Mathematical Society on the *conic octogram;* and the present form is as distinct from the other two as they are from one another. If I, II, III, IV be the consecutive chord-lines of one tetragon inscribed in a conic, and 1, 2, 3, 4 of another; the eight points of intersection of I with 2 and 4, II with 1 and 3, III with 2 and 4, IV with 1 and 3, lie in one conic section. A proof is especially asked for when the first conic is a pair of straight lines. There is, of course, another set of eight points in another conic, when the pairs 13, 24 are interchanged in the enunciation.

Solution by W. S. Foster.

Let the equations of the lines be

$$\text{I, } \alpha = 0;\ \text{II, } \beta = 0;\ \text{III, } \gamma = 0;\ \text{IV, } \lambda\alpha + \mu\beta + \nu\gamma = 0.$$

$$(1)\ l_1\alpha + m_1\beta + n_1\gamma = 0;\quad (2)\ l_2\alpha + \ldots = 0;\quad (3)\ l_3\alpha + \ldots = 0;$$
$$(4)\ l_4\alpha + \ldots = 0.$$

The conic circumscribing the quadrilateral of which I, II, III, IV are the consecutive sides is $\beta(\lambda\alpha + \mu\beta + \nu\gamma) = k_1\alpha\gamma$,

and the conic circumscribing the other quadrilateral is

$$(l_1\alpha + m_1\beta + n_1\gamma)(l_3\alpha + m_3\beta + n_3\gamma) = k_2(l_2\alpha + m_2\beta + n_2\gamma)(l_4\alpha + m_4\beta + n_4\gamma).$$

[The rest in volume.]

9960. (E. Lemoine.)—On circonscrit à toutes les ellipses homofocales de foyers F et F′ des *rectangles* dont les directions des côtés sont données; démontrer que tous les points de contact, quelle que soit l'ellipse à laquelle est circonscrit un rectangle, appartiennent à une même hyperbole équilatère qui passe par F et par F′, qui a pour asymptotes les parallèles aux côtés des rectangles menées par le centre des ellipses. Le lieu des sommets de ces hyperboles équilatères, quand la direction des côtés des rectangles varie, est une lemniscate de Bernoulli.

Solution by Professor Schoute; R. F. Davis, M.A.; *and others.*

La droite a (Fig. 1) de direction donnée est touchée par une des coniques de foyers F et F′ au point P, pour lequel PF et PF′ font de part et

d'autre des angles égaux avec a. Le lieu de P est donc en même temp

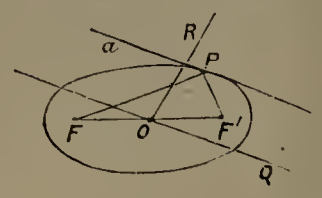


Fig. 1.

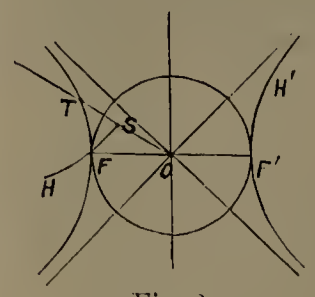


Fig. 2.

le lieu du point d'intersection de deux droites antiparallèles par rapport à la direction donnée, dont l'une passe par F et l'autre par F', c.-à-d. l'hyperbole équilatère à centre O, qui passe par F et F' et dont les asymptotes OQ et OR sont parallèles aux côtés des rectangles déterminés par la direction donnée (problème du réverbère hissé).

[The rest in Volume.]

9951. (D. Biddle.)—Required that function of x which, when x is replaced by 1, 2, 3, 4, yields respectively 0, $\frac{2}{9}$, $\frac{17}{36}$, $\frac{641}{900}$.

Solution by R. Knowles, B.A.; R. W. D. Christie; *and others.*

Let $x^5+bx^4+cx^3+dx^2+ex$ be the function of x required; then, by putting $x = 1, 2, 3, 4$ respectively, four equations are formed from which b, c, d, e are determined. Substituting these values, the function becomes

$$(64800x^5-647577x^4+2263362x^3-3221847x^2+1541262x)/64800.$$

[The rest in Volume.]

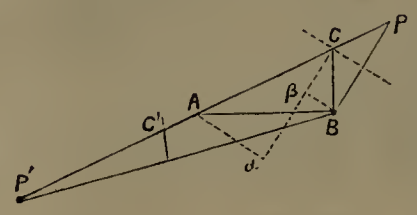
9842. (Professor Barbarin.)—Étant donnés deux points A, B, et une droite AX, trouver sur celle-ci un point C, tel que le produit des projections des droites CA, CB sur la bissectrice de l'angle ACB soit égal à un carré donné k^2.

Solution by Professors DeWachter, Chakravarti, *and others.*

If $C\alpha$, $C\beta$ be the projections of $AC = y$ and $CB = x$, c denoting AB,

$$C\alpha = y\cos\tfrac{1}{2}C \text{ and } C\beta = x\cos\tfrac{1}{2}C;$$

$$\therefore \quad C\alpha\,.\,C\beta = xy\cos^2\tfrac{1}{2}C = k^2.$$



Putting the value of $\cos\frac{1}{2}C$ in this expression, we get $(x+y)^2 = 4k^2+c^2$.

Hence the following construction:—

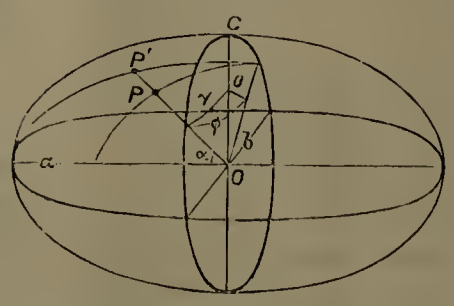
On both sides of A take $AP = AP' = (4k^2+c^2)^{\frac{1}{2}}$ in the given line AX, and join BP, BP'. The perpendiculars erected in the middle points of BP and BP' will meet AX in the required points C, C'.

9758. (J. O'Byrne Croke, M.A.)—If every section of an ellipsoid through the axis of x be contracted into a circle with the centre of the ellipsoid as centre, and the semi-conjugate axis of the section as radius, prove that the ellipsoid becomes thus contracted into the quadric surface

$$(x^2+y^2+z^2)\left(\frac{y^2}{b^2}+\frac{z^2}{c^2}\right) = y^2+z^2.$$

Solution by the Proposer; Prof. Sarkar; *and others.*

Let ρ be the radius vector to any point P' on the ellipsoid; and $r = OP$, where P is the corresponding point in the locus.



Then, if α, β, γ be the direction angles of OP, θ the angle between the axis of z and the trace of the central section through P' on the plane of yz, and ϕ the angle between this trace and OP', we have $\cos\alpha = \sin\phi$; $\cos\beta = \sin\theta\cos\phi$; $\cos\gamma = \cos\theta\cos\phi$; $x = r\cos\alpha$; $y = r\cos\beta$; $z = r\cos\gamma$.

[The rest in Volume.]

9035. (Professor Cavallin, M.A.)—If A and B are two luminous points whose intensities are as $n : 1$, and P a point in an ellipse of which they are the foci, show (1) that the illumination of the curve at P is a maximum or a minimum, when

$$AP\,[5\,(AP)/(BP)-1] = n\,.\,BP\,[5\,(BP)/(AP)-1];$$

(2) determine which it is, and show that for such points AP must be $> \frac{1}{6}$ and $< \frac{5}{6}$ major axis; and (3) show that, by increasing the value of n, the above value of AP increases.

Solution by Rev. T. Galliers, M.A.; G. G. Storr, M.A.; *and others.*

Let $AP = r$, $BP = r'$, I = illumination of the curve at P, then, by Optics, it may be shown that $I = \lambda\,(nr'^2+r^2)/(rr')^{\frac{3}{2}}$, where λ = constant; also $r+r' = 2a$.

Hence $\quad dI/dr = \lambda\left\{(5r-r')\,r^2-(5r'-r)\,nr'^2\right\}/(rr')^{\frac{7}{2}}$;

therefore I is a maximum or minimum when

$$r\,(5r/r'-1) = nr'\,(5r'/r-1) \quad\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1).$$

[The rest in volume.]

9745. (Professor de Longchamps.)—Soient A, C deux sommets opposés d'un rectangle ABCD: démontrer que (1) la perpendiculaire élevée de C sur BD rencontre la bissectrice de BAD en P; démontrer que CP = CA; et de là (2) la développée de l'hypocycloide à quatre rebroussements est aussi une hypocycloide à quatre rebroussements.

Solution by Professors Ignacio Beyens; Matz; *and others.*

1. D'après la figure nous avons:

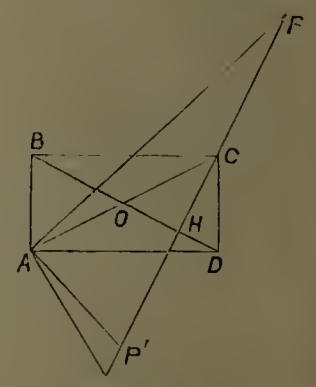
$$CAP = BAC-45°,\ HCA = 90°-COD\ldots(1);$$

$$APC = HCA-CAP = 90°-COD-(BAC-45°),$$

$$APC = 135°-(COD+BAC),$$

$$COD+BAC = BOA+BAC = 180°-ABO,$$

$$APC = 135°-(180°-ABO) = ABO-45°\ldots(2).$$



D'après (1), (2), CAP = APC; d'où CP = CA.

2. Si on meut BD sur les droites AB, AD, qui forment l'angle droité BAD, de telle manière que les extrémités B, D parcourent les côtés AB, AD, elle engendrera une hypocycloide à quatre rebroussements.

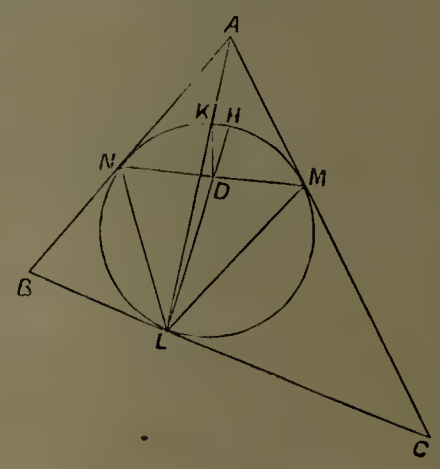
[The rest in volume.]

9959. (E. M. Langley, M.A.)—Prove geometrically, without using transversals, that the lines joining the points of contact of the in-circle with the sides to the opposite angles are concurrent.

Solution by the Proposer; Professor Steggall; *and others.*

Let L, M, N be the points of contact of the in-circle with BC, CA, AB; let D be the mid-point of MN, and LD, AL meet the in-circle in H, K. Then it is known that DL, DH are equally inclined to the diameter through D; therefore

$$\text{arc } NK = \text{arc } HM.$$

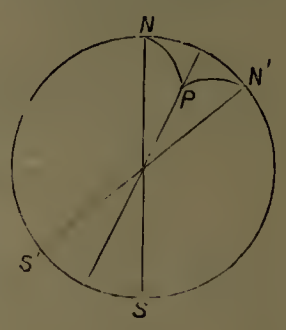


But LH is the median through L of LMN; therefore LK is the symmedian. Similarly MB, NC are symmedians; therefore LA, MB, NC cointersect. [The lines in question are the symmedian lines of the triangle LMN, and are therefore concurrent.]

9954. (F. R. J. Hervey.)—A celestial globe being fixed in any position, there are, at any instant, two opposite points of its surface, whose central vectors aim truly at the corresponding points of the celestial sphere. Show that, as the Earth rotates, the variable points of coincidence (as they may be called) describe great circles of their respective spheres.

Solution by Professors Schoute, Morel, *and others.*

As a figure on the sphere can be transferred from one position to another by a rotation round an axis through the centre, there are always two points of coincidence, the points where this axis cuts the sphere. When NS is the axis of the heavens, N'S' that of the globe, and P a point of coincidence, the arcs NP and N'P are equal; therefore the locus of P is the great circle that bisects orthogonally the arcs NN' and SS'.



9831. (Professor Malet, F.R.S.)—Let p_1, p_2, p_3, p_4 be the perpendiculars from the centre of the quadric $a^{-2}x^2+b^{-2}y^2+c^{-2}z^2-1 = 0$ on the faces of a self-conjugate tetrahedron, a_1, a_2, a_3, a_4 the areas of the faces of the tetrahedron, and V its volume. If W be the volume of the tetrahedron formed by joining the feet of the perpendiculars, then

$$4a_1a_2a_3a_4W = 9p_1p_2p_3p_4V^3\,(a^{-2}+b^{-2}+c^{-2}).$$

Solution by the Proposer.

Let the equations of the sides of the self-conjugate tetrahedron be

$$\alpha_1 \equiv x\cos\alpha_1+y\cos\beta_1+z\cos\gamma_1-p_1 = 0,\quad \alpha_3 \equiv x\cos\alpha_3+y\cos\beta_3+z\cos\gamma_3-p_3 = 0,$$

$$\alpha_2 \equiv x\cos\alpha_2+y\cos\beta_2+z\cos\gamma_2-p_2 = 0,\quad \alpha_4 \equiv x\cos\alpha_4+y\cos\beta_4+z\cos\gamma_4-p_4 = 0.$$

Then, identifying the equations

$$a^{-2}x^2+b^{-2}y^2+c^{-2}z^2-1=0,\quad l\alpha_1^2+m\alpha_2^2+n\alpha_3^2+p\alpha_4^2=0,$$

we have

$$lp_1\cos\alpha_1+mp_2\cos\alpha_2+np_3\cos\alpha_3+pp_4\cos\alpha_4=0,$$
$$lp_1\cos\beta_1+mp_2\cos\beta_2+np_3\cos\beta_3+pp_4\cos\beta_4=0,$$
$$lp_1\cos\gamma_1+mp_2\cos\gamma_2+np_3\cos\gamma_3+pp_4\cos\gamma_4=0,$$
$$l(1+kp_1^2)+m(1+kp_2^2)+n(1+kp_3^2)+p(1+kp_4^2)=0,$$

where $k=a^{-2}+b^{-2}+c^{-2}$.

[The rest in volume.]

QUESTIONS FOR SOLUTION.

10025. (Professor Sylvester, F.R.S.)—P is a point on an ellipse; the circle of curvature of which cuts the ellipse in Q; another circle touching the conic at P cuts the conic in two points R, S; another circle through QRS cuts the conic in a given point A. Show that there are five positions of P which satisfy this condition, and that they are the apices of a pentagon of maximum area that can be inscribed in the ellipse.

—026. (Professor Mannheim.)—On donne une sphère et un point fixe S. On coupe la sphère par un plan P, et l'on prend le petit cercle d'intersection, ainsi obtenu, comme directrice d'un cône qui a S pour sommet. Ce cône coupe de nouveau la sphère suivant un petit cercle dont le plan est Q. Démontrer que, si l'on fait varier le plan P, de façon qu'il passe par un point fixe, le plan Q passe aussi toujours par un même point.

—027. (Professor Abinash Chandra Basû.)—If $x^2+xy+y^2=a^2$, $x^2+xz+z^2=b^2$, $y^2+yz+z^2=c^2$, a, b, c being the sides of a triangle; find (1) the value of $xy+yz+xz$; and (2) show how to solve the set of equations.

—028. (Professor Décamps.)—On donne sur une droite quatre points A, B, C, D. Sur AC et BD comme cordes, on décrit deux segments capables d'un même angle variable et se coupant en P et Q. Lieu du milieu de corde commune PQ.

—029. (Professor Thorin.)—Sur un billard rectangulaire, on lance une bille M de manière à ce qu'elle aille rencontrer une autre bille N, après avoir touché les quatre bandes du billard. Montrer que les quatre routes différentes que l'on peut faire suivre à la bille M passent par un même point.

—030. (Professor Steggall.)—Prove that, if from a fixed point on the circumscribing circle of a triangle, lines be drawn to cut the sides in order at the same angle, the points of intersection lie on a line which envelopes a parabola.

—031. (Professor Déprez.)—Si la droite OH qui joint le centre du cercle circonscrit au triangle ABC, à l'orthocentre, est perpendiculaire à la bissectrice de triangle ACB, l'angle C est nécessairement égal a 60°.

—032. (Professor Genese, M.A.)—S, S′ are the foci of a conic, LL′ a tangent terminated by the asymptotes. Prove that L, L′ are the foci of a conic of which SS′ is a tangent terminated by the asymptotes.

—033. (Professor De Longchamps.) — On considère deux cercles concentriques Δ, Δ'. Soit T une tangente à Δ et soit T′ une tangente à Δ', perpendiculaire à Δ. Il existe une hyperbole H, ayant Δ et Δ' pour axes de symétrie et passant par le centre commun des circonférences $\Delta\,.\,\Delta'$. On propose d'établir—(1) le lieu des sommets de H est un système de deux cercles; (2) le lieu des foyers réels de H est aussi un système de deux cercles.

—034. (Professor Morley.)—Prove that, of the four focal circles of a circular cubic or bicircular quartic, any two are orthogonal, and the radii are connected by the relation $\Sigma(\mu^{-2})=0$.

—035. (Professor Gob.)—Sur les côtés de ABC, on construit six triangles isoscèles semblables; soient P_a, P_b, P_c les sommets des triangles extérieurs à ABC, et soient Q_a, Q_b, Q_c les sommets des triangles intérieurs. Montrer que les quadrilatères $AP_bQ_aP_c$, $AQ_aP_aQ_c$ sont des parallélogrammes.

—036. (Professor Hudson, M.A.)—Two rough inclined planes make equal angles α with the horizon, and are separated by a short hard smooth horizontal plane: a perfectly elastic particle is projected directly up one of the inclined planes with a velocity just sufficient to carry it to a distance a, it then descends and after impact ascends the other plane: find the height to which it will rise; also the whole time of motion before it is brought to rest and the aggregate distance traversed in that time, the angle of friction being λ.

—037. (Professor Ignacio Beyens.)—Si (P_1), (P_2), (P_3) sont les pieds des perpendiculaires abaissées du point de Lemoine d'un triangle sur les côtés BC, AC, AB, on aura la relation

$$(BP_1/a)+(CP_2/b)+(AP_3/c)=(CP_1/a)+(AP_2/b)+(BP_3/c)=\tfrac{3}{2}.$$

—038. (Professor Bordage.)—Trace the curve represented in trilinear coordinates, by the equation $\alpha(\beta-\gamma)^3+\beta(\gamma-\alpha)^3+\gamma(\alpha-\beta)^3=0$.

—039. (Professor Catalan.)—Soit la série

$$y=x+x^2+2x^3+\ldots+\frac{n+2}{2}\cdot\frac{n+3}{3}\ldots\frac{2n}{n}x^{n+1}+\ldots,$$

qui est convergente si l'on suppose $x<\frac{1}{4}$. Démontrer qu'on a pour toutes les valeurs de l'exposant w,

$$\frac{1}{(1-y)^w}=1+wx+w\frac{w+3}{2}x^2+w\frac{w+4}{2}\cdot\frac{w+5}{3}x^3+\ldots$$
$$+w\frac{w+n-1}{2}\cdot\frac{w+n-2}{3}\cdot\frac{w+2n-1}{n}x^n+\ldots.$$

10040. (Prof. Wolstenholme.)—In a tetrahedron OABC, the sum of the angles BAC, BOC is equal to the sum of the angles ABO, ACO; prove that the sum of the angles CBA, COA will be equal to the sum of the angles OCB, OAB, and the sum of ACB, AOB will also be equal to the sum of OAC, OBC. Or, if the sum of the six plane angles subtended by BC, CA, AB be equal to the sum of the six subtended by OA, OB, OC, then will the sum of the pair subtended by BC = sum of the pair subtended by OA; and similarly for CA, OB; and for AB, OC.

—041. (Professor Emmerich, Ph.D.)—K being the symmedian point of the triangle ABC, we have $AK+BK+CK\equiv(a+b+c)/\sqrt{3}$.

—042. (Professor Neuberg.)—On donne deux droites rectangulaires OX, OY. Soient A, B, C trois points quelconques de OX; A′, B′, C′ trois points quelconques de OY; A″, B″, C″ trois points divisant les droites AA′, BB′, CC′ dans le rapport $\alpha:1$; A‴, B‴, C‴ trois points divisant ces droites dans le rapport $\beta:1$. Cela posé: démontrer que (1) Les perpendiculaires abaissées de A sur B″C″, de B sur C″A″, de C sur A″B″ concourent en un même point P; (2) Lorsque α varie, P décrit une droite; (3) Les perpendiculaires abaissées de A″ sur B‴C‴, de B″ sur C‴A‴, de C″ sur A‴B‴ concourent en un point Q; (4) Lorsque α varie, Q décrit une droite; (5) Lorsque β varie, Q décrit une hyperbole équilatère.

—043. (Professor Schoute.)—Prove, geometrically, that the angles under which the sides of a triangle are seen from its isodynamic centres (points common to the three circles of Apollonius) differ 60° from the corresponding angles of the triangle.

—044. (The Editor.)—A straight line is divided into n equal parts, and i of the points of section are taken at random; find (1) the probability that the sum of the distances of these points from one end of the given line shall be less than a given magnitude; and (2) what the result becomes when n is indefinitely increased.

—045. (R. Tucker, M.A.)—D′E′F′ are the mid-points of BC, CA, AB; Ω, Ω'; Ω_1, Ω_1' the Brocard points of ABC, D′E′F′ respectively; prove that (1) $\Omega\Omega_1$, $\Omega'\Omega_1'$ intersect in the common centroid (G), and $\Omega\Omega_1'$, $\Omega'\Omega_1\ldots$ in the point $a^3\alpha=b^3\beta=c^3\gamma$ (T); (2) the join of the centres (V, V′) of the Brocard ellipses of the two triangles passes through G and T, and G is a point of trisection of VV′; (3) if L, L′; M, M′; N, N′ are the points where the ellipses touch the respective sides, then LL′, MM′, NN′ intersect in G, and AL′, BM′, CN′ intersect in T; (4) if $Q\equiv a^4+\ldots+\ldots+b^2c^2+\ldots+\ldots$, then the equation to the Brocard circle of D′E′F′ may be written $a\beta\gamma+\ldots+\ldots=(a\alpha+\ldots+\ldots)(p\alpha+q\beta+r\gamma)$, where

$$p=a(Q-2a^4)/4abck,\quad (k\equiv a^2+b^2+c^2);$$

(5) find the equation to the Brocard ellipse; (6) show how to obtain the equation to the Brocard circle of the pedal triangle of ABC, and prove coordinates of Brocard points of triangle formed by joining points of contact of in-circle ABC with the sides to be proportional to

$$(\cos^2\tfrac{1}{2}A+\cos^2\tfrac{1}{2}B)/\cos^2\tfrac{1}{2}A,\quad (\cos^2\tfrac{1}{2}A+\cos^2\tfrac{1}{2}C)/\cos^2\tfrac{1}{2}A,$$
$$(\cos^2\tfrac{1}{2}B+\cos^2\tfrac{1}{2}C)/\cos^2\tfrac{1}{2}B,\quad (\cos^2\tfrac{1}{2}B+\cos^2\tfrac{1}{2}A)/\cos^2\tfrac{1}{2}B,$$
$$(\cos^2\tfrac{1}{2}C+\cos^2\tfrac{1}{2}A)/\cos^2\tfrac{1}{2}C,\quad (\cos^2\tfrac{1}{2}C+\cos^2\tfrac{1}{2}B)/\cos^2\tfrac{1}{2}C.$$

—046. (Maurice d'Ocagne.)—Soit ABC un triangle inscrit dans une hyperbole équilatère ayant pour centre le milieu O de BC; démontrer que (1) la tangente en A à cette hyperbole est symédiane du triangle ABC; (2) si le diamètre OM perpendiculaire à BC coupe AB en M, et que H soit le pied de la perpendiculaire abaissée de M sur AC, les axes de l'hyperbole sont les bissectrices de l'angle COH; (3) si un cercle et une hyperbole équilatère sont concentriques, les tangentes à l'hyperbole aux extrémités d'un de leurs diamètres communs sont perpendiculaires à l'autre diamètre commun.

—047. (Morgan Brierley.)—Suppose the number of candidates (say 30) at a School Board election be double the number of places to be filled (viz. 15), which latter is also the number of votes any one elector can give to one, or divide amongst two or more candidates. Find in how many different ways the said elector can give his 15 votes. [This Question has caused some excitement, as two different sets of mathematicians have given different solutions, leading to the respective results 614429671, 229916315790.]

—048. (Dr. Traill. Generalisation of Quest. 10047.)—If the number of candidates at a School Board election be n, and the number of vacancies r, which is also the number of votes belonging to any elector, prove that the number of different ways in which the said elector can give his r votes is $(n+r-1)!\div\{r!(n-1)!\}$.

[In the particular case which forms Quest. 10047; this gives $(44!)\div(15!\,29!)$, which agrees with the *second* result in the Note.]

—049. (J. Lemaire.)—Soit un quadrilatère ABCD et une droite parallèle à la diagonale BD. Cette droite rencontre AB, BC, CD, DA respectivement en E, F, G, H; AF et AG coupent CD et BC en I et K. Enfin EK et HI se rencontrent en O. Démontrer que la droite CO passe par le milieu de EH.

10050. (H. MacColl, B.A.)—Three pairs of random points P_1, P_2; Q_1, Q_2; R_1, R_2 are taken in the circumference of a circle; and three pairs p_1, p_2; q_1, q_2; r_1, r_2 are taken inside the circle. The three straight lines (produced indefinitely) P_1P_2, Q_1Q_2, R_1R_2 will form a triangle of area α say; and the three p_1p_2, q_1q_2, r_1r_2 will form another of area β, say. Find (1) the chance that the latter triangle will lie wholly within the circle; and (2) the average value of the fraction $\alpha : \beta$.

—051. (B. F. Finkel, B.Sc.)—Give Newton's mechanical method of describing the cissoid, with complete demonstration.

—052. (G. Russo.)—Sur le côté AC du triangle rectangulaire ABC, on prend le point D, de telle sorte que $AD : DC = m : n$. Par D on élève sur AC la perpendiculaire DEF. Les points F, E étant les intersections de cette perpendiculaire avec les côtés AB, BC; démontrer que l'on a:

$$AB^h : BP^h = (m+n)^h (AF^h \pm CE^h) / (m_h BC^h \pm n^h AB^h),$$

$$\Delta = mn(m+n)^2 AF^3 . BE^3 / 2(n^2AF^2 + m^2BE^2);$$

BP désignant la perpendiculaire menée du sommet de l'angle droit sur l'hypoténuse, et Δ l'aire du triangle ABC.

—053. (W.J.C. Sharp, M.A. Extension of Quest. 9513.)—If common tangents be drawn to a curve of the mth class and to a curve of the second class, and if these be arranged in m pairs, and from their m intersections the other tangents be drawn to the first curve, prove that they will all touch a curve of class $m-2$. This theorem reduces to Quest. 9513, if the conic be replaced by two points, and if these points become coincident.

—054. (W. S. M'Cay, M.A.)—Soient AB un diamètre d'une circonférence et CD une corde perpendiculaire à AB au point E. Si a, b, c, d sont les distances des points A, B, C, D à une droite quelconque L et $(\lambda : \mu)$ le rapport des segments BE, AE, démontrer la relation

$$\lambda a^2 + \mu b^2 = (\lambda + \mu)(cd + CE^2).$$

Déduire de là l'enveloppe d'une droite L satisfaisant à la condition $\lambda a^2 + \mu b^2 = \text{const.}$

—055. (A. Soyer.)—Résoudre le système d'équations

$$(x+y)(1+xy+x^2y+xy^2+x^2y^2)+xy = a,$$
$$xy(x+y)(x+y+xy)(x+y+xy+x^2y+xy^2) = b.$$

—056. (Syamadas Mukhopâdhyây, B.A.)—A system of triangles of given species are inscribed in a given triangle; prove that (1) the envelope of each side is a parabola which touches the two sides of the given triangle including that side; (2) the three parabolas have a common focus which is the common centre of homology of the system of inscribed triangles; (3) their vertical tangents form the minimum triangle of the system; and (4) that diameters of these parabolas through corresponding vertices of the given triangle meet at a point which is isogonally conjugate to the common centre of homology.

—057. (E. Césaro.)—Les coniques issues de P, osculant en un point Q une même ligne, ont leurs centres sur une conique dont le centre est aux trois quarts de PQ.

—058. (Col. H. W. L. Hime.)—ABC is a given triangle, and the sides are divided in A′, B′, C′ so that $BA' : A'C = n : m$, $CB' : B'A = l : n$, $AC' : C'B = m : l$, where $l - m - n = 0$; also B″, C″ are taken in CA, AB, where C′A′, A′B′ meet them; and AA′, BB′, CC′ meet in O. Prove that, if OA is produced to P, so that OP = 3OA, the points B″, C″, and P are collinear; BB″ and CC″ are parallel; and B″C″ is the diameter of a conic to which ABC is self-conjugate; BB″ touching at B″, CC″ at C″, CC′ at C′, and BB′ at B′. Prove that, if $m = n$, P will be the centre of the conic.

—059. (R. W. D. Christie.)—Prove that every perfect number except the first two is the sum of an even number of odd cubes.

—060. (E. M. Langley, M.A.)—Prove that the intersection of the Brocard-axes $A\Omega_1C$, $A\Omega_2B$ is the intersection of the Brocard-circle and the symmedian through A.

LONDON MATHEMATICAL SOCIETY.

Thursday, February 14th.—J. J. Walker, F.R.S., President, in the Chair. Mr. H. F. Baker was admitted into the Society. The following communications were made:—"On the Diophantine Equation $y^2 + y'^2$ = square," Prof. Cayley, F.R.S. "Sur la transformation des Equations algébriques," Signor Brioschi. "On Projective Cyclic Concomitants, or Surface Differential Invariants," E. B. Elliott, M.A. "On Secondary Invariants," Prof. L. J. Rogers, M.A. "Remarks upon Algebraical Symmetry, with particular reference to the Theory of Operations and the Theory of Distributions," Major MacMahon, R.A.

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15841. A Gov. Eng. subj., Dom. Econ., Dancing. Res.

II.—ASSISTANTS.

No. in Register.

MASTERS.

21158. Chem. (Org. and Inorg.), Physics, Mech., Math., Lat., Greek, Biol. Age 20. B.A. Camb. Non-res. or visiting.

21159. Lat., Greek, Fr., Math., Eng. Age 20. Res. 35*l.*

21160. Lat. and Greek (good), Fr., Eng. subj., Math., Chem., Elec., Geol., Bot., Phys. Age 30. S.K. Queen's Prizeman in Sci. Res. 50*l.*; non-res. 90*l.*

21162. Eng., Arith., elem. Lat. and Fr., Piano, Violin, Shorthd. Age 19. Res. 10*l.*

21164. Eng., Fr., Math., Class., Piano, Organ, Sports. Age 38. B.A. Lond. Res. 80*l.*; non-res. 140*l.*

21166. Fr., Ger., Math., Class., Eng. Age 21. B.A. Denmark. Res. or non-res.

21167. Eng. subj., Class., Math., Fr., elem. Ger. Age 54. Trained Cheltenham. Res. 30*l.*; non-res. from 40*l.*

21168. Piano, Violin, adv. Har., Counterpt., Comp., &c., Sing. Age 24. Non-res.

21170. Eng. and Math. (elem.). Age 15. Res. Mutual terms.

21171. Lat., Greek, Math., Eng. subj. Age 22. B.A. Lampeter. Res. 30*l.* to 40*l.*; non-res. 70*l.* to 80*l.*

21172. Fr., Ger., Classics, Math, Sci. Age 27. Res. 40*l.*; non-res. 100*l.*

21173. Eng. subj., adv. Lat., Fr. and Ger., elem. Greek, Math. Age 25. Sen. Camb. Res. 50*l.*; non-res. 80*l.*

21176. Chem. (thoro. and prac.), Physics, Mech., Math., Fr., Ger., Eng. subj. Age 24. B.Sc. Victoria Univ. Non-res. 120*l.*

21179. Eng., Lat., Fr., Greek, Math., Nat. Sci., Chem. Age 23. B.A. Oxf., Lond. Matric. Res. 30*l.*

21180. Classics (high), Eng. subj., Math., Fr. M.A. About 100*l.* Res. or non-res.

21181. Lat., Greek, Eng., Math., Jun. Fr., Shorthd. Age 28. M.A. Aberd. Temp. appoint. till Easter.

21183. Lat., Greek, Fr., Math., Eng. (Lit., &c.), and gen. subj. Age 46. Camb. Univ. Res. 50*l.* to 70*l.*; non-res. 80*l.* to 100*l.*

21187. Eng. subj., Lat., Greek, Fr., Math., Athletics. Age 25. B.A. Camb., Lond. Matric. Res. 60*l.*; non-res. 120*l.*

21188. French. Age 24. Diplomé. Res. Small salary.

21189. Eng., Fr. and Ger. (thoro., convers, &c.), Ital., Draw. Age 35. 1st Cl. Trained Certd. Master. Non-res. 150*l.*

21190. Eng. subj., Fr., elem. Lat., Arith., Draw., Shorthd., Athletics. Age 21. Res. 30*l.*

21196. Eng. subj., Bkkp., Math., Fr., Lat., elem. Greek, Phys., Acous., Light, Heat, Geol. Age 38. C.M. Res. 50*l.* For Easter.

21197. Math. (high), Draw., Eng. subj., good Class., Organ, Violin, Harm., Jun. Fr. Non-res. or res.

21198. Math., Mech., Chem., Lat., Greek, Fr., Eng. subj. Age 25. Assoc. of the Inst. of Chem. Non-res. 70*l.*, or visiting.

21199. Fr., Ger. Age 48. Res. or non-res. Certd.

21201. Lat., Greek, Fr., Eng. subj., Math., Moral Sci., Pol. Econ., elem. Ger. Age 24. B.A. Lond. 1st Div. Res. 50*l.*; non-res. 100*l.*

21202. Ger., Fr., Ital., Span., Piano, Violin, Har., Classics, Eng. Age 35. Ph.D. Res. from 60*l.*, or non-res.

21203. Eng., Math., elem. Fr. and Lat., Draw. Age 23. Camb. Local. Res. 30*l.*; non-res. 60*l.*

21204. Good Classics and Math., fair Fr. and Ger., Sports. Age 21. B.A. Lond. Res. or non-res. in good School.

21206. Lat., Grk., Eng. subj., Math. (mixed), Chem., elem. Fr., Draw., Bk. Age 36. Sen. Oxf., Lond. Matric. Non-res. 150*l.*

21207. Lat., Fr., Ger., Eng., Math., Chem., Nat. Phil., Shthand, Draw. Age 24. Res. 50*l.*

21208. Eng. subj., Math., Draw., Paint., Fr., Mus., Sing., Drill, Dancing. Age 21. Camb. Local. Res. 35*l.*

21209. Math., Classics, Fr., Eng. Age 20. B.A. Camb. Res. 35*l.*; non-res. 80*l.*

21210. Eng. subj., Draw., Math., Lat., elem. Grk. and Ger., Fr. Age 22. Res. 30*l.* to 40*l.*; non-res. 60*l.* to 80*l.*

21211. Lat., Grk., Heb., Fr., Ger., Eng. subj., Math., Mech., Chem., Shthand., Draw. Age 21. Sen. Oxf. Res. 30*l.*; non-res. 80*l.*

21212. Eng. subj., Math., Lat., Grk., Draw. Age 23. Non-res. 70*l.*; res. 30*l.*

21213. Eng. subj. (thoro.), Fr., Ger., Math. (for 1st B.A.), adv. Lat., elem. Grk., good Draw., Physics, Chem., Phys. Age 40. 1st Cl. C.M.; Lond. Matric. Non-res. 150*l.*, or visiting.

21214. Eng., Fr., and Ger. (thoro., acq. abr.), Hist., Span., Piano, Organ, elem. Lat. Age 27. Res. or non-res.

21215. Eng. subj., Math., Lat., Grk., elem. Fr., Piano, Organ. Age 15. Res. Mutual terms.

21216. Fr., Ger., Lat. Age 49. B.-ès-let. Res. 70*l.*; non-res. 120*l.*

21217. Eng. subj., Lat., Grk., Math., Mech., Hydros., Fr., Draw. Age 21. Lond. Matric.; 1st Cl. C.P. Res. 35*l.*; non-res. 85*l.*

21218. Classics, Fr. (acq. abr.), Eng. subj., Math., Draw. Age 60. Res. or non-res.

21219. Eng. subj., Arith., Euc., Fr., elem. Lat., Draw., Bk. Age 17. 2nd Cl. C.P. Res. 10*l.* to 12*l.*

21220. Eng. subj., good Lat., Grk., elem. Math., Fr., Piano, Sing. Age 19. Res. 15*l.* to 20*l.*

21221. Fr. (all branches), Eng. lit., &c. Age 21. Bach.-ès-let. Non-res. 80*l.*, or res.

21222. Eng., Chem. (prac.), Elec. and Mag., Nat. Phil., good Draw. and Paint., Math., Fr., Ger., Ital., Span., Lat., Grk., Shthand, Bk. Age 30. Res. 25*l.* to 50*l.*; non-res. 50*l.* to 100*l.*

21223. Classics, elem. Math., Eng. (lit., &c.). Age 23. Licen. Durham Univ. Res. Mutual terms.

21224. Ger., Fr., Phil., Classics. Age 33. M.A. and Ph.D. Leipzig. Visiting (Lecturing or Examining).

21225. Piano, Theory, Math., Lat., Mech., Hydros., Eng., elem. Fr. and Shthand., Chem., Phys. Age 18. Lond. Matric., R.A.M. Cert. Res. 20*l.* to 30*l.*; non-res. 50*l.* to 60*l.*

21226. Math. (conics, &c.), Nat. Phil., Lat., Greek, Fr., Eng., Chem. (for Lond. B.A.). Age 21. 1st B.A. Lond. Res. 50*l.*; non-res. 80*l.*

21227. Math., Eng., Fr., elem. Lat. and Ger. Age 16. Lond. Matric. Res. or non-res

21228. Eng. subj., Lat., Greek, Math., Draw., Bkkp., elem. Shorthd. Age 21. M.A. Aberdeen. 60*l.* res.

21229. Math., Sci., Fr., Ger., Lat., Bkkp., Shorthd., Sports. Age 24. B.A. Camb. 16th Wrangler. Non-res. 170*l.*

21230. Eng. subj., Math., good Class., Fr., Ger. Age 27. A.K.C. Res. or non-res.

21231. Math. (calculus), Mech., Phys., Chem. (prac.), Physics, Geol., Jun. Lat., Greek and Fr., Gen. Sci., Eng. subj. Age 31. B.Sc. Lond. Non-res. from 130*l.*

21232. Class., Fr. (convers.), Eng. subj., fair Math, Shorthd. Age 58. Non-res. or res.

21233. Eng. subj., Chem., Shorthd. Age 46. C.M. and S.K. Certs. Non-res. or visiting.

21234. Eng. subj., Math., Bkkp., Mens., elem. Fr. and Lat. Age 25. 1st Cl. C.P. Res. 35*l.*; non-res. 80*l.*

21235. Eng., Math., Bkkp., Lat., Fr., Draw., elem. Sci. Age 19. Lond. Matric. Res. 30*l.*; non-res. 50*l.*

21236. Eng. subj., Arith., Alg., Euc, elem. Lat., Fr., and Greek, elem. Physics and Mech., Sports. Age 22. Lond. Matric. Res. 40*l.*; non-res. 90*l.*

21237. Eng., Lat., Greek, Fr., Math., Jun. Draw. Age 22. Undergrad. Camb. Res. 35*l.* to 50*l.*

21238. Eng., Lat., Greek, elem. Fr., Math. Age 20. Res. 15*l.* to 30*l.*

No. in Register.

GOVERNESSES.

8549. Piano, Solo and Class Sing., Theory, Eloc. Age 24. Sen. R.A.M., Sen. Trin. Coll. Res. or non-res.

8558. Eng. (adv. lit., &c.), Arith., good Lat., Fr., Ger., Mus., Draw., Calis. Daily 60*l.*; Morning 45*l.*

8560. Eng. subj., Fr., Ger., Mus., elem. Draw. Age 18. Jun. Camb. Family. Daily.

8561. Eng. (thoro.), Arith., Fr., elem. Ger., Mus., Draw., Elec., Phys. Age 24. 2nd Cl. C.P., Higher Camb. (part). Res. 30*l.*; non-res. 60*l.*

8562. Eng. (thoro., lit., &c.), Math., elem. Mech., Bot., Zoo., Phys., Fr., Ger., Lat. Age 27. Higher Camb. (Hon.). Visiting

8564. Eng. subj., Fr., Mus. (prac. and theor.). Age 23. Higher Camb. Res. about 20*l.*

8570. Eng. subj., Mus., Draw., Fr., Har., elem. Alg. Age 19. Sen. Camb., 1st Cl. C.P. Res. 30*l.* to 40*l.*

8571. Eng., Mus., Har., Draw., Fr., elem. Lat. Age 18. 1st Cl. C.P., 1st Cl. Hon. Trin. Coll. 30*l.*

8572. Eng. and Fr. (good), Lat., elem. Ger. and Ital., Draw., Ndlwk. Age 24. Queen's Scholar. Daily, from 36*l.*

8573. Eng., Arith., Alg., Lat., Draw., Fr. Age 21. Sen. Camb., 1st Cl. C.P. Mornings, 40*l.*

8575. Eng., Arith. and Alg. (good), Lat., Fr., Ger., Mus. Age 21. 2nd Cl. C.P., Sen. Camb. Afternoons, 25*l.* to 30*l.*

8579. Eng. and Arith. (good), Fr., Lat., Ger. Age 24. Sen. Camb. Res. 40*l.*

8582. Piano, Sing., Theory, Prep. for R.A.M., Local Exams., Trin. Coll., &c. Assoc. Phil. Soc. Visiting.

8583. Music and Theory (good). Age 19. R.A.M. Local Exams. Res. 20*l.*, or non-res.

8584. Eng., Arith., Mus., Draw., Ndlwk. Age 22. Res. 14*l.* to 20*l.*

8587. Eng. (thoro.), Arith., Fr., Mus., Draw., Sci., Calis. Age 26. Camb. Local Exam. Family. Res. 45*l.*; non-res. 80*l.*

8592. Eng., Fr., Bot., elem. Mus., Arith, Calis. Age 19. Sen. Camb. Non-res. 30*l.*, or res.

8593. Eng. (adv.), Fr. (fluent), Ger., Lat., Mus, Sing., Draw. Age 40. Higher Camb. Daily or Visiting.
8594. Eng. (thoro.), Draw., Ger. (convers.), elem. Fr., Mus. Age 21. Trin. Coll. Sen. Non-res.
8596. Eng. (thoro.), Fr. (acq. abr.), Mus., Sing., Draw., elem. Lat., Calis. Age 27. 30*l.* to 10*l.* In South of Eng.
8597. Piano, Theory, Har., Counterpt., Prep. for all Mus. Exams., Draw., Fr., &c. Age 21. Sen. R.A.M. and Sen. Trin. Coll. Non-res. 50*l.* to 60*l.*, or res.
8598. Kindergarten (all subj.). Age 19. Froebel Soc. elem. Cert., Jun. Camb. Res. 30*l.*
8599. Eng., Fr., Mus., Draw., Lat. Age 19. 15*l.*
8600. Eng., Arith., elem. Alg., Bkkp., Phys., Draw., Fr., Mus. Age 18. 20*l.* Non-res. 1st Cl. C. P.
8602. Math., Eng. (lit., &c.), Lat., elem. Gk., good Fr., Ger., Ital., Mus., Sc. Age 32. A.Q.C., Higher Camb. (Hon.), LL.A. Non-res. or Visiting.
8603. Eng. (lit., &c.), Lat., Fr., Math., Draw., Mus. Age 22. 2nd Cl. C.P. Res. 25*l.*
8604. Kindergarten (certd.), Eng. subj., Mus. Age 26. Non res.
8608. Eng. and Arith. (thoro.), Ger., Fr., Mus., elem. Lat. Age 33. 2nd Cl. C. P. Non-res. 50*l.* to 60*l.*
8609. Eng., Mus., Fr. Age 25. Non-res. 35*l.* to 50*l.*
8610. Eng. lang. and lit. (adv.), Arith., elem. Alg., Fr. (conver.), prep. for Girton Coll. and the Locals. Age 31. Higher Camb. (Hon.) Visiting.
8613. Piano, Violin, Eng., Fr. Age 20. Res. 20*l.*
8615. Eng. subj., Lat., Fr., Ger., Mus., Draw., elem. Math. Age 19. 2nd Cl. C.P. Non-res.
8618. Eng. subj., Arith., Fr., Ger., elem. Mus. Age 18. 2nd Cl. C.P., Jun. Camb. 15*l.* to 20*l.*
8620. Eng., Mus., elem. Fr., Draw., Bot. Age 21. Res. Small salary, with time for study.
8621. Eng. subj., Fr., Ger., elem. Sc., Pol. Econ., elem. Draw. Age 22. Higher Camb., and Teachers' Cert. Non-res. 80*l.*; res. about 60*l.*
8622. Eng., Arith., Draw., Mus., Bot., Chem. Age 18. Sen. Oxf., 1st Cl. C.P. Res. 20*l.*
8623. Eng. subj., Fr. (good), elem. Lat., Ger. and Alg., Mus. Age 18. Sen. Oxf., 2nd Cl. C. P. Small salary.
8624. Eng., Mus., Fr., Ger. (acq. abr.), Sing., Draw. Age 26. Family. 40*l.*
8628. Eng. subj., Fr., Draw. Age 21. 18*l.* to 25*l.*
8629. Eng. subj., adv. Arith., Draw., Paint. (oil and w.-col.) Age 27. Sen. Camb., S.K. Draw. Cert. Visiting.
8633. Fr., Draw., Sing., Eng. Age 24. Parisienne. Diplômée. Visiting or res.
8635. Eng. lang. and lit. (thoro.), Hist. for Higher Camb. Age 27. Higher Camb., LL.A. (Lit.). Non-res. or Visiting.
8636. Eng. and Fr. (thoro.), Arith., Phys., Eloc., Draw., elem. Lat. and Math. Age 30. Higher Camb. Non-res. 100*l.*
8637. Piano, Organ, Har., Sing. (solo and class). Prep. for R. Acad. Sen. and Licen., &c. Age 33. Teacher's Cert. of Hon. London Conserv. of Mus. Visiting.
8638. French (all branches), Ndlwk. Age 29. Diplômée. 35*l.*
8639. Eng., Arith., Alg., Fr., elem. Lat., Mus., Draw., Paint. Age 21. Family, 25*l.*
8640. Eng. (thoro.), Arith., Lat., good Piano, Sing., Fr. and Ger., elem. Math., Dancing. Age 20. 2nd Cl. C.P., Sen. Oxf. Daily.
8643. Eng. and Fr. (thoro.), good Mus., elem. Ger., Arith. Age 34. Res. 50*l.*
8644. Eng., Fr., good Mus., Draw., adv. Ger. and Arith., elem. Lat. and Math. Age 20. R. Acad. Sen. Daily 70*l.*, or res.
8645. Eng. (adv.), Arith., Fr. (convers.), Ger., elem. Lat. and Greek, good Mus., Draw., Geol., Chem. Age 48. Afternoons.
8648. Eng., Fr., Ger., Bot., Mus., Draw., Paint. Age 25. Sen. Camb., Home and Col. Train. Coll. Afternoons, 20*l.*
8649. All Kindergarten subj., including Calis., also Prep. School subj. Age 21. Lower Froebel Cert., 2nd Cl. C.P. Res. 30*l.*; non-res. 50*l.* to 60*l.*
8650. Eng. subj., Arith., Euc., Fr., Bot., Draw., elem. Mus., Drill. Age 21. Res. 20*l.* to 30*l.*
8651. Eng. (thoro.), Fr. (acq. abr.), Arith., Mus., Draw. Age 30. Higher Camb. Non-res. or visiting.
8652. Draw. (freeh., mod., geom., pers.), Paint. (oil and w.-col., figure, &c., on glass, &c.). Age 28. S.K. Art Class Teacher's Cert., Medal, &c. Visiting.
8653. Eng. subj., Arith., elem. Fr., Mus., Draw., and Alg. Age 17. Gov. Pupil. Mutual terms.
8654. Eng. subj., Arith., Mus., elem. Draw., Fr. (acq. abroad), Ndlwk. Age 22. Morning or daily. 30*l.* to 35*l.*
8655. Eng. subj., Draw. (D Cert., S.K.), Paint., Fr., elem. Mus., Ndlwk., Calis. Age 18. Res. 20*l.*; less if with lessons in Mus.
8657. Eng. Lang. and Lit. (adv.), Arith. (thoro.), Lat., Greek, Paint. Age 40. Non-res. or visiting.
8658. Math. (adv.), Bot., Chem., Physics, Lat., elem. Fr. and Ger., Draw. Age 22. Lond. Matric. (Hon.), 1st B.Sc. Afternoons or visiting.
8659. Eng. (thoro.), Math., Lat., Greek, Nat. Phil., Chem., Fr., Mus. Age 27. 1st B.A. Lond. (Hon. Eng.). Daily or visiting.
8660. Eng., Fr., Ger. (acq. abroad), Sci., Mus., Sing., Draw., Dancing. Age 17. 1st Cl. C.P., Jun. Oxf. and Camb. Res. 12*l.* to 20*l.*
8661. Kindergarten (all branches), Ger., elem. Mus., and Draw. Age 23. 1st Cl. Froebel Cert. Res. 50*l.*
8662. Eng. subj., Fr., elem. Ger. and Draw., Mus., Ndlwk. Age 21. Res. 20*l.* to 30*l.*
8664. Eng., Arith., Fr. (acq. abroad), Mus., Draw., Ndlwk. Age 22. Res. from 16*l.*, with time for study.
8667. Fr., Draw., Mus., Sci., Gymnas. Age 21. Res. Small salary.
8670. Eng., Fr., Mus., Ndlwk. Age 17. As Jun. or Nursery Gov. Small salary.
8671. Fr. (acq. abroad), Draw. (adv.), elem. Ger., Mus., Eng. subj., Arith. Age 26. Home and Col. Kindergarten Cert. Res. 40*l.*
8672. Eng. subj., elem. Fr., Mus., Draw., Arith., Kindergarten (Cert. Home and Col. Train. Coll.). Age 20. 2nd Cl. C.P. Res. 20*l.* to 25*l.*
8673. Draw. (freeh., mod., &c., from antique, &c.), Paint. Age 22. Art Class Teacher's Cert., S.K. Visiting.
8680. Eng., Fr., adv. Mus., elem. Draw. Age 17. 2nd Cl. C.P. Res. Recip. terms, with lessons in Mus. and Langs.
8681. Eng. (thoro.), Fr., Draw., elem. Mus. and Ger., Drill. Age 30. Higher Camb. (part). Res. 50*l.*
8682. Fr. (thoro.), Ger. (convers., &c.), Mus. Age 20. Res. 30*l.* to 40*l.*
8683. Eng. and Arith. (thoro.), Lat. (Caesar), elem. Fr. and Math. Age 24. Daily, 50*l.* to 60*l.*
8684. Music (good), Fr., elem. Ger. and Draw., Eng. Age 23. Jun. Camb. Res. 30*l.*
8685. Ger., Danish, Gymnas. (Ling's system), elem. Mus. and Fr. Age 31. Visiting.
8687. Mus., Eng., Fr., elem. Draw. Age 19. 2nd Cl. C.P. Res. Mod. salary.
8688. Eng. subj. (all), Math., Fr. (convers., &c., acq. abr.), Lat., elem. Ger., Mus., Har., Sing., Draw. Age 25. Higher Camb. (Hon.). As Head Mistress. England or abroad. Experienced.
8689. Draw. (all styles, figure, &c.), Paint. (oil and water-colour, portraits, &c., on china, silk, &c.). Age 52. Student and Silver Medallist, R. Acad. Exhibitor. Res. or visiting.
8690. Eng. (Lit., &c.), Lat., Alg., Euc., Jun. Fr. and Mus. Age 23. Sen. Camb., Lond. Matric. Res. 45*l.*; non-res. 80*l.*
8692. Eng., Fr., Ger., Lat., Mus., elem. Draw., Math. Bot., Physics. Age 22. 1st B.A. Lond. Sen. Camb. Non-res. from 80*l.*, or res. in London.
8693. Eng. subj., Fr., Mus. Age 20. Family, 20*l.*; or in good School to teach Juniors in return for res. and finishing lessons.
8694. French (Lit., &c.), elem. Mus. Age 23. Diplômée. Res. 40*l.*
8695. Eng. subj., elem. Math., Fr. and Mus. Age 14. As Gov. Student. Res.
8696. Eng. and Mus. (thoro.), Jun. Fr. Age 34. Res. 30*l.*
8697. Eng., elem. Fr. and Math., Draw., elem. Mus. Age 22. Sen. Camb. 2nd Cl. C.P. Res. 20*l.* to 30*l.*
8698. Piano, Theory, elem. Violin. Age 23. Teacher's Cert., R.A.M. Non-res., res., or visiting.
8699. Eng. (Lit., &c.), Bkkp., Math., adv. Lat., Fr. Age 24. Sen. Camb. (Hon.), Higher Camb. (part). Res. 50*l.*; non-res. 90*l.*
8700. Eng. subj., Arith., Fr., Mus., Sing. Age 19. Res. 20*l.* to 25*l.*
8701. Eng. subj., Arith., Mus., Fr., Draw., elem. Lat. and Ger. Age 19. Res. 20*l.* to 25*l.*
8702. Piano, Sing., Har. Age 28. Student at R.A.M. Sen. Trin. Coll. Non-res. About 100*l.*, or visiting.
8703. Eng. subj., Math., Fr., elem. Ger., Mus., Draw. Age 19. S.K. Sc. and Dr. Certs. Res. 25*l.*
8704. Eng., elem. Fr. and Mus., Ger., Math., Ndlwk. Age 21. Res. 20*l.* to 25*l.*
8706. Eng., Fr., Ger., Lat., Math., elem. Bot., Pol. Econ., Mus., elem. Draw., Ndlwk. Age 22. Sen. Camb., 1st Class C. P.; Home and Col. Tr. Coll. Res. 50*l.* to 60*l.*
8707. Eng. (thoro.), Fr. (acq. abroad), Draw., Mus. Age 18. Res. 20*l.*
8708. Eng., Fr., Ger., Math., Mus. Age 20. Jun. Camb. School or family. Res. 10*l.*
8709. Eng. subj., Arith., Mus., Har., elem. Fr. and Lat. Age 29. Higher Camb. (Hon.) Non-res. or visiting.
8710. Eng., Fr., Ger., elem. Lat., Pol. Econ. Age 19. Jun. and Sen. Camb.; 1st Cl. C. P., with Specials. Res. 20*l.* to 25*l.*
8711. Eng. subj. (all), Math., Fr., Ger., Lat., Mus. Age 23. Sen. Camb. Higher (part). Res. about 45*l.*, or non-res.
8712. Piano (thoro., prac. and theor., performer). Age 25. A.Q.C.; 1st Cl. Cert. Q. College for Mus. Visiting.
8713. Eng. (good), Fr., Draw., Ger., Paint. (oil and w.-col.), Mus., Phys., Physiog. Age 20. Aber. Univ. Local Exams. About 40*l.*
8714. Eng., Fr., Mus., elem. Draw., Paint. Age 20. Aber. Univ. Local Exam. 20*l.*
8715. Eng. (Lit., &c.), Arith., Mus., Fr. (acq. abroad), elem. Ger. and Lat. Age 37. Res. 30*l.*; non-res. 45*l.*
8716. Eng. (thoro. lit., &c.), adv. Arith., good Lat. and Fr., Alg., Mus. Age 42. Higher Camb. (Hon.). Visiting.
8717. Eng. (thoro.), adv. Arith., Alg., Euc., Lat., Ger. (acq. abroad), Fr., Mus., Draw. Age 30. A.C.P.; Lond. Matric., Higher Camb. Res. 60*l.*, or non-res.
8718. Eng. (Lit. &c.), Fr., Ger. and Ital. (acq. abr.). Age 36. Higher Camb. (Hon.). Visiting.
8719. Ger. and Fr. (thoro.), Mus. M.C.P. Visiting.
8720. Eng. (Lang., Lit., &c.), Fr. (Paris), Lat., Mus. Age 38. A.C.P., Higher Camb. Visiting.
8721. Piano. Sing. (solo and class), Har. Age 30. Sen. R.A.M. Visiting.
8722. Draw. and Paint. (all styles). Age 28. 2nd Grade Art Teacher's Cert. Visiting.
8723. Eng. (Lang., Lit., &c.), Math., Lat. and Ger. (adv.), elem. Gk. Age 25. B.A. Lond. (Hon.). Visiting.
8724. Draw. (all styles), Paint. (from nature, &c.). Age 27. Art Master's Cert. S.K. Visiting.
8725. Draw. (all styles), Paint. (elem.), Mus., Sing. Age 27. 3rd Grade Certs. S.K. Visiting.
8726. Sing. (solo and class.), Piano, Har., Fr. Age 23. R.A.M. Cert. Teacher. Non-res.
8727. Eng., Fr., Ger. and Lat. (thoro.), Math. Can take entire charge of school.
8728. Draw. (all branches), Paint. Age 22. 3rd Grade Cert. and Art Mistress' Cert. S.K. Visiting.
8729. Sing., Piano, Har. Age 29. R.A.M. Cert. Non-res. or visiting.
8730. Ger., Fr., Mus., Draw., Paint. R. Acad. Cert. Diplômée. Visiting.
8731. Eng., Ger. (convers.), Lat., Fr., Math., Draw. Age 22. Lond. Matric., Sen. Camb. Visiting.
8732. Draw. and Paint. (all styles). Art Teacher's Cert. S.K. Visiting.
8733. Piano, Theory, Har. Age 38. Visiting.
8734. Piano, Har., Theory, Sing. Age 22. A.R.C.M. Non-res. or visiting.
8735. Piano, Sing., Theory. Student R.A.M. Age 32. Res. 50*l.* to 60*l.* Non-res. 100*l.*
8736. Elem. Eng., Fr., Mus. and Ndlwk. Age 19. As res. Nursery Gov.
8737. Eng., Fr. (convers.), elem. Ger. and Piano, Har., Draw. Age 23. 2nd Cl. C. P.; Sen. Trin. Coll. Res. 25*l.*; daily, 40*l.*
8738. Eng. subj., Arith., Mus., elem. Fr., Ndlwk. Age 20. Res. 20*l.*
8739. Piano, Sing. (solo and class), Har. Student R.A.M. Res.
8740. Draw., Paint. Age 20. S.K. 2nd Grade Certs. Visiting.
8741. Ger., Fr. and Ital. (Lang. and Lit.), History of Art, Elocution, &c. Age 35. Lectures or lessons to schools or families.
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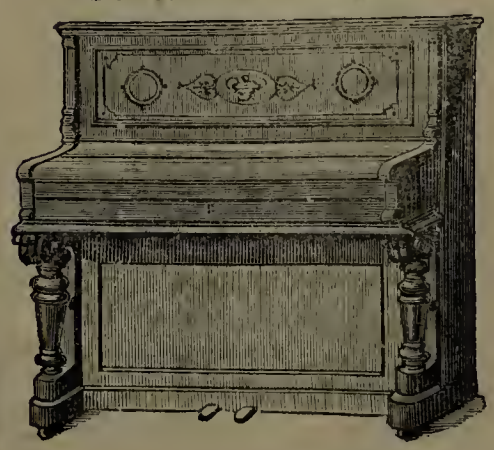

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EVENING MEETING, MARCH 19TH, 1889.

THE Chair having been taken by Mr. W. BROWN, B.A., Professor H. G. SEELEY, F.R.S., delivered the following Lecture:—

ON THE TEACHING OF GEOGRAPHY.

It may, perhaps, simplify what I have to say if I put before you my own point of view as it is now. I may state that I regard geography as an inductive science which is based upon observation and comparison, that the scope of this science is the surface of the earth in relation to its aspects, the origin of those aspects, and the influences which the surface has exercised upon the life which it supports.

At first sight you have divers subjects here, which are so different in relation to the inorganic phenomena of the dead world, and phenomena concerning the distribution of life and the conditions of human activity, that it would seem impossible to include these in any systematic logical discussion which should advance step by step from one to the other. I have found it necessary to divide geography into two portions, which I term Inorganic Geography and Organic Geography, the one dealing with those phenomena of the earth's surface which are independent of life, the other dealing with the phenomena which concern man, plants, and animals. Other thinkers have regarded geography in different ways, and it may be interesting for me to remark, what may not be universally known, that Sir Isaac Newton taught geography in the University of Cambridge as a part of his duties as Lucasian Professor of Mathematics. He not only did that, but edited the best work on geography which existed in his time, "The Geography of Varenius." It is interesting to us that on the back of the title-page of Dugdale's edition of that work is a recommendation from Mr. James Hodgson, who was at that time Master of the Royal Mathematical School and a Fellow of the Royal Society. This shows that at that time there was a disposition to regard geography as an exact science. Varenius defines it as that part of mixed mathematics which explains the state of the earth and of its parts; but, when he goes on to elaborate this conception, it becomes a complete treatise upon inorganic geography. The successors of Varenius covered very much the same ground; but in a great many cases, by omitting the mathematical part of the subject and all that concerns navigation and exploration, have curtailed its limits and produced a new subject which has become known as physical geography. But physical geography has varied its dimensions with every thinker and writer who has taken up the subject, and with the ability of the writer to appreciate the logical connection between the parts of the subject. Then there have been observers who have limited the conception of geography to the results of exploration, and examination and description of the earth's surface. It becomes then, a narrative of the aspects of nature in which the phenomena of the earth's surface are described without regard to the conditions of their existence, and without recognition of the influence of these physical conditions on the organic phenomena with which they are associated. Then there has been a third body of teachers who have limited themselves to the aspects of geography which are purely literary; and, looking upon the land as having no boundaries except those which man has made, have regarded historical geography as the only part of the subject which claimed the attention of mankind. Nevertheless the wants of commerce, no less than the conditions of its existence, have made us aware of an aspect of geography in which the produce, and even the history, of peoples and countries are dependent upon influence of climate and soil, and we thus find a reaction of inorganic geography upon organic geography, which concerns itself with the same portion of the globe as the inorganic part of the subject.

Now, this statement of the varied ways in which geography has been regarded by earnest thinkers illustrates the chaos into which the subject had fallen, and I may state how I got out of this irregular association of ideas. I began my studies with the endeavour to discover why people of various colours and nationalities, who became known to me in early life in connection with the commerce of the Port of London, differed from each other in those ways which the eye readily noted, and I was afterwards led to inquire whether there was any relation between the characteristics of the people and the produce which they brought to this country from their own countries. It would be tedious to detail the history of my own efforts towards an interpretation of the inter-relation of organic and inorganic geographical facts, but I may say that I could not advance without familiarising myself with the anatomical characteristics of the human race in order to realise the nature of the physical differences which these people presented. It was, then, obvious that one must also know something of the physiological causes which influenced the varieties of colour, and the proportion and growth of the body under varied conditions of existence. So we pass on to a consideration of other influences which caused the physiological actions of the body to be what they are, and to a recognition of climate as a factor affecting man in common with all organisms. This led to the discovery that the earth itself beneath our feet yielded different crops in different places owing to differences in the nature of the rock materials, and that man was influenced in his nutrition, in his habits of thought, in his activities of life, by the difference in the conditions of existence which the earth forced upon him. I went thus far in tracing the organic back of the inorganic, and then began to observe inorganic phenomena with the same method which I had already applied to man. I started with compass and note-book in hand, and walked around our coasts, carefully observing and sketching the contours of the coast, and found that I was soon able to draw maps accurately from nature, certainly with very much greater accuracy than any maps that one commonly consults. I sketched, too, the aspects of the coast, and speedily found that the land was composed of different rock materials, which differ in their durability, and are worn away differently, so that it became impossible to understand either the contours of the coast line or the contours of the sky line, without a knowledge of the geological structure of the country. These studies had not been carried very far without learning that the rocks forming our land have been folded so that they are bent down in trough-shape depressions, which admit the sea to flow over them in some localities; while in other localities they are uplifted in a corresponding way, and the rocks form ridges and capes and peninsulas according to the extent to which they are elevated. It is manifest that every physical feature of the land, being based upon the rocks beneath, varies with the kind of rock which forms the surface; and since knowledge of this kind enables us to generalise, and even to draw with fair accuracy, the characteristics of mountains, or hill ranges, or rivers we have not seen, it is obviously a necessary preliminary to all systematic geographical study. But the manner in which the rocks have been carved by atmospheric forces, and by the ocean, carries this line of work beyond the earth to the influences of the attraction exercised by the moon and sun, and to the influence of the sun's heat and the earth's rotation, and these external influences

open up the whole field of mathematical geography, which lies very near the border-land of astronomy. Here, then, we discover that the ultimate geographical forces shaping land are those which come to the earth from beyond its limits, which bind the earth into harmony with the heavenly bodies of our solar system. From these physical conditions and relations of the earth we may proceed to conceive of the steps by means of which all the elaboration has been built up which has given rise to those classes of geographical characteristics which I have briefly touched upon.

I venture to think that in this field of thought, there are materials for mental discipline which are in no way inferior to those afforded by any other branch of knowledge. I have described it as I passed through it step by step until I arrived at last at the causes, as I conceive, of the whole of the phenomena. But I should recommend anyone else to take exactly the converse way of work to that which I myself followed, and should say—Begin with that exact part of the science which we term mathematical geography. I say begin here because you are thus getting a discipline in accuracy, you are getting a discipline in methods of thought which will be indispensable for all further progress; you are getting, too, into direct contact with the great forces of nature which have operated through all time, and have helped to give the earth and life the characteristics which they are found to possess.

I do not propose to set before you to-night illustrations of the whole field of geography—it would be altogether beyond the limits of time—because there are some departments which admit of clear observation where the teaching can be carried on practically as it is in every other branch of science. I recommend that geography be taught practically, because I have found it, not only capable of being learned, but learned with success by successive generations of my own pupils. I should say that anyone who would acquire this training in the mathematical part of the subject, must begin by means probably of such help as Mr. Norman Lockyer's very admirable little book on the Movements of the Earth would furnish, of which I think only the first part is at present published. This aid would very materially facilitate the studies of all who have to determine such matters as the points of the compass, matters of latitude and longitude, matters that concern the rotation of the earth, matters which concern the ways in which the great forces of nature come to act upon the earth. But, assuming that we have mastered this first step, which you may regard as the first term's work or the first year's work according to the grade of work that you are doing, or according to the amount of time that can be given to the subject, I would turn to another and second aspect of geography, which seems to me to come legitimately after that, and this is the configuration of the earth's surface, which can be observed, and which must be observed, by everyone who keeps his eyes open and has the opportunity of moving from place to place. Now, as I have walked around our coasts and over the country, and through other countries, observing the characteristics which the earth presents, and I have had the pleasure year after year of taking pupils out into the field on Saturday afternoons week after week, in order that we might observe the nature and origin of the physical characteristics which the scenery presents in the immediate neighbourhood of London; that is, in order that we might study practically the nature of hills and hill ranges, of rivers and river valleys, of plains such as may be observed in our own country.* Having got this practical evidence that it is possible to learn geography in its principles in a small area, I say that those things, learned in the way that I will illustrate in a moment, admit of being applied to all other localities. In all other branches of knowledge, it becomes impossible for the student to cover the whole field; you are compelled to acquire as absolute and as full a knowledge as possible of some small province that admits of being grasped, and then you are in a position to judge of and interpret fairly observations which others have made elsewhere. In order to illustrate the difficulties that there are in teaching, and the method that I would myself adopt to overcome them, I will try and throw upon the screen on the wall of the room a few pictures.

One great difficulty in all practical teaching is in the nature of the maps. The map commonly endeavours to represent, with great effort after accuracy, the contour of the coast line; but there is no effort at all made to represent the contour of the sky line. The rudest and roughest marking on the surface indicates the different degrees of elevation of the surface, and the student who has no knowledge of the country except that which a map furnishes to him, has practically no knowledge at all. He may know where rivers and lakes are, but the nature of the valleys, and the varied aspects which the surface presents are not shown. The Society for the Propagation of Christian Knowledge recently made an attempt after something better, and, I believe at very great expense, had modelled, on a large scale, England and Wales, Scotland, Ireland, and the great Continents, and they have still other work of this kind in progress. To test this work, I had the maps photographed on glass, and proceeded to enlarge them to as large a size as I could get, with the result that in every case, we had far too much mountain, far too much hill; the surface was made so rugged that it gave the converse idea to that which a person obtains in passing over the land. If you will direct your eye for a moment to this picture of the south coast of England as thrown upon the screen, you will see the aspect of that part of the country in the S.P.C.K. map. I now propose to place upon the screen another illustration which will give a truer view of the geography. You may gather, I think from this second photograph, with very great accuracy, what the form of a country is, for you may see the land just as you would see it if you walked over it, and maps of that kind are perfectly indispensable to the accurate teaching of the elements of geography. This map will serve as an illustration of what a map should be, and how a map should be looked at. I have had it photographed from a model which has been made by Mr. Topley and Mr. Jordan, members of the Geological Survey of Great Britain, and it is based upon the results of many years' work. You will notice that there is a rugged region in the Weald which extends east and west, where every hill range is put in with approximate accuracy. This rugged region consists chiefly of sandstone, which is known as the Hastings Sand. Wherever you have a sandstone, it always presents this rugged condition of surface. On each side of it, north and south, is a broad, flat valley, almost like a plain. That valley is formed of clay called the Weald Clay, which once extended over the Hastings Sand, but has been removed from its surface, so that all the beds of rock towards the north are inclined, or dip, towards the north, while all the beds of rock towards the south are inclined, or dip, towards the south. When you pass to the north of this broad valley of the Weald Clay, you come upon an elevated ridge of sandstone which is known as the Lower Green Sand. That ridge runs along this part of the country, because you always have this bed of sandstone in immediate succession to the Weald Clay. Then comes a little narrow parallel valley, formed by the Gault Clay, which is well known in history as having been the rampart which was defended by the Saxons against the Norman invaders. Above that is the northern ridge of the Chalk Downs, which presents its steep face towards the south, and its long slope towards the north. On the south, owing to the different dip, you have the converse condition of affairs. The chalk once came over the antielinal dome of the Weald connecting the North and South Downs, but at the time it was beneath the level of the sea. When it emerged from the sea, it was planed down and cut as level as it could be, converted into a plain, and 2,000 feet thickness of rock removed from off the present surface of the country. Since that day, the wearing forces of the atmosphere, rain and frost, have operated to lower the level of the exposed layers of rock, according to the difference in their durability. The soft substance of the clay, which so easily breaks up, has been cut out, so as to leave the more durable material of the limestone and sandstone standing up in parallel hill ranges. It would be impossible, without a knowledge of the geological nature of the country, to appreciate points of geography of this kind.

Now, having illustrated in detail the nature of hill ranges and valleys by means of the view before you, which is a miniature re-production of nature showing the physical features of the country, I should like to draw attention to the manner in which the water-ways shown upon the map are to be observed. You may notice, though from the slight curve it is not absolutely clear, that there is a broad valley where the chalk range is cut through, where the river Stour flows. You will also perceive another broad valley where the chalk range is cut through by the Medway, and you find that the whole of the tributary streams which flow into the Thames from this part of the country take a course which would be absolutely impossible for them if they had

* The "London Geological Field Class" provides a practical course of geographical study every summer, under my own direction, on Saturday afternoons.

commenced to flow since the land acquired its present contour, because, if you imagine the land to have been fashioned to its present form, it would necessarily result that the water falling upon the central sandstone range of Ashdown Forest would drain down upon the valley of Weald Clay, and plough out a channel, and flowing towards the east would make its way to the English Channel. But it does nothing of the kind. In every case all the streams go right through gaps in the South Downs, just as they go through gaps in the North Downs; and, from a careful study of many examples of this kind of river course in different parts of England, we know that, since the North Downs and South Downs are both portions of the dome which has been cut away from off this country, it follows that, if that dome were now in existence, if the dome had not been cut away, all the rains which fell upon it would drain away towards the north and south, and these rain waters converging would form rivers which would take precisely the courses which the rivers take at the present time. Although the dome is not in existence, we are compelled by study of phenomena of this kind to adopt the conclusion that the rivers are much more ancient than the surface of the land, that they commenced flowing before the land acquired its present level, and after the land was levelled the modern river still flowed on in the direction which its ancient predecessor originally took, when there was a physical cause for its taking that course. Hence the north to south course of the tributaries of the Thames, and the north to south courses of the little streams which flow into the English Channel, are only found to be explicable by tracing back the contour of the country to the causes which produced it.

I have now thrown upon the screen a small geological map. Its scale is so small, and its characteristics so general, that it enables me to do no more than point out illustrations of the sort of teaching by means of which the most dry details of geography are made supremely interesting. You notice on the screen a promontory familiar to you all as Flamborough Head, which is shown by means of this map to consist of the same kind of rock as you have in the North and South Downs and the Chiltern Hills, which you know as chalk. Immediately to the south of Flamborough Head you have a different colour of rock, and the fact is, that the bed of chalk extends to the south of Flamborough Head, but it descends below the level of the land and sea, and there rests upon a clay. I need not stop to describe the characteristics of the clay. It is a clay full of angular fragments of rock, and as the tide rises and falls twice a day it wears away the soft muddy matter, and leaves the angular stones upon the shore. The stones are hurled as battering rams against the cliff, and the coast is cut back sometimes to the extent of three yards in the course of a year, and never less than one yard in the course of a year, with the result that you have a bay to the south of Flamborough Head, called Bridlington Bay, penetrating into the land. The limestone is not a sedimentary rock at all, it can only disappear by entering into invisible solution in the water consequent upon the liberation of carbonic acid gas owing to the decay of sea-weed, and suchlike causes. Hence its waste is relatively slow. To the north of Flamborough Head you find another bay. Clay is less durable than chalk, and is cut back by the sea at a most rapid rate; but this bay would not have been formed but for the fact that beneath the clay there comes out a bed of limestone to the north, which juts into the sea and forms Filey Brig. Here a succession of rocks of varying durability has given rise to these varying little contours of bay and headland on the Yorkshire coast. Anyone who has had such characteristics demonstrated upon a geological map of sufficient scale, could never forget the truth thus conveyed, and would at once realise that there is no such thing as an accident in geography, but that every feature of headland or hill, bay or valley, which seems accidental is the consequence of law, and every contour is in the position which it occupies, because the forces of nature have acted upon the resisting materials in such a way as to carve them differently.

Now, I may perhaps turn from this view of ocean work on the coast to a representation of the manner in which a land may be carved before the rains ever come to work upon it. If you were to study the levelled surface of this country, you would find it, for example, in the broad fenland district which I crossed only a few days ago, and saw there almost as much water as land between Ely and Peterborough, the water being unable owing to its flat condition to get off the land as fast as the flood came down from the high lands of Oxfordshire and Buckinghamshire. There are other districts quite as level as that, and I will show you a photograph of a place near Macclesfield, where you have almost the same condition of things as in the Fen district. It does not matter what the kind of rock is which is exposed on the surface of the country, so long as it is of uniform texture—it may be clay or sandstone—but it will be quite levelled if it has offered uniform resistance to the sea. After the land has been cut level it has been uplifted to such an extent, and for so long, that atmospheric forces have contributed to obliterate the perfect contour of the land. Many of our mountain regions which appear at first sight most diversified and rugged, which may be represented upon the map by a few parallel lines, or equally rude shading, when you are possessed of the key to their structure, show a very different kind of explanation of their existence, for they once were plains. Such a view [*exhibiting another picture on the screen*] as is obtained from the summit of Ben Nevis when a sea fog drifting in had filled in the intervening valleys, illustrates such a change. And the sea fog, by filling in the valleys, enables the imagination to conceive a time before the land had become broken up as it is now. The view brings back in imagination the state of things which existed with the land just emerged from the sea as a plain of marine denudation had been cut level by tidal waters. But all lands cut level in this way, after they are upraised get the joints produced by the straining of the rock enlarged, until gradually widening the joints become great valleys parallel to each other, and such valleys, which the sea fog fills, now divide the ranges of hills. I could illustrate many phases of our scenery and of the geographical features of the country so as to show step by step the way in which they have been formed, but it would be obviously impossible in the time of an address which only aims at illustrating principles of teaching by examples, to give the information which might more fittingly be extended in detail in some other form, and my only object in presenting illustrations of this kind is to show that in geography one must go face to face with nature, and that if we cannot go out into the country to observe the hills, or if the mountains are too far away, or if we are interested in rivers which cannot be observed, it is always possible to obtain photographs of these phenomena, and always possible by means of the lantern to bring before the pupil some very different kind of knowledge to that which the map affords. I venture to think that the time has now come when it is indispensable for the geographical teacher to place before his pupil the same sort of knowledge which he himself gets by travel. As he cannot do that in any other way than by reproduction of the scenes which the photograph affords, it is urgent that he should avail himself to the full of examples of this kind to make the truths of his observation intelligible.

There are just one or two examples that I might set before you as illustrations of minor difficulties in conveying an intelligible geographical idea. In describing the course of any river, we may have to call attention to the fact that the navigation is obstructed by rapids, or that the river is useless for the purpose of commerce owing to waterfalls. In all probability, the student or pupil has not the faintest idea what a rapid is, and it becomes necessary to make such an idea clear. I will show how this may be done by means of an illustration of the Rapids of St. Anthony. [*Exhibiting another picture on the screen.*] Here is a very typical rapid, and a rapid on a rather large scale. You will observe that the characteristic of a rapid is that the water is thrown up into the air. Now, the reason why the water is thrown up into the air is that as the water flows along it meets with an obstacle which impedes its path, and being unable to overcome the obstacle, it is shot up into the air, in the same way as waves coming in, beating against a sea-wall, are shot up in a cloud of spray to a great height above the beach. When you compare that with the ordinary conditions of a waterfall, as shown, for example, in the Niagara Falls, you notice that there is a sudden descent of the water in a waterfall. How are you to make these ideas intelligible to the pupil? What is it that you can say that will make clear once for all that which you have been telling him concerning the nature of a rapid or a waterfall? At an early stage in work, when the pupil has learned the ways in which the rocks are folded, he finds that the country becomes squeezed together in a succession of anticlinal and synclinal folds. [*Illustrating by a drawing on the black board.*] The rocks are bent so that some parts are elevated and other parts depressed. Eventually, after the land has thus been crushed together in its successive layers, it becomes levelled, so that the upper parts of the folds become removed. Now, suppose that in process of time a river comes to run over this land, crossing the edges of beds of rock thus folded and exposed, what would be the characteristics of that river? It is perfectly obvious that everything

would depend upon the way in which the river runs. Suppose, for example, that the water flows in such a manner that the edges of the beds of rock rise so as to face in the direction in which the water flows, then, if these beds of rock differ in durability, the soft beds would become cut out by the stream, leaving the hard beds standing up. When the stream flows over the bed it has thus excavated it is shot up into the air, thrown up by the obstacle which it encounters, and which itself has formed. Therefore, when the beds of rock are so folded that their edges rise towards the direction in which the stream is flowing, you inevitably have rapids formed. But, if you have the beds of rock rising in the same direction as that in which the river is running, then you necessarily have waterfalls formed. The soft bed is cut out so that the water falls down over the edge of the hard bed, and makes its way at a lower level through a gorge which it excavates. When you apply this principle, it becomes necessary to know something of the layers of rock throughout the country. Take, for example, the case of the Falls of Niagara; that waterfall would never have existed at all in the position in which it is seen, if it had not been that there is a layer of limestone, called the Niagara Limestone, running right across Canada between the lakes, and that layer of limestone rises in the manner I have explained. In every case in which you have a great waterfall, it is due to a bed of rock rising so as to present its steep edge to the water to fall over it.

I might go on, if time permitted, with many illustrations of the manner in which the work of this part of geography is based upon exact observations, leads to sound inferences from observed facts, requires comparison between the phenomena which are before you; but, unfortunately, there are many other departments of geography upon which I desire to say a few words. I may remark that, when you have gained this kind of knowledge of the way in which the surface of your own country and other countries came to be what they are,—when the pupils have gained that amount of knowledge which you find convenient to impart,—then you are only in possession of the inorganic side of geography, and there remain all the larger aspects, everything that concerns man and his relations to the earth upon which he lives, and his relations to the life with which he shares the world. If we are to treat that subject in the same way, we must go on with just the same kind of exact teaching, the same kind of exact observation, and we must not be deterred by the mass of matter which is before us. I may remind you that the universities of Russia, which have always been conspicuous for the cultivation of geography, have long been in the habit of conferring doctor's degrees for knowledge of geography; that geography holds in a Russian university just such a status as mathematics or classics have in a university in this country. Until geography is looked at as a subject of this magnitude, it is very difficult to deal even with the most elementary requirements of the primary school, because there is not always an effort to attempt much when you feel that the opportunity is slight of rising to the ideal which you may set before yourself. When we conceive of this aspect of that higher or organic part of geography I venture to say that anyone who would teach that subject practically must have the means before him of imparting some kinds of practical knowledge. It is no use whatever, according to my experience, teaching pupils the quantities of imports and exports as expressed either in weight of tons or millions of pounds of money, unless we give some practical idea of the nature of the industries involved. If, for example, we had before us such an industry as the tin-plate industry, we have a great export trade in goods made from tinned metals as well as a varied home demand. Well, we make things to send abroad such as we never consume in our own country, because the international relations of different peoples govern commerce. When foreign taxation influences weight of an article, articles are made so light that many may be put into the thickness which one would occupy in our own country. And I find that it is quite possible by means of small samples of the kinds of tin-plate that are used—of the tin which is covered with copper which is made into saucepans, the tins which are covered with brass which is made into kettles, of the tin sheet which is made into toilet-jugs, of the copper which is made into copper kettles, and so forth—to give an adequate idea of the various branches of the tin-plate industry so that a pupil may carry away a conception of what it is, and what the conditions of existence are for those who are engaged in it. In the same way it becomes possible, by means of samples of the different kinds of work produced in any mill, to convey an idea of what the industry is in that particular trade. If one takes nothing more than the matter of making corduroy, you have a cloth that is woven and then the cloth known as fustian has to be cut with knives, a process very like cutting velvet; being cut, it has to be brushed to produce the cord; then it has to be singed, then dyed, and to go through processes of scouring and finishing, until it is finally made up into garments. By means of samples of these different processes of manufacture it is possible to convey to pupils quite as good an idea of the nature of that industry as by having whole bales of the goods before you. It is only, I think, by following geography in this practical way, so as to realise what the conditions are on which the industries have become located in the places in which they are carried on, that we can hope to teach the sources of our commercial prosperity to our youths, so as to start them in the world with adequate appreciation of what they may do by means of strict intellectual discipline in making practical application of geographical principles.

The Chairman, in inviting discussion on the Lecture, expressed his regret that in England, at present, proper materials were wanting for teaching geography in a thoroughly efficient manner. This country was, he considered, very much behind Germany in the matter of maps; and very little had been done for the purpose of exhibiting in a map the contour of a country. Geography was not a simple subject, but a complex subject branching out in all directions, and requiring to be closely studied by teachers, if it was to be taught to any purpose in the school. By the aid of an apparatus such as that used by the lecturer, and a selection of photographic views which would enable the teacher to put before his pupils geography in the way it had been put before them that evening, there would not be the slightest difficulty in getting children to learn what, at the present time, they too often regarded as a bugbear. He had been particularly struck with that part of the lecture which dealt with the country to the North and South of Flamborough Head. He had often mentioned it in his lessons to his boys, but he confessed without knowing nearly as much about it as he now did, after the very clear and graphic way in which it had been described by the lecturer. When he was travelling about with his pupils, and brought a matter of personal observation before them, he noticed how much greater was the interest awakened than when he gave them information acquired at second-hand. If they only took away with them that one great lesson, of the importance of introducing a large element of personal experience and observations into their teaching, they would be very greatly indebted to the lecturer for what he had done for them that evening.

Captain Pfoundes wished to call attention to the admirable report on the teaching of geography issued by the Royal Geographical Society, which had been drawn up by Mr. Keltie, and to the very valuable information contained in it. He commended the study of this report to anyone who wished to see what had been done for the promotion of the study of geography of late years, and how much there remained to do.

Mr. Norman remarked on the difficulty of teaching one of the many subjects included in the ordinary school curriculum in the elaborate way that had been indicated by the lecturer, and on the still greater difficulty of finding teachers who could present it to their pupils in such an attractive manner.

A vote of thanks to the Lecturer, which was passed by acclamation, concluded the proceedings.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A Meeting of the Council was held on Wednesday, the 20th ult. Present—Rev. Canon Daniel, Vice-President, in the Chair; Rev. R. Alliott, Mr. Baumann, Mr. Bidlake, Mr. Bowen, Mr. Brown, Miss Buss, Mr. Chettle, Rev. Dr. Conder, Dr. E. M. Dillon, Mr. Eve, Rev. Dr. Frost, Rev. Dr. Hiron, Miss Jebb, Rev. R. Lee, Rev. G. P. Pearce, Mr. Pinches, Mr. Reynolds, Mr. Robinson, Rev. W. J. Savell, Rev. Dr. Scott, Mr. Southee, Mr. Stewart, and Mr. Stièvenard.

The minutes of the last meeting were read and confirmed.

The Secretary reported that Professor Laurie, of the University of Edinburgh, had undertaken to deliver a course of Lectures at the College on "Language and Linguistic Methods in the School," to commence on the 3rd of May.

In consequence of representations made to the Council by the London Committee of Deputies of the British Jews, it was decided that alternative papers should be set for Jewish candidates in the subjects of the first day of the forthcoming Midsummer Examination, which coincided with the Jewish Feast of Pentecost;—the cost of setting and printing the papers and of the extra supervision required, to be paid by the candidates desiring to take such alternative papers, in addition to the ordinary examination fee.

The Dean submitted the report of the Examination Committee. The report recommended—(1) Certain modifications in the conditions on which candidates at the Diploma Examinations were at present qualified by university degree and other examinations for exemption from examination in certain subjects required for a Diploma. (2) That "unseen" papers only should be set in Greek and Latin at the Diploma Examinations.

(3) That at the Certificate Examinations the papers in English History for the Second and Third Classes be confined to one-half of the history in any one year, the second half being set for the following year, and so on. (4) That all candidates taking First Class papers in French or German be allowed (on payment of an extra fee of 5*s*.) to take *vivâ voce* and *dictation* in addition to the ordinary papers in those languages; that success in the oral test be noted on the Certificate; and that 100 additional marks be assigned to the oral examination in each language. (5) That the subjects of Arithmetic, French, and German, if taken both for an ordinary and for a Mercantile Certificate, be not allowed to count *twice over* in the total of a candidate's marks.

The report was adopted, one or two details as to qualifications for exemption at the Diploma Examinations being reserved.

The Treasurer submitted the report of the Finance Committee recommending grants from the Benevolent Fund to certain old and distressed members of the College, whose cases had been enquired into by the Committee.—The report was adopted.

The following persons were elected members of the College:—

Mr. H. F. Daykin, British School, Ilkeston.
Mr. E. J. Foley, 5 Cemetery Road, Allahabad, India.
Mr. H. H. Hampson, Hainault Road, Leytonstone.
Mr. W. R. Seymour, Charlton Terrace, Hadlow Road, Tonbridge.
Miss C. Sparrow, Sydenham Ladies' College, S.E.
Rev. F. J. Woodhouse, M.A. Oxon., Sydenham Coll., Sydenham, S.E.

The following books had been presented to the library since the last meeting of the Council.

By Dr. Brodie.—Fifty-sixth and Fifty-seventh Annual Reports of the Perkins Institution and Massachusetts School for the Blind.
Macmillan.—Dupuis' "Synthetic Geometry"; Page's Virgil's Aeneid, Book II.
Report of the Director of Public Instruction in the Bombay Presidency, 1888.

COLLEGE OF PRECEPTORS.

PROFESSIONAL PRELIMINARY EXAMINATION—PASS LIST.

March, 1889.

The Supplementary Examination by the College of Preceptors for Certificates recognised by the General Medical Council, the Incorporated Law Society, the Royal College of Veterinary Surgeons, the Pharmaceutical Society of Great Britain, and other bodies, was held on the 5th, 6th, and 7th of March, in London, and at five other local centres, viz., Birmingham, Bristol, Leeds, Liverpool, and Jersey. There were in all 256 candidates, of whom the following obtained Certificates:—

First Class.

Hughes, B. M. | Thorp, A. | Westron, C. W.

Second Class.

First Division.
Atkinson, F. C. E.
Atkyns, H.
Bowlby, M. E.
Jacob, F. H.
Miall, C. L'O.
Peake, W. H.
Settle, V. A.
Thorp, A. E.
Waite, W. A. H.
Whittaker, H.

Second Division.
Gourley, K. P.
Hossack, J. F. C.
Newbery, E.
Pinckney, E. B.
Sibson, A. B.
Thompson, E. J.

Third Division.
Boughton, C. H.
Horsman, F.
Huskinson, P. L.
Parkhurst, A. U.
Rogers, A. A.
Stephens, H. A. D.
Ward, R. R.

The following qualified for Registration as Medical Students, but did not pass in all the subjects required for a Second Class Certificate:—

Boyd, G. S. J.
Brett, W. Ll.
Dickinson, A. E.
Duffett, H.
Greene, H. M.
Harman, L.
Harvey, C. R. L. E.
Jones, D. T.
King, A. F. W.
Kittow, W.
Longinotto, M. J.
Martin, R. C.
Molloy, F.
St. Amand, E. C. D.
Webb, W. S.

The following passed in subjects required to complete their qualification for Registration as Medical Students:—

Addenbrooke, H. E.
Barber, M. C.
Blackett, E. J.
Blain, E. J.
Brook, N. W.
Callum, H. S.
Cave, F. W.
Clark, H. C.
Clayton, E.
Collingwood, P. H.
Copley, S.
Crompton, J. A.
Crookshank, F. G.
Crossman, F. W.
Davidson, W. A.
Fisher, R. D.
Fitter, C. A. S.
Foley, J. E.
Haines, C. F.
Hancock, A. E.
Hanreck, H. M.
Harvey, H.
Hibbard, C. E.
Holford, T. C.
Hopkins, C. H.
Hudson, A.
Hudson, H. C.
Huet, F. W.
Hunter, K. M.
Jarvis, V. G.
Le Verrier, W. R.
Lightburn, J. H.
Madge, H. A.
McCoull, S.
Paget, O. F.
Pares, B.
Pepper, H. W.
Pomeroy, W.
Prideaux, H. S.
Ray, W. J. O.
Richardson, A. H.
Robertson, G. vans A.
Rogers, J. E. G.
Rose, S. F.
Sadler, W. M.
Sibson, P. R.
Simpson, F. C.
Stone, G. C.
Thomson, A. J.
Wilkins, J. C. V.
Woodcock, R. E.
Worger, R. G.

IMAGINATION.

That the culture of the imagination is an essential part of education few will now be found to deny, but by no means the same amount of agreement exists as to the scope and meaning of the word, which has, indeed, been much modified during the course of the present generation.

Professor Bain, in his standard work on the senses and intellect, specially associates imagination with the emotional element in mental combinations; opposing the constructions of fine art to those of science and of practice. He quoted J. S. Mill, who argued yet more exclusively that the term is given to such work as that of the poet, only because the pleasure derived from the train of his high thoughts is in *itself* an end; while the end of such work as that of the *mathematical* and the *metaphysical* enquirer is the discovery of truth, their trains of thought are "directed to that object and are or are not a source of pleasure as the end is or is not attained." Indeed, he goes on to state that "wherever there is a train (of thought) which leads to nothing beyond itself, and has any pretension to the character of pleasurable (the various kinds of reverie for example), it is allowed the name of imagination. Thus, we say Rousseau indulged his imagination when, as he himself describes it, lying on his back in his boat in the little lake of Vienne, he delivered himself up for hours to trains, of which he says the pleasure surpassed every other enjoyment." He discredits the application of the word to the labours of the philosopher, as "giving it a technical meaning without any corresponding advantage;" but adds in conclusion, "If imagination consists in bringing trains before the mind involving a number of new combinations, imagination is probably more the work of the Philosopher than of the Poet."

This view of the faculty of imagination has never been fully accepted; but many of us can remember how strong the feeling was against the first use of the term "scientific imagination:" the two words, it was said, were altogether opposed to each other. Science dealt with facts, imagination with what? That was not quite so easy to say. Before going further, let us ask, Can the view first referred to be accepted as in any way adequate? Does the poet admit that his labours are altogether pleasurable? Horace likens his toils to those of one preparing for the strife of the arena; *sudavit et alsit*, for the furtherance of a great end. Elizabeth Barrett Browning sings how the great god Pan cut short the reed and drew from it "the pith like the heart of a man," when "making the poet out of a man." Has the true poet no message to give to mankind, nothing that it is worth infinite toil to tell, if only it can be rightly told? And what are we to say of the philosopher or the scientist? Is it success only that animates his labour? We cannot, indeed, wholly divest ourselves of the idea that some consequence must be the result even of the most unselfish exertion; but within the possible limits of mental activity no quest is so little dependent on the attainment of definite ends as that which is devoted to the discovery of truth. Knowledge for its own sake, truth for truth's sake, afford a never failing source of pleasure even when the ends desired never rise above the horizon which bounds the searcher's view. This larger faith glorifies the labour and illuminates the "trains" of all high thought, whether of the poet, the scientist, the true statesman, or the philosopher, with a joy and with an enthusiasm which no lesser hope can inspire or sustain. None of these claims exemption from the common lot of toil; all alike rise above it by entering more fully into the travail through which new creations of thought enter into the world. Surely there is something of bathos in the descent to the reveries of Rousseau as a typical instance of imagination, and that because it "leads to nothing beyond itself." Such reveries may be pleasurable, and not perhaps without their use as a mental recreation; but they are surely signs rather of the mere play than of the true work of the imagination.

The question is one of the meaning of the word. Certainly no one would set up the example of Rousseau for imitation in our schools, nor can we start with the higher ranges of poetic or scientific thought for the purposes of early training. What is the mental process which it behoves us to cultivate in all, and which must therefore be one of fundamental importance in all relations of life? Let us see whether the teachings of physiology do not afford a clue which shall afford a safe guide to the teacher. From this point of view the doctrine of evolution gives us:—The association in very early childhood of simple ideas, so that the sight of any familiar object reminds us of former experiences regarding it. The sensation of sweetness is associated with sugar, and of a very painful degree of heat with mustard;

it is soon found that some things are strong and others will break very easily, and so on. Even the child very soon knows by the aid of its imagination and of its memory much more than it *sees*. This association becomes extended and also more and more independent of any objects visible to the sight or recalled verbally to the recollection, until in due course of time the mind can use experiences of the most diverse kinds in forming new ideal combinations. This, very briefly stated, is the process by which the mind is developed in all stages of its growth. Little more than mere animal instincts can be observed in the early stages of life. Day by day we watch for the unfolding of the elements of human intelligence, and, when from inherited defect or imperfect culture there is an incapacity to receive new ideas or to realise them clearly and distinctly, this development is arrested, or becomes abortive through the mental confusion which ensues. Imagination is not mere perception, though it is inextricably associated with it throughout in the normal course of Nature; for, if the relatively simple ideas which it uses to construct those of a more advanced and complex kind are themselves imperfectly formed, nothing but confusion can be the result of their association.

Hence the surpassing importance of mother culture. It modifies as nothing else can modify, for better or worse, the effects of hereditary predispositions. If this be truly wise, loving, and intelligent, no natural gift is lost, every dawning faculty receives its appropriate nurture. How this is done who can venture to describe? But, much as a clear spring cannot give forth muddy water, so the clear mind cannot in its simplest workings be discordant or obscure. A subtle tender sense, perhaps rather of harmony than of order, pervades the imagination of such a mother as she guides from the very first the tentative efforts of her child. The stricter rules of order required with advancing powers do not then come in the guise of harsh and needless restrictions, but are welcomed as aids to the general activity of youthful thought.

Surely the fretful irritation of a spoilt child (ill-health apart) is the incoherent expression of its disappointment. It very soon finds its little world a tangle if it has not been taught that it can only gain its ends by knowing something more of its surroundings than it can perceive at first sight. It must learn early "to think a little." This is the all-essential habit of mind which cannot be acquired too early.

On the moral side also imagination is indissolubly associated with sympathy, which cannot exist in us without the ability to enter into the feelings of others—or again what exhibition can be more distressing than that of *un*sympathetic pity.

This power of imagination must grow with our growth and be sedulously cultivated, for it is that which enables us to realise every new truth which comes before us at any stage of our lives. That which is merely learnt by rote is learnt to little purpose. But it does not follow that the acquisition of knowledge requires a long sustained effort of the imagination. When once mastered its retention may be rather a matter of memory, and the imaginative faculty may remain dormant, or very nearly so, until a new effort is required. But where this faculty is predominant and persistent the mind is ever compelled to extend the range of its knowledge and insight, whatever may be the field of its operations.

This view of the nature of imagination is not restricted to the *objects* to which its efforts are directed, but justifies in a far wider sense the culture of the faculty as a necessary part of education. It is modified in its action, according to the various conditions under which it is called into play. It is not the ability to do any one thing, or to receive any one class of impressions, but rather the capacity of most effectually using all those materials which the mind has at its command. And this constructive faculty tests the validity of these materials by the very fact of applying them to new purposes. But it is "the doing" rather than the "thing done," that we have now in mind, and the strength or weakness of the imagination (in this sense) is the measure of higher or lower work of all descriptions; though no doubt some occupations afford far greater scope for its exercise than others. Few have the capacity to reach the higher standards of the highest order of work; but the great aim of national education is to afford sound and thorough training to all as far as they are capable of receiving it.

It may readily be conceded that much of the work, rendered more efficient by means of such training, will never be recognised as "imaginative," for, apart from the notion of *fiction* which has been arbitrarily associated with it, names are given for those qualities which are specially distinctive or characteristic. Much of the ordinary work of the world would not be so described. The construction of a builder would not be called a work of the imagination, nevertheless the faculty we have described was essential to his success. If he had possessed more of it he might have risen to the rank of an architect, while the want of it would have kept him down to the level of a hodman.

In many of the affairs of life the same discrepancy in the sense attached to the word is to be found. The objections raised to its use in connection with science have been already referred to. Few would now deny that scientific *investigation* especially would be but a slow and halting process without imagination of the highest order, trained in the most rigorous schools of thought. But a knowledge of scientific *results* does not in like manner imply the special activity of the faculty, and the same may be said of that kind of knowledge which is best described as *erudition*. Valuable as such work is, it is not *cæteris paribus* on so high a plane as that which extends the boundaries of knowledge and reveals new truths for the benefit of mankind. So also in a lower range of life, the man who invents an article of common use is of a higher class than one who can merely make it; but again, a man who can readily take up work of a new kind—which he cannot do without some degree of imagination—is a better workman than one who can only do that which he has learnt by rote or by long usage.

Sometimes, also, the power of the imagination has been displayed in a most striking manner by self-taught men; but let no one suppose that it was based upon a careless or indiscriminating observation of facts. They realised facts, knew their necessary sequences and correlation, and estimated truly their relative importance in reference to the business which they had in hand. It is related of Brindley, when he was working out the system of canals under the patronage of the Duke of Bridgewater, that he now and then entered in his diary the words "Lay a-bed." It was his custom to avail himself of that quiet resting-place when he had to think out, or puzzle out, his way through some special difficulties of construction. Psychologically speaking, it was with him a problem to be worked out by his imagination. There were many trained engineers who knew all the several details required for carrying out the undertaking, and could make out all the incidental calculations perhaps more exactly than he could. He alone had all the conditions of the problem clearly pictured in his mind, and its solution was not the less the work of his imagination because it was reduced to practical form. Many other cases of the same kind might be cited. They have given rise to the old proverb "An ounce of mother-wit is worth a pound of clergy;" but, if it is to be interpreted by the letter, we might well demur to the light weight of the "wit," and want to know something more of the quality of the "clergy." Few, indeed, have "wit" enough thus to rise unaided, even under conditions most favourable for the practical exercise of their powers of observation. Such exceptions do not in any way detract from the value of rational culture, but they do very forcibly bring home to us the fact, that "clergy" may become so mechanical and verbal as to be a positive hindrance to the due development of the mind. The truths which nature discloses to those who know how to observe may never be realised, and, even if the faculty of imagination exists, it is starved out by the want of knowledge which will stand the test of *use* in actual experience.

Much of the work which is often classed as imaginative lamentably fails under this test. There are fictions in which incongruous incidents badly described are piled together; impossible plots are worked out by impossible agencies; and the constant marvel is how those who have learnt to write at all can have kept themselves so ignorant of all the conditions of the world around them. Imagination, if it can be so called, striving vainly to soar away from the earth, topples down like a kite without a string into pitiful ruin. True constructive power is wholly wanting in such chaotic agglomerations, and it might seem that they were admitted into the category of "works of the imagination" only on the plea *ad misericordiam*, that they have no other place to go to. Such futile efforts fall far below the level of those directed to material and "commonplace" ends, but the strongest contrast is shown by comparing them with the works of those great poets whose imagination has been well nourished in the school of Nature. Who has ever surpassed our own Shakespeare in his intimate knowledge of life in all its varied relations? Rhythm and rime are not the fetters, but rather the condensers of thoughts drawn with rare fidelity from all its manifold aspects. His teachings come home to us like the lessons of long and hard-won experience personally realised. No narrow doctrine of "*utility*" restricts the field of imagination. Allegory, fable, and parable will ever hold their place in the training of mankind. Rare, in-

deed, are those children who fail to interpret them aright, and, in the face of many of the aspects of our great mother, are we not still in a state of childhood? But the poet's thought, though not expressed in the terms of that exact science which is within the range of our grasp, must yet give true light and leading even when thrown on some great conception, as yet but dimly looming through the mist. The strength of the poetic imagination sustains and exalts us in maturity as its simpler teachings have led us on in the first steps of life: for other perceptions drawn earlier in the infant mind than those which enable it to understand the hard facts of the world upon which it is entering, other tender feelings and sentiments first respond to the loving teachings of Nature, though veiled in allegories all unmeet for riper years, which may yet teach us that—

"Not in entire forgetfulness,
And not in utter nakedness;
But trailing clouds of glory do we come
From God who is our home."

R. H.

SLOYD: ITS RELATION TO OTHER FORMS OF MANUAL TRAINING.*

In forming the Sloyd Union, whose first annual meeting we are holding this afternoon, we had in view both *general ends*, which we pursue in common with many other advocates of Sloyd, and also *one particular end* which is strictly special to our Union. Some of our chief educational authorities have for some time been telling us that education in England, especially in our common schools, is too one-sided and literary, that it is more fitted to make clerks than it is to form capable craftsmen. But let us not make ourselves out worse than we are. We are not behind other nations in this matter of manual training. We are paying more attention to drawing than we were; and we must not forget that much of our physical training is also manual training, and that from time immemorial English youths have acquired in their playing fields, not only skill, agility, and endurance, but that *esprit de corps* which lies at the very root of the civic virtues. We need, however, something more than this—something which will combine the exact training of eye and hand, which drawing affords, with the activity, the freedom and exhilaration of movement, which are characteristic of our national games. And this something we find in the use of elementary tools, the absence of which from the school curriculum has been regretted by men as wide apart as Luther, Locke, and Rousseau. But it is one thing to draw attention to a defect, and quite another to supply a remedy. Many teachers are more than half convinced—those who have been to Nääs are entirely convinced—that a cunningly devised instrument, ready to the schoolmaster's hand, has there been forged, which will make good the defect that has so long been calling for a remedy. We believe that soon it will be a little more disgraceful for a boy when he leaves school to be unable to make something useful with his hands, than to be unable to spell. And we further believe that it is *Sloyd*, rather than what is usually known by the term manual training, that will enable us *in our ordinary schools* to bring about this result. We have been blamed by some high authorities for introducing this new-fangled term, and have been asked why carpentry or manual training will not serve our turn. The term Sloyd is necessary because it connotes several ideas which are either not connoted at all by any term already in use, or are connoted in an inferior degree. If I dwell for a moment upon each of these ideas, I hope you will see a little more clearly that we are not without a reason for the faith that is in us.

1. It is of the very essence of the Nääs Sloyd that it be taught by the form master, *properly trained*, and not by the village carpenter or other artisan, however intelligent. Only in this way can the subject be brought into due relation to other school subjects; only thus can it assume its proper importance in the pupil's eyes, or obtain its fair share of time in the school programme.

2. The groups of exercises, of which the Sloyd models are the embodiment, are a noteworthy example of very fine graduation. The various processes which are necessary to produce all the models of a series have been subjected to careful analysis; and then the elementary manipulations, so obtained, are by a corresponding synthesis grouped together in a varying order to form model after model, but in such a way that the ratio of the new elements to the old, always a small one, shall actually diminish as we proceed. Nowhere out of Euclid does any subject of instruction I know of proceed with such an ordered march. The ideal is that no single model, however complex, shall give more trouble to the advanced student than the simplest one does to the beginner. And it is an ideal which is more nearly attained than most human ideals are. Such an example is most fruitful to a teacher in every branch of his work.

3. Sloyd is educational rather than technical. Sir John Lubbock tells us that there are two theories with ragard to manual training. "The one treats the school as subordinate to the workshop, the other takes the workshop and makes it a part of the school. The one seeks to make a workman, the other to train up a man." Schoolmasters are often urged, and never more so than now, to let their pupils begin to specialise at too early an age. And it might be thought that, in advocating the use of tools as part of the ordinary school curriculum, we were yielding to this pressure. It is not so. The Nääs wood-Sloyd, in its principles and details, has for its direct aim the development of all a child's powers—physical, mental, and moral. It paves the way for technical instruction in after years, but is no part of technical instruction proper. It is intended to give general manual dexterity, and prepares for no special trade or profession.

4. In the Sloyd room we make complete articles from the very commencement, whereas in most other kinds of manual training (*e.g.* the one taught at St. Louis and Chicago), the young pupil is for long periods kept at mere exercises which seem to him to lead to nothing. There can hardly be a question which of the two methods is the more likely to call forth the pupil's interest.

5. And, lastly, Sloyd has been so contrived as to involve but a minimum of expense. For £20 a room can be fitted up with benches and tools for twelve pupils. And so there is nothing to prevent the humblest village school in England from having its Sloyd-room, and turning out work just as good as elsewhere. But can good results really be obtained for such an outlay? If any friend unacquainted with Sloyd had spread before him the work of an average boy who had attended four hours a week regularly in the Sloyd room for two years, I think he would agree with me that better results than these it would be unwise for the schoolmaster to attempt, when he has so much else to attend to.

This, then, is our general aim, the aim which we are pursuing in common with friends who are not members of our Union—to insist upon the superior fitness for ordinary schools of Sloyd over other forms of manual training; by comparison of experience and discussion of difficulties to increase our own knowledge and skill; and by diffusion of information about Sloyd to recommend it to our countrymen.

Such being our estimate of Sloyd, the important question arises: What is the best way of training such teachers as offer themselves for a course of a study, and of thus spreading the practice of Sloyd far and wide? Shall we, like patriotic Englishmen, at once open a Sloyd training-school in England, like that at Leipsic, with English developments and modifications; and do our best to discourage students, at least in any number, from receiving an instruction abroad which smacks, or seems to smack, of its foreign origin? Or shall we say firmly that, for the present at least, it is only at Nääs that thoroughly complete training can be received, and that there only can the clearness of view and the force of conviction be acquired which are necessary for such an educational crusade as that on which we are embarked? In saying that the first is the better course, I must add the condition, *if it be possible.* And a moment's reflection will show, I think, whether we are as ready in England for such a step as they were in Germany. Our leaders are yet feeling their way, and cannot be said to have attained any common body of doctrine on the subject. Our teachers are as yet learners. We have no one among us like the veteran Professor Biedermann, of Leipsic, who first wrote on this subject 36 years ago; we have no one quite equal to von Schenkendorf or Götze, who is willing to devote himself to this particular work. Nor is the English public as yet sufficiently interested to contribute the necessary funds. But if men like Professor Unwin, Sir Philip Magnus, Mr Ricks, and Mr. Ablett would go through one full student's course at Nääs, as Dr. Götze did three years ago, we might hope at no distant day to have in England a Sloyd Seminary, which would in importance and permanence be co-ordinate with that at Nääs.

Meanwhile, the special, peculiar aim of our Union, acting in close co-operation with its President, Director Salomon, is to pave the way to Nääs, so to speak, for English teachers; and to show in all available ways that there is no real obstacle, except perhaps the sea—and least of all, no obstacle arising from either the language or the expense—to prevent teachers of every grade from going through at least one course there. And do not think that by sending students to Nääs we are emptying the training-classes which are doing such thoroughly good work around us. Our training-classes here will be full when Nääs is full, and *because* Nääs is full. Students who are going to Nääs will seek to do some work before they go; or will complete here the models they did not reach there. And those who fear the sea, or fail to find places at Nääs, must be entirely dependent for opportunities of training upon facilities provided at home. I believe the classes here will flourish in proportion to the number of students that seek the full training, which only Nääs can give.

One word more, and I have done. The *tone* of the farewell address to us at Nääs, on September 4th last, surprises some of our friends, who fail to see what "new Educational Gospel" there can be in Sloyd. But let us see whether Sloyd has not a social and philanthropic side. I have heard of young men, who here at home had a footman behind them at table, preferring the vigour of muscle and nerve, which rough out-door labour gave them in Canada or New Zealand, to a life of artificial restraint in the old country. But why not indulge their bent at home, without enduring long absences from kindred and friends? In this free country, forsooth, friend and acquaintance would regard them more askance than if they were in the habit of breaking two or three of the Commandments. A scholar like William Rushton, who worked for a while as a blacksmith in Paris, a man of saintly life like Travers Madge, who for years lived the life of a common workman in Manchester—these and many more have striven to show the dignity of such hard, common

* An address delivered to the members of the Sloyd Union.

toil as falls to the lot of the bulk of mankind. Their lives have not been lived in vain. But our friends in Sweden have a wider ambition still. They seek to influence not a life here or there, but to take the children of the entire community, and, whilst providing for them a more harmonious and complete development of mind and body than has been usual hitherto, to imbue them early with the idea of the value and the dignity of common human toil, bodily as well as mental.

J. S. Thornton.

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

The usual advertisement announcing vacancies in the Examinerships appeared early in March. Prof. Wilkins retires from the Examinership in Latin; Mr. Craik from that in English; Mr. Brette from that in French; Prof. Emerson Reynolds from that in Chemistry; Prof. Lankester from that in Zoology; Prof. Bonney from that in Geology; Prof. E. C. Clark from that in Jurisprudence and Roman Law; and Prof. John Williams, M.D., from that in Obstetric Medicine. Each of these eight gentlemen has served the five years' term of office permitted by the University charter.

The revised editions of the Regulations, generally issued in January or February, have this year been unaccountably delayed; nevertheless, we have fortunately been able to procure copies just in time to allow of a reference to them in the present number of this journal. Most of the changes embodied in them have, indeed, been already referred to as matters of rumour or of probability; but as probability has now become certainty, and as some of the changes require the serious attention of candidates and their teachers, we make no apology for giving a brief summary of them here.

Throughout all the faculties (except Music), candidates for all examinations (except one or two that require special arrangements) must lodge at the University an application, upon a Form of Entry to be previously procured from the Registrar, together with their fee and their certificate (when one is required), not less than four weeks before the commencement of the examination for which they are entering. In the faculty of Music the prescribed interval is eight weeks.

In the Matriculation Regulations, Botany (of which a very modest syllabus is given) appears as a fourth optional science. The minimum standard for honours is raised by a hundred marks, *i.e.* to 1,800 out of the possible maximum of 2,500 attainable under the new Regulations, which came into force last June. This is equivalent to 2,016 out of the possible maximum of 2,800 attainable under the previous Regulations, under which the minimum standard fer a prize was only 2,000. This raising of the standard will probably have the effect of reducing the number of candidates in honours to considerably below the half of what it used to be, and will thus shut out many January candidates from a somewhat valuable privilege they might otherwise have enjoyed—that, namely, of proceeding to the Intermediate Examination in Arts, or in Science, in the following July, instead of having to wait for eighteen months. The prize standard now appears to be abolished; so that a non-award of exhibitions and prizes, such as characterised the recent January list, is not likely to recur. It may be worth while again to draw attention to the change of date of the June examination, from the third to the *second* Monday in the month.

In the Arts Regulations there are but two changes, and these are trifling ones: the "Celtic Languages" are added, under Branch IV. of the M.A. Examination, to the list of subjects, of which two must be prepared by each candidate; and the interval between the First and Further Scriptural Examinations is shortened from two years to one.

In Science, a series of practical examinations in Physics is to be added to the Intermediate and B.Sc. Examinations; for the Intermediate Examination there is a new syllabus in Biology; and for the B.Sc., a new syllabus in Geology, &c.; but the examinations for the present year are to be conducted entirely on the older regulations.

The Regulations in Laws and in Music remain unaltered.

The new syllabus in Biology, just mentioned, is also to serve for the Preliminary Examination in Medicine; at which, too, practical examinations in Physics (pass and honours) are to be added: the paper work in this subject, however, is somewhat lightened. Candidates who desire to pass the Preliminary Examination in detachments are to take, first, either Biology alone, or Chemistry and Physics together, instead of making their own selections and combinations of subjects. Moreover (and this is a remarkable innovation and concession), candidates who take up all the three subjects at once are, if they fail in Biology only, to be credited with a pass in Chemistry and Physics; or, if they fail in the latter subjects, or either of them, to be credited with a pass in Biology. All these changes will come into force in July, 1890.

The special Examination in Public Health is abolished, and a branch of the M.D. Examination, under the title of "State Medicine," is substituted; and to this is attached a gold medal (value £20) for a candidate of special merit. Candidates for the M.D. Examination, either in Medicine or State Medicine, and for the M.S. (Master in Surgery) Examination, may henceforth present a thesis, which may excuse them from the bulk of the ordinary examinations.

Other and minor modifications of the Medical Regulations will probably be of no interest to the readers of the *Educational Times*.

Little has been heard, since the long vacation, of the Royal Commission on University Education in London appointed nearly a year ago; it is rumoured, however, that its report has been agreed upon, and will shortly be issued.

Oxford.

Mr. David Samuel Margoliouth, Fellow and Tutor of New College, has been elected Laudian Professor of Arabic, in succession to the late Professor Gandell. Between 1878 and 1882, Mr. Margoliouth obtained the following distinctions:—Hertford and Ireland Scholarships and First Class Classical Moderations, 1878; Gaisford Greek Prose Prize, Pusey and Ellerton Scholarship, 1879; Houghton Syriac Prize and First Class Final Classical School, 1880; Boden Sanskrit and Craven Scholarships, 1881; Kennicott Hebrew and Derby Scholarships, 1882; and in 1887 he was senior Kennicott Scholar.

There has been for some time a project on foot for removing Manchester New College from London to Oxford as a companion to Mansfield College. A poll of the 376 trustees has now been taken, with the result that 138 were in favour of the removal, 108 against, 9 neutral, and 121 declined to vote.

Mr. N. D. Beatson Bell, of Balliol, has been elected to the Boden Sanskrit Scholarship.

Mr. A. S. Peake, B.A., late scholar of St. John's, has been elected to a Denyer and Johnson Theological Scholarship. The second scholarship was not awarded.

Cambridge.

J. H. Middleton, M.A., of King's College, has been re-elected into the Slade Professorship of Fine Art.

The Rev. J. T. Lang, M.A., of Corpus Christi College, has been appointed to preach the Annual Sermon before the University on the John Mere Foundation at St. Benet's Church on Easter Tuesday next.

C. H. Hertford, M.A., Trinity College, has been approved by the General Board of Studies for the degree of Doctor in Letters.

The Special Board for Modern Science have come to the conclusion that it is expedient to divide the Moral Sciences Tripos into two parts, to be taken in successive parts, partly to give a chance to those who wish to take up this tripos, after having taken honours in some other tripos. Ethics and Metaphysics would be included in Part II., and would, as a rule, be compulsory; but Political Philosophy might be allowed as an alternative for Metaphysics in the case of those who take up Political Economy as an advanced subject in Part II. These regulations may, perhaps, attract some candidates to the tripos, of which at present undergraduates seem rather shy.

The Chancellor's Medal for an English Poem has been adjudged to A. B. Cook, Scholar of Trinity College; honourably mentioned, F. A. Hibbert, St. John's College.

The Porson Prize has been adjudged to J. P. M. Blackett, St. John's College; honourably mentioned, G. A. Davies, Scholar of Trinity College; T. R. Glover, Scholar of St. John's College.

Sir William Browne's Medals have been adjudged as follows:—For Greek Elegiacs, F. W. Thomas, Scholar of Trinity College. For Latin Ode, E. E. Sikes, Scholar of St. John's College. For Greek Epigrams, R. G. Bury, Scholar of Trinity College. For Latin Epigram, St. John B. W. Willson, Scholar of St. John's College.

Mr. Whitting was elected Vice-Provost of King's on Saturday without opposition. Mr. Whitting has taken a leading part in college business, as Bursar, for many years, and is very popular in the College.

Prof. Bensly has been appointed to represent the University at the International Congress of Orientalists, to be held at Stockholm in September.

Sir Peregrine Maitland's Prize for an English Essay (open to M.A.'s only) has been awarded to Mr. C. R. Haines, M.A., of St. Catharine's. The subject of his essay was "Mahomedanism as a missionary religion."

Colleges, Schools, &c.

The Rev. T. E. Hill, late Principal of the Moore Theological College, Sydney, has returned from Australia, and is acting temporarily as Principal of the Theological College, Edinburgh.

The trustees of Royston Grammar School, Yorkshire, have appointed Mr. W. W. Pearce to the headmastership. He was for eight years assistant-master at Silcoates School, near Wakefield.

The Rev. T. N. Hart Smith, M.A., Exeter College, Oxford, and assistant-master at Marlborough College, has been elected headmaster of Epsom College.

The headmaster of Clifton College has given £2,000, and the assistant-masters have guaranteed the same sum, which they hope, in time, to collect in part from old Cliftonians, to be applied to the completion of the buildings. The addition will consist of a tower to contain a council-chamber, a sixth form room, and a new geography school.

The Rev. H. W. McKenzie, M.A., of Keble College, Oxford, and assistant-master of Wellington College, has been elected headmaster of Lancing College.

Mr. T. E. Vernham, the organist at St. Paul's, Knightsbridge, has been appointed to the Professorship of Music at King's College, in succession to Dr. Monk.

The Rev. Edwin A. Abbott, D.D., has resigned his position as headmaster of the City of London School, a post which he has ably filled for twenty-three years.

EDUCATIONAL NOTES AND SUMMARY.

Sir John Lubbock, in the course of his address at the annual meeting of the London Chamber of Commerce, held on the 20th ult., referred to two subjects in which schoolmasters are more directly interested than in any of the other topics on which he touched. These were the teaching of science and modern languages in schools, and the adoption of the metric system instead of our comparatively clumsy system of weights and measures. There is little that is new that can be said on the subject of modern language teaching. Undoubtedly, for the purposes of trade and commerce, it is very desirable to know the language of those with whom we trade. French and German are the only modern languages for which regular provision is made in our schools. Spanish will soon claim attention. The young Spanish Republics of South America are increasing rapidly in population and wealth, and the development of their great resources is mainly effected by British capital. Hundreds of millions of British money have been invested in the railways, mines, and docks of these young states, whilst half of their total trade is in the hands of Englishmen. Clearly, Spanish as a commercial language cannot be neglected by Englishmen if they are to maintain their ground in these countries in the face of Italian and German competition. A decimal system of coinage, weights, and measures would also greatly facilitate business transactions between these countries, which have all adopted the metric system. It is difficult to imagine what can be gained by keeping up arrangements which greatly increase the complexity of business transactions.

Shortly before leaving England her Majesty the Empress Frederick visited the Maria Grey Training College, 5, Fitzroy-street, W., which has connected with it the school, 1, Fitzroy-square, attended by nearly 150 scholars. Her Majesty was received by Miss Ward, the principal of the College, together with the Rev. T. W. Sharpe, chairman, and the Hon. E. L. Stanley, vice-chairman of the council. Lady Arthur Russell, a member of the council, was in attendance on Her Majesty. Mrs. Schwabe, well known for her educational work in Italy, was also present. The Lord Mayor, accompanied by the Lady Mayoress, attended to meet her Majesty, and expressed his sympathy with the work of training teachers. Her Majesty inspected all the classes in the College, including the Kindergarten, listened to some of the lectures, and took kindly notice of the students and scholars. She was pleased to express her great interest in, and approval of, the work, and hoped that all who are interested in education would take up the work and carry forward its extension in the spirit in which it is now conducted. We may mention that the College is not self-supporting, and is in great need of funds; and we trust that the excellent work it has done in the past, and is still doing, will induce those who believe in the sound training of teachers, to provide the sorely needed help.

There was a large gathering of teachers—over 400—at the soirée given by Miss Buss at the North London Collegiate School, on March 8th, to inaugurate Section III. of the Metropolitan part of the Teachers' Guild. Speeches were made by Dr. Fitch, Miss Agnes Ward, Mr. H. B. Garrod, and Mr. F. Storr; and the two Members of Parliament for St. Pancras—Mr. R. G. Webster and the Hon. C. Cochrane-Baillie—also said a few words expressing sympathy with the work of the Guild, and urging upon the meeting the need for co-operation among teachers. The evening was a very pleasant and a very successful one, and afforded a very happy augury for the new efforts of the Guild to draw London teachers together. There are now 12 sections of the Metropolitan body of the Guild, which alone numbers about 2,000 members. Section III. will hold its inaugural meeting on April 3rd.

The *Ligue Française de l'Enseignement* has not yet put forth any programme for the International Congress "*des œuvres d'instruction populaire*," which it intends to organise in connection with the Paris Exhibition. We understand that it will appear early in April; but we are requested, meanwhile, to say that the Congress will certainly be held in August; that attention will be mainly directed to the explanation and illustration of what is actually being done by private efforts for popular instruction, rather than to theories and projects as to what might be done; and that it has nothing to do with government systems of instruction. All inquiries should be addressed to M. Chennevières, *Secrétaire-général adjoint*, at the bureau of the Ligue, 14, rue J. J. Rousseau, Paris.

The list of honours and certificates obtained by the 6,100 students who have passed at the Cambridge Local Examinations contains features of unusual interest. In addition to the students examined at the colonial centres, there are a large number amongst those who are successful at the British centres from Scotland and Ireland, where there are no centres; and also students from Paris and Boulogne, and other parts of France; Frankfort-on-Main; Courtrai, and other parts of Belgium; St. Petersburg; and Moscow, in Russia; Arlogo, Sweden; Smyrna; various parts of India; Hong-Kong, Tein-Tsin, and Shanghai, China; Yokohama, Japan; Capetown, Molepola, Transvaal, Port Elizabeth, and other parts of South Africa; Madagascar, the Barbados, New Zealand, South Sea Islands, South America, the West Indies, British Guiana, Canada, &c.

The annual report of the council of the Girls' Public Day School Company, Limited, states that the number of schools is now thirty-three, and the number of pupils has increased from 6,185 to 6,618. At the request of numerous friends and shareholders, the council have agreed to open a preparatory school at Newcastle-on-Tyne, in connection with the Gateshead High School.

During the coming exhibition, a congress is to meet at Paris to discuss the whole question of the encouragement of athletics, both from the moral and from the physical points of view. Invitations have been sent to the headmasters of our greatest schools—Eton, Winchester, Harrow, and others—by the Ministry of Education, requesting attendance either in person or by deputy; or, in default of either alternative, four interrogatories of the most comprehensive and searching order propounded—to wit: "What do you hold to be the effect of athletics on (1) the temper, (2) health, (3) education, (4) courage?"

The Teachers' Guild will hold its annual conference at Sheffield this year on May 30th and the two following days. The main subject for discussion will be the organisation of secondary education, with special reference to the training and registration of teachers. There will also be an educational exhibition of historical books and apparatus, on the same lines as the one held in London some two years ago by the Royal Geographical Society.

In answer to the question, "Can morality be taught without sectarianism?" Dr. W. T. Harris, of Concord, writes:—"I think that morality can be taught, and that it is taught in our public schools, and in all good private schools, without sectarianism, and even apart from religious instruction, although I believe that religion is the ultimate ground of morality. Morality is conformity, on the part of the individual, to those manners and customs found essential for the well-being of society as a whole. Social combination in institutions is civilisation. In civilisation, the moral individual acts so as to re-enforce all his fellows. Where immorality prevails, each individual by his selfishness attacks the necessary forms of social life and weakens the whole. The school is a social body; it is an institution, and all its discipline fits the pupil for combining rationally with his fellows. The school work begins, in fact, with "securing order," by teaching behaviour or training the will. This is moral education. The pupil must learn self-control. He must form habits that ensure concert of action—such habits as regularity, punctuality, silence, and industry. These are the four cardinal duties of the school."

In her very able answer to Lady Magnus's attack on High School education for girls, Miss Knatchbull-Hugessen says that statistics have been recently collected as to the health of women university students after leaving college; and in particular the life-record of those who have married has been compared with that of the sisters nearest to them in age. The results fully bear out the conclusion of Sir William Gull as to the advantage of thorough intellectual training for girls, even from a medical point of view. The average health of Girton and Newnham students who have subsequently married is better than that of their married sisters who have not been to college. The average health of their children is better; and the percentage of childless marriages is less in their case.

A correspondent informs us that the following is the original, copied from a gravestone in the county of Norfolk, of the epitaph upon a schoolgirl, produced in another form from *Notes and Queries* in our last number:—

Epitaph for an Agricultural Labourer.

"Here lies a poor fellow who always was tired,
But he lived in a world where much was required.
Weep not for me, when death doth us sever,
For I'm going to do nothing for ever and ever."

In an article in the *New York School Journal*, Mr. Quick says:—"The value of psychology for the teacher is now pretty generally recognised. We have been affected by the scientific spirit, and see that there is no real opposition between theory and practice. There was a time when 'theory' meant 'hypothesis,' 'conjectural explanation,' which might be true, but was far more likely to be false. Now we take theory for the light which reason throws on anything, and we find that this light makes intelligible much that would otherwise be obscure, and helps us to correct much that has hitherto been wrong. So teachers are no longer content to do to others as was done to them, and are willing to inquire what light 'our mental philosophers' can throw 'on the methods of practical education.' Those who will not be at the pains to get at the true explanation of what they are about are pretty certain to catch up some false explanation. Many teachers 'of the old school,' who were so practical, and laughed at 'theoretical notions,' were really governed by notions which were 'theoretical' in the worst sense ever given to that ill-treated word. They had, *e.g.*, a theory of the memory which was all wrong. If you ask, 'How does a man walk?' and you are told he walks with his legs, the answer is by no means exhaustive, but it does point to a fact. On the other hand, if you ask, 'How does a man remember?' and you are told, by his memory, you are paid with words, and get nothing at all. Yet teachers thought they knew what the memory was, and supposed they were 'strengthening the memory,' and so fitting their pupils for the business of life, when they were forcing them to say 'without book' long strings of useless and often meaningless words. As this was the outcome of 'the home-bred sagacity of operative men,' we have surely done well in exchanging their theoretical notions for theory indeed. Theory, properly so-called, leads us to cultivate the thinking power of the mind. It is this that has enabled eminent men, especially eminent scientific men, to perform such feats of 'memory.' The uneducated mind fastens on all the unimportant details, and cannot recall a sequence of events without them."

On the other side of the world, Mr. George Macmorran, in his presidential address to the New Zealand Educational Institute, touches ably on the same topic. "How many using Pestalozzi's and Stow's methods, and possessed of Froebel's gifts and apparatus, have found the results of their labours disappointing. The success of these eminent teachers was not in their methods, neither was it in their apparatus, but in themselves, and we, not so enthusiastic, it may be duller and less keen in perception, had better try whether we cannot arouse in ourselves a little intelligent sympathy with our children, and genuine enthusiasm for our work, sustained and enlightened by some knowledge of the child's constitution and the child's mental growth and environment. Mental science should not merely make us acquainted with the order of development and time of development of our faculties, but should instruct us as to what conditions are favourable for mental acquirement; what times are suitable for taking a step in advance, and which for enlarging acquaintance with principles or rules already explained; how memory and judgment are to be got to yield most readily to our endeavours to rouse them to effective action; and, in fact, there seems to be no question of mental training but has its solution based on one or other of the questions proposed for solution by mental philosophers. Hence if in teaching we are to be guided by principles, and not be blind followers of rules laid down in the books—if we are to be masters of our art, and not mere empirical experimenters, I cannot get away from the conviction that the rudiments of mental science should be known by all those licensed to teach."

The working of the Universities Act, 1877, is gradually giving to Cambridge handsome and commodious University buildings, which but for the long-standing antagonism between college interests and University interests she might have possessed decades ago. A chemical laboratory worthy of the place is the latest addition to the means of efficient teaching and original investigation in this branch of science. Provision is still needed for the wants of students in physiology and human anatomy. Plans have been prepared for buildings suitable to the prosecution of these studies, but they will have to wait until the finances of the University are equal to the strain. It is very unfortunate that the complete realisation of the reforms to be effected by the Act of 1877 is likely to be deferred owing to the diminution of college income through the long agricultural depression. The scheme of contribution from the colleges to the University provided for the payment to the latter of £30,000 per annum, £25,000 in money contributions and £5,000 in fellowships attached to University professorships as an increase to their endowment. The scheme was to be brought into operation gradually, the contributions starting in 1883 with a sum of £6,000, rising to £12,000 in 1885, £18,000 in 1888, £24,000 in 1891, and to the full amount of £30,000 in 1894. The colleges are seeking a modification of this scheme at present, owing to the curtailment of their own resources, which come mainly from land. But all who desire to see University efficiency restored will hope that the check to much-needed reform thus arising will have but a partial and temporary operation.

Cambridge has had a very liberal offer made it recently, and as no onerous conditions accompanied the offer we have no doubt it will be thankfully accepted. The Vice-Chancellor made public the fact that Mr. Newal of Gateshead was desirous of presenting his splendid telescope to the University. The instrument is a refractor of 25-inch aperture and 30 feet focal length, and is in fact one of the two or three finest telescopes of its kind in the world. Mr. Newal proposes to present with the telescope the dome and instruments that have been used with it. The possession of this magnificent instrument will no doubt aid greatly in the investigations of the University astronomers. It rather looks as if the sceptre of Astronomy had in recent years departed from us for America. It is only in astronomy, as far as we know, that an advanced mathematical student will have to seek aid from American text-books rather than from our own authors. We have hardly any work to be named with Chauvenet's "Spherical and Practical Astronomy," and there are several other good American text-books on the same branch of science. We think it very probable that American proficiency in astronomy is to be ascribed to the excellently-equipped observatories that have been erected in the States. There is every reason, therefore, to look for fruitful observations from the gift to Cambridge.

An appendix to the final report of the Royal Commission appointed to inquire into the working of the Elementary Education Acts (England and Wales), has been recently issued. It contains, in addition to other matter, copies of memorials and suggestions which have been addressed to the Royal Commission by all sorts and conditions of men, and women too. Individuals speak for themselves only, or in a representative capacity. Some of the memorials proceed from very influential educational or religious organisations; others have been printed, one would suppose, from other motives than because of their intrinsic value. Perhaps the most weighty memorial in the collection is that from the Executive Committee of the National Union of Elementary Teachers. This paper, which was drawn up on behalf of an association of teachers numbering some 13,000 members, reviews the whole position of elementary education as it strikes "those who have had the greatest experience in the teaching and management of elementary schools." Condemnation of "payment by results" it puts in the forefront of its case. "Liberty of classification" is asked for the head teacher of every school, accompanied by a system of examination by classes instead of by standards. The memorial deals with school inspection, school staff, supply, education, and training of teachers. In connection with the training of teachers, it is recommended that such training "should be brought into connection with and under the influence of the Universities, as in Scotland." It is also recommended that "the power of granting professional certificates should not be allowed to remain in the hands of a Government department, but should be vested in a representative council created under the authority of Parliament, with power to grant diplomas to teachers, and to create and maintain a register of qualified persons authorised to pursue the vocation of teaching." This representative council, as far as we can see, would make no distinction between elementary school teachers and other teachers. The only distinction apparently that the elementary teachers desire to draw is between persons fit to teach and persons unfit to teach. There would be no attempt at grading inside the profession itself. The system of standards comes in for strong disapproval; it is characterised "as an unmixed evil, and injurious to the education of the country." They are equally emphatic in excluding technical instruction from the elementary school, but they admit that the "programme of instruction" should provide for the teaching of those subjects which lead up to and form the basis of technical training. Under the existing system no addition can be made to the curriculum without increasing the overpressure which now exists. This important document concludes by expressing

the hope that the recommendations of the Commission "will tend to remove the difficulties now felt by teachers, and restore that enthusiasm which was a distinguishing mark of the teaching body before 1862."

CORRESPONDENCE.

ON THE RELATIVE VALUE OF THE EXAMINATIONS OFFERED TO SECONDARY SCHOOLS.

To the Editor of the Educational Times.

SIR,—As there is at present a great deal of interest displayed on all sides in matters pertaining to education, I should like to evoke the opinions of all thinking people on the relative value of the examinations which secondary schools of all grades are invited to support. It seems to me that parents are wonderfully apathetic with regard to the certificates their children obtain—one certificate being evidently as good in their eyes as another, and in this respect they display a touching confidence in the teacher, which deserves at least a trustworthy response.

Now, in drawing attention to the requirements of the different examinations, I do so in no spirit of partisanship, but in the interests of education generally, as it strikes me most forcibly that a multiplicity of examinations is not conducive to the general welfare. Indeed, some that have sprung up amongst us, within the last ten years, seem simply to have been instituted to cater for the sixpences of the public, without offering any commensurate advantages, unless we except their lower fees. To come to the point, I will show the differences with regard to arithmetic existing between the numerous examinations, as far as I can in a short letter, and will begin with the Intermediate Examinations of Ireland, in which no arithmetic is obligatory for juniors or seniors. We turn to Scotland, and there find that, at the St. Andrews Local, a knowledge of "Notation, Simple and Compound Rules, Simple Practice, Proportion and Vulgar Fractions" will enable a candidate to obtain a junior or senior certificate. The Edinburgh Locals require "Arithmetic, including Vulgar and Decimal Fractions" for their junior and senior candidates. If we turn to England we find the requirements are higher, the College of Preceptors requiring for their Third Class candidates "Vulgar Fractions, Simple Proportion, and simple questions in Practice," whilst for their senior candidates they require advanced arithmetic.

The standard of the Oxford and Cambridge Locals is similar to that of the College of Preceptors, but when we revert to the requirements of the Oxford and Cambridge Joint Boards Examination we find them lower than the Oxford and Cambridge Locals, and yet the certificates thus obtained are called "Higher" Certificates! and cause confusion in the public mind by their being mistaken for the Cambridge Higher Local, or the Oxford Women's Final. On comparing these different examinations, we naturally come to the conclusion that there is a vast difference in their market value, as it were, and we wonder why the Universities should have two examinations for schools, and why the one generally appropriated by public schools should be of a lower standard than the Locals, which seem to cater for the private schools. Wherever I have asked that question, I have been met with the answer, "Oh, we do not know, but we know the Joint Examination was *meant* for the public schools." Why should this be? Can it be possible that the public schools are afraid to subject their pupils to the same tests private schools submit to, or do they fear to come down to the level of the private schools by doing the same work? It seems absurd and useless that all these examinations should exist to bewilder the minds of the public; the same test ought to be available for all boys and girls, wherever they are educated, before they proceed to the Universities, and in this way alone do I see a solution to the grave problem now before us. In other branches of education the same evil exists. We have too many music examinations—for instance, the Royal Academy, Trinity College, the Society of Professional Musicians, and the Harrow School of Music, affected by the Public Day Schools Company.

In drawing we have the South Kensington examinations and those of the Society of Arts of London, but the former is trying to handicap private enterprise by refusing certificates and prizes to "external candidates" who obtain a Second Class. If what I have written commends itself to the judgment of your readers I hope they will strengthen my hands by coming forward and stating their views.—Yours, &c., E. D'OURSY.

[Our Correspondent is mistaken with regard to the standard of the Joint Board Higher Certificates.—ED.]

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THE EDUCATIONAL TIMES.

LONDON, APRIL 1, 1889.

THE organisation of our higher education is destined, apparently, to undergo very considerable modification in the near future. Change is in the air. That peaceful struggle for existence, in which all modern societies are engaged, will be felt more and more as competition intensifies in the sphere of education, making for the transformation of archaic institutions and methods into institutions and methods better adapted to the requirements of modern life. A "home of lost causes and forsaken beliefs, and unpopular names and impossible loyalties," will find, in the coming time, survival possible only on condition that it takes on preservative additions and exhibits a saving power of assimilation. The mediæval university, with its semi-monastic colleges, however adequate to the needs of the generations that are gone, cannot, without far greater development than it has yet undergone in this country, satisfy the intellectual wants of the generations yet to come. A feature of the time is the vastly increased number of those who seek university culture. Students are coming from the public elementary schools. The teachers of these schools are, with the aid of distinguished professors of Oxford and Cambridge, now engaged in elaborating some scheme which will bring the benefits of university training within reach of a selected number of their body annually. The secondary schools supply also a larger number of students desirous of higher education than ever before. Nor is this all. The university of the future, unlike the university of the past, must take both sexes into account. We are within sight of the time when the legal status of women in respect of education will be the same as that of men—individual position being determined by individual powers. Then, too, the massing of population about great centres of trade and manufacture generates educational requirements which must be met and satisfied in some way which will not involve the estrangement from business pursuits of those they are to benefit.

Such are some of the factors in our present position in reference to university education, which even a slight and rapid analysis of that position discloses. It is superfluous to say that, in presence of these, development and modification of existing institutions, if not the creation of new institutions, are needed to supply an university education, not merely to the members of the learned professions, but to all those who are destined to take a leading part in the political, mercantile, and industrial life of the nation. The question open to discussion is, What form shall university extension assume? Shall we multiply our universities, or

shall we affiliate to those already in existence local colleges able to give sufficient guarantees of fitness? Let it be remembered that a college which is not an university, may do everything an university can do save one. It may be a great teaching institution, with buildings admirably suited for their purpose, and a staff of teachers eminently fitted for their high functions; its halls and class-rooms and laboratories may be thronged with students. The one thing it lacks which pertains to an university is the power of conferring degrees.

We have now, in England alone, five universities. On various grounds the creation of two more are advocated in London, one formed by the union of the Colleges of Physicians and Surgeons, and having power to confer a medical degree only; the other university, with full powers, would be constituted by the affiliation of University College and King's College.

"Gallant little Wales" also petitions the Crown for a Welsh university, to "gratify the national sentiment, and furnish new motives for the pursuit of learning."

The present educational position of the Principality is very fully stated in an article in the February number of the *Contemporary Review*, advocating the establishment of an University of Wales. The writer, nothing daunted by the fact that Wales is still waiting for a system of intermediate education in accordance with the recommendations of the Departmental Committee which reported seven years ago, elects to "build from the top" with the educational material he has got.

He has, indeed, discovered that, whatever may become of Government aid to intermediate education, Wales possesses abundant material for the supply of an university. "The establishment of a degree-giving body," we are informed, "naturally results from the concession of university colleges, supported by permanent Government grants, and enjoying the recognition implied in a Royal Charter." The heads of the three colleges here referred to would seem to be of the same opinion, for they have unanimously resolved that it was expedient that an University of Wales should be established on the model, with such modifications as might be necessary, of the Victoria University, and that a deputation should wait upon the Lord President of the Council to press upon him the necessity of establishing the university without delay. A deputation did accordingly wait upon the Lord President, who neither admitted nor rejected the claim advanced, but asked for fuller particulars, including an estimate of the expense which the Government would have to incur if the desired concession were made.

This, then, is the stage which the university question in Wales has reached. When we come to examine the particulars on which this demand is based, we confess we are not impressed by their force. Wales at the last census had a population of about a million and a half. The writer in the *Contemporary* estimates that, with her present population, she could supply a total of 1280 university students. Now, these 1280 students have the choice of three universities all within easy reach of them,—Oxford, Manchester, and Liverpool are in railway communication with all parts of Wales, whilst Dublin is within four or five hours' pleasant steaming of Holyhead. But Welsh students go much farther afield in quest of the particular training they need. In 1887 there were 90 Welshmen at Edinburgh, and 36 at Glasgow—with a "sprinkling" in remote Aberdeen and at St. Andrews. The grievance, then, that Wales suffers from not having an university of her own can only be considered a real one in a very limited sense.

From other portions of the article in the *Contemporary*, we infer that influences extraneous to education have a good deal to do with this demand for a Welsh university; for example, we are gravely told that—"If the teaching has a certain character of its own, as any national teaching should, it is obvious that, to try it by a colourless test, such as that of a mere examining body like the University of London, is not to bring out all its best points, but necessarily implies a certain considerable loss. And there seems to be no doubt, from recent utterances of those in authority, that in the Welsh colleges the necessity of having to conform to the London methods, without allowing anything for Welsh idiosyncrasies, is felt to be a grievous burden. The same could doubtless be said of the methods of the Scotch universities, of the Victoria University, or of the University of Dublin. The student who has been educated according to Welsh methods must be tried according to those methods, if he is to do justice either to himself or his teachers." "A grievous burden" because no marks are awarded for Welsh idiosyncrasies, no account taken of "national sentiment," is surely somewhat of an exaggeration. The concluding sentence of the article gives a good specimen of the sort of dreams Welshmen now dream. "Whatever Government," we are told, "makes this concession (of an university), and settles this question, will, I am confident, stand amazed, in a very short time indeed, at the rapid growth of the intellectual development of Wales, and will find that what has been done is neither more nor less than the addition, at an annual cost not much greater than that of a single broadside of a modern iron-clad, of an educated Celtic population of a new type, with the genius of the Irish without their perversity, and the common-sense of the Scotch without their narrowness, to the intellectual resources of the Empire."

If Wales understood how much openness of mind, intellectual elevation, and breadth of view count for in the highest culture, she would not seek to be thrown back on her defects—she would not ask for a weak native university to foster her "idiosyncrasies," and perpetuate her language. Her true educational policy would not be obscured by "national sentiment," as it seems now to be.

The example of St. David's College, Lampeter, points out, it seems to us, the mode in which Wales could best meet her wants in respect to university education. Affiliation with either Oxford or Victoria would bring the Welsh colleges under the influence of bodies whose wealth and resources enable them to realise an ideal of an university quite out of the reach of three or more poorly endowed local colleges. The question, in fact, of university organisation ought not to be left to drift at the mercy of forces extraneous to education. English statesmen ought to recognise, as completely as foreign statesmen do, that the establishment of an university is a very important national concern, which should not be controlled solely by local importunity.

The education estimates for the financial year ending March, 1890, have been recently issued. They show a con-

siderable increase over those for the past year. There has been an advance under almost all the heads of expenditure, but the greatest leap upwards is due to elementary education. The total of £3,684,339 is the charge on the Consolidated Fund for public education in England and Wales for the present year, being an increase of £108,262 over the grants for last year. This sum is only about three-fifths of the amount required for education, science, and art, for the United Kingdom for the current year. Of the £5,916,291 which makes up the whole vote asked for, Ireland gets £917,847, and Scotland £575,376. It is quite according to the fitness of things that the greater part of this expenditure should be incurred in reference to elementary education. The State is slow, at least ours is, to charge itself with duties in reference to the education of those who are supposed to be strong enough to take care of themselves. Still, year by year, it is forced to assume duties and to incur expenditure in connection with the higher education. The present estimates afford evidence of increased demands on behalf of education other than elementary. A sum of £15,000 is included in the estimate for aid to colleges of university rank; the precise mode of allotting this among the colleges to be subsidised is not yet determined. State aid to colleges not affiliated to universities is now represented in the estimates by £15,000 for English colleges, £10,528 for the three Queen's Colleges of Belfast, Cork, and Galway, £12,000 for the three university colleges of Wales in equal divisions.

When we consider this expenditure on the higher secondary education of the country, and also the large sums allotted to the four Scotch universities, the Royal University of Ireland, £2,000 recently granted to the Victoria University, the illogical position into which the State has drifted in reference to secondary education becomes very conspicuous. There cannot, we think, be any doubt but that the Education Department will be forced by accomplished facts, at no very distant date, to take in hand the organisation of secondary education, if for no higher purpose than for reaping the full rewards of the vast expenditure on elementary education. The *élite* of the pupils in the public elementary schools ought not to be deprived of the chance of continuing their education in secondary schools. A little over ten years ago, Matthew Arnold used words in reference to this subject which have not yet lost their significance. "Our public secondary schools," he said, "when we get them, may be far from perfect. But they will throw into circulation year by year, among the middle classes, a number of young people with minds instructed and enlarged as they never are now when their schools are, both socially and intellectually, the most inferior that fall to the lot of any middle class among the civilised nations of Europe." Although we have not yet got the schools, we are more ready to admit the shortcomings for which they are the appropriate remedy than we were ten years ago.

In noticing the topics with which the daily press had beguiled the slack season, we referred in our February number to the criticisms of the examination time-tables. It was evident to us that the nature of these time-tables had been misunderstood. Some of the medical journals certainly assumed they were like ordinary school time-tables, and that all candidates were made to attend during all hours set down on them. The same error had been made with regard to the Training College Examinations, the fact that there is a choice of subjects being ignored. We mildly pointed out this error, denying that it was a common thing for boys and girls to be compelled to attend day after day the number of hours represented on the time-tables. The delegates of the Oxford Local Examinations regularly send us the schedules of subjects and times and the lists of candidates, and we happened to have the schedules of the presiding examiner for the London centre, showing at what hours the different candidates were expected to attend. A single glance at these papers showed how erroneous was the view that any one candidate kept the whole of the hours of the examination. On this we based our remarks.

Since then, the complaint against the time-tables, so far as we have followed it, has been altered in form. It is now urged that, as it is possible for a child to injure itself by piling up subjects, the time-tables should be altered so as to make it impossible. This is a totally different question, and is not that to which we referred. Granted that there are parents so careless and culpable as to allow it, this misuse of examinations may perhaps be possible, just as it is possible to use a railway and locomotive for a purpose for which they were not intended. But of this we are quite sure, it is impossible so to connect examination and teaching as that neither shall interfere with the other, and that examinations shall be easy, pleasant, and agreeable to every one of the candidates who may present themselves. As in tuning a piano, we may chase the "wolf" up and down the key-board, and finally relegate it to the part where it is least offensive, although we cannot utterly destroy it, so we may cause the wolf, which inevitably accompanies our attempts to adjust what is natural and what is artificial in examination and teaching, to assume the least troublesome position, but we cannot entirely annihilate it.

We think the only question on this subject left to be answered is this, Have we driven the wolf into such a corner? in other words, are the time tables so arranged that they interfere with teaching as little as possible; that the cost of the examination is not too great; and that the hours for each candidate need not be oppressively long? To answer the last part of this question, we will again take up the Oxford Local Schedules for Juniors. From them we learn that the average number of hours attended during the six days of the examination was $20\frac{1}{4}$ (or $3\frac{3}{8}$ per day) at the London Centre, $20\frac{3}{4}$ at the Birmingham Centre, and rather more at the Liverpool Centre. Taking the cases of the five candidates at the London Centre who worked, during the week, more hours than any of the others, we find that the total number of hours spent by them was 31, 31, 30, 30, and 28, respectively. On one day two of these candidates were under examination for 8 hours, two for 7, and two for 6; but on the remaining days their work was very light, $2\frac{1}{2}$ hours, 3, and 4 hours being all that they gave to the work. The two referred to above as having been subjected to 8 hours' examination in one day, took Practical Chemistry; hence their long hours. We learn from the Secretary of the College of Preceptors that a similar condition of things holds in the examinations of that College. In the *worst* case on his list, the average number of hours per day reached $5\frac{3}{4}$. Five candidates had one long day, but there was no reason whatever to suppose

that the arrangements were distasteful or injurious to these candidates. We also learn that there are no girls among these five candidates.

While we are every day learning more and more of the nature and the value of the connectedness of all branches of knowledge—especially in the work of education—we are liable at times to feel something very like despair as to any one ever being able to teach any subject as it should be taught. The specialist in Botany, or Geography, or History, tells us of so many knowledges which have an important, even a vital, bearing on his particular subject, that the poor hard-worked teacher is crushed by the sense of the greatness of the demand being made on him. He had hoped that *Pansophia* was dead and buried; and yet here it is moving about more vigorous than ever, and with much to say for itself. Even if he tries to comfort himself with the thought that *he* will content himself with only a *general* acquaintance with the *chief* of these "tributary" knowledges, the door of this last hope seems closed when he is told that the one right way to every kind of knowledge is by observation, experiment, and induction. And yet the teacher need not despair. In showing him the mutual connectedness of knowledges, the specialist is doing him a most valuable service. There is nothing of greater importance to a teacher than an ever present sense, an ever active *use*, of the connectedness of all which his pupils come to know. All knowledges should come to the young as parts of one great whole. Each new subject should be rendered intelligible by those which have preceded it; and in its turn should throw light upon them, and give them new meaning. The isolation of school subjects deprives them of half their real value as means of education. In this way, then, the enthusiastic specialist affords all of us help. But he may go further and help us still more. He may show us the *nature* and the *extent* of the bearing of the tributary knowledges on his own particular subject. It is plainly one thing to be a well-trained specialist in chemistry, for instance, and quite another thing to have an accurate knowledge of chemistry *in its bearing* on that part of Botany or Geography which we have to teach. And so with other tributary knowledges, and other subjects. We seek to get our training—or rather to train our pupils—by means of the main subject, and we accept and use the facts and results of the tributary subjects to the extent that we require them; recognizing that we need not, and cannot, master these subjects in their entirety, nor to anything like the same extent as we do the main subject. Beyond this we do not think the general teacher should expect to be able to go. He will, of course, have more than one main subject; and so those tributaries which these subjects have in common will be viewed in more than one of their bearings, or be themselves in their own turn main subjects. The demand, after all, is not so overwhelming as it seemed at first. Put in this way, it is within the reach of ordinary human beings. Put in any other way, it is simply an impossibility. There is still, however, the consideration to be entered into as to how far we should demand a complete mastery of the *main subjects themselves*. Here, again, we should say that, for the *general* teacher as distinct from the *specialist*, this will depend entirely upon the use to which we are to put any subject—to its bearing upon the curriculum as a whole. A University lecturer on History requires a far wider knowledge of his subject than a master in a preparatory school does; so does one who trains adults in some science require more than one who gives object-lessons to little children. The wider and completer our knowledge of anything is, the better for every one of us, no doubt. But the irreducible minimum for the general teacher—which is our present theme—should always be decided by the bearing of the subject on the curriculum as a whole, by the actual *use* we intend to make of it.

We have ventured on these remarks because we think it is high time that those who offer counsel and help to teachers should cease to lay views before them which are quite impracticable and only serve to darken judgment. Scrappy, insulated views on parts of education are just as valueless as scrappiness and disconnectedness are in the actual work of the class-room. Education must be considered as a whole, and particular subjects as the parts of one whole. Except when this is done, and done by one who has mastered at least the rudiments of the science of mind, the advice given is likely to be of very little value indeed. Educational subjects must be treated—not as things in themselves, to be decorated with rhetoric or arranged in pretty ways—but in their bearing on education, and on one another.

REVIEWS, NOTICES, &c.

Lectures on the Ikosahedron, and the Solution of Equations of the Fifth Degree. By Felix Klein, Professor of Mathematics, Göttingen. Translated by George Gavin Morrice, M.A., M.B., Member of the London Mathematical Society. (*Trübner & Co.* 1888.)

This work has been rendered into English in the hope, as the translator states, that it may contribute towards supplying the "pressing need of text-books upon the higher branches of mathematics," of which Dr. Glaisher recently spoke in his presidential address to the London Mathematical Society. Though dealing principally with the Ikosahedron, it treats similarly of all the regular solids, from what the author terms the "dihedron" upwards, and considers the various deformations which occur in regular sequence by rotation or reflexion of these figures, or rather of the spheres to which they are inscribed, and upon which their apices and edges are supposed to be projected from the centre. It also treats fully of the relation which subsists between such transformations and what are known as "linear substitutions" in the theory of equations. It gives some account of the *group-theory* upon which it is based, but refers the reader to more detailed expositions of the subject, such as Serret's *Traité d'Algèbre Supérieure* (Paris, 4th Ed., 1879). The language of Immanuel Kant is forcibly brought to mind by the following description given of the Group-theory:—

"Originally sprung from the theory of equations, and having a corresponding relation with the permutations of any kind of elements, this theory includes, as has long been recognised, every question with which we are concerned in the case of *a closed manifoldness of any kind of operations*. . . . The rotations which bring one of the regular solids into coincidence with itself collectively form a *group*."

We have in succession the Group of the Dihedral Rotations, the Quadratic Group, the Group of the Tetrahedral Rotations, the Group of the Octahedral Rotations, and the Group of the Ikosahedral Relations, each with its extensions by reflexion on the planes of symmetry. After this preliminary chapter, which appears much easier on the second than the first perusal, we have a chapter on the *Introduction of* $x + iy$, which connects the geometrical results of the Group-theory occurring in the first chapter with a definite region of recent mathematics, namely, with the *algebra of linear substitutions* and the corresponding *theory of invariants*. The next two chapters connect those results with *Riemann's theory of functions* and *Galois' theory of algebraical equations*. The author next inquires where lies the proximate cause of the remarkable simplicity which has manifested itself all along, and says, "About this, I believe, there can be no doubt, viz., *it is the property of our problems that from one of their solutions the others always proceed by means of linear substi-*

tutions which are a priori *known.*" This opens up a vista of indefinite extent, especially when certain transcendent functions are introduced.

Part II. is devoted entirely to the Theory of Equations of the Fifth Degree, its historical development and geometrical interpretation, and affords a perfect mine of information to those who by their previous acquirements are rendered capable of appreciating it. In particular it describes *Kronecker's* method for the solution of such equations, the geometrical conception of the *Tscheinhansian transformation*, and of *Gordan's theory*, and criticises the methods of *Bring* and *Hermite*. This is the part, perhaps, which will have the greatest attraction for English mathematicians; and in this lovers of Quintics may revel in their pet subject to their hearts' delight.

Mr. Morrice has made his translation in a style beyond all praise, and has thus added to our English libraries a book which well deserves to be a standard work. To render a book into English from the clear and beautiful style which all French writers use, is a very different thing from turning it out of German. French mathematicians are eminently lucid in their treatises: the Germans too often write in a style—if style it may be called—which is without form and void; hence it is much to Mr. Morrice's credit that he has presented to us a book which, if we did not know it to be a translation, we might have read, with a few exceptional and formless sentences, as a fair example of the good English always used by him in our own mathematical columns. The book is well printed, and on good paper; thus it is altogether a very pleasant book to read. If Messrs. Trübner—from whom we have not yet been in the habit of expecting mathematical books—can import from the Fatherland works as valuable as this, and can secure for them so good a translator as our contributor Mr. Morrice, they will be doing us a right good service.

German Text-Books. (1) *Das Bild des Kaisers. Novelle von Wilhelm Hauff. Edited with an Introduction, English Notes, &c., by K. Breul, Ph.D.* (*Cambridge: at the University Press.*) (2) *The same work. Edited, with Grammatical and Explanatory Notes, and a comprehensive German-English Vocabulary, by J. F. Davis, D. Lit.* (*Librairie Hachette & Co.*) (3) *Lessing: Ausgewählte Prosa und Briefe. Edited, with Notes, by H. S. White: New York and London.* (*J. P. Putnam's Sons.*)

Hauff's *Bild des Kaisers* is the new text-book selected for the junior candidates in this year's "Cambridge Locals." In point of language and contents it is superior to last year's text-book selected for the same object. We protested at the time against the adoption of the play "Dr. Wespe" for educational purposes, on account of its silly plot and the by no means elegant language. Hauff's *Bild des Kaisers* cannot be said to suffer from those defects. It is a short tale or *novelette*—not a "novel," as both editors state—with an historical background and some seriousness, and it is, above all, written, in general, in very good German, although not quite in the "easy flowing, natural, and euphonious style" which, according to Dr. Breul's opinion, and, we may add, also according to our own, is peculiar to Hauff's writings.

As regards the editorial treatment of the book, we are glad to say that Dr. Breul has done his work, in general, most carefully and conscientiously. The only fault we have to find with his notes is the inordinate length of his philological disquisitions, which give to his commentary almost the appearance of an etymological dictionary. Some of Dr. Breul's notes cover full half a page or more They are certainly very instructive, but far too advanced for the degree of knowledge supposed to be possessed by the "junior" students of the language.

The various historical and literary allusions in Hauff's tale have been, as a rule, correctly explained by Dr. Breul; but he seems not to have always discovered the drift of the author's allusions when they were of a humorous kind. To cite one instance only. In the note to the passage in which it is related (p. 11), "that the Brandenburger was disappointed because he had been unable to ask his travelling companion about the house and the family of *Käthchen von Heilbronn*—which topic he had doubly scored in his memoranda," Dr. Breul gravely gives the requisite literary information about the drama of that name, but he omits to point out that the passage is meant as a sneer against the "cultivated" Prussian, who seemed to take the mythical somnambulistic heroine for an historical personage. The introductory matter to the Cambridge edition is, on the whole, satisfactory; but we think that the editor would have done better to give a fuller account of the then political state of Germany, instead of the long biographical sketch of Napoleon.

We have now to add a few words on the edition of the same work, published by Hachette & Co. Dr. Davis's notes are short, and meagre. They chiefly give translations (which are in general idiomatically correct) of words and phrases, here and there interspersed with some grammatical notes. Considering that the editor has also appended a vocabulary, many of his notes might have been fairly omitted, in order to make room for the explanation of literary and historical allusions. Thus, among others, no information whatever is given about the allusion to *Käthchen von Heilbronn*. Of Sickingen and Götz it is merely said that they are "characters in Goethe's historical drama of Götz von Berlichingen," from which explanation a young reader might infer that they were merely fictitious personages. The quotation from Schiller's well-known ballad, *Ritter Toggenburg* (p. 12), is not explained either, and thus the whole passage will remain almost unintelligible to the readers. The expression *mit einem deutschen Gruss zuvor* has been merely literally translated and not explained, and thus the satirical point, not fully seen perhaps even by Dr. Breul, is quite lost. The word *Beilstock* is missing both in the notes and in the vocabulary. It is probably a provincial expression—it occurs neither in Grimm nor in Sanders,* but Hauff also makes use of it, and explains the word in his *Memoiren des Satans*, where he says of the "Teutonistic" students, *In der Hand trugen sie Beilstöcke ungefähr wie die römischen Liktoren.* A *Beilstock* was, consequently, a "stick provided with an axe at the top."

The most curious error occurs, however, on p. 8, where Dr. Davis translates the name *Köpenicker* by "imbeciles," explaining, at the same time, that "it has an asylum for idiots." Does the editor assume that every name of any place where there is an asylum for idiots might be used as a generic appellation for *imbeciles?* The fact is that the town of Köpenick was specially used as a place of detention for "Prussian demagogues" from 1821-1828. The explanation in the Cambridge edition is here nearer the mark.

There remains but little space for noticing the volume of *Lessing's Prosa*, edited by the Dean of Cornell University. The idea of making a selection from Lessing's prose writings was a very happy one, there being no other German writer whose style equals his in terseness and vigour; besides, as Professor White justly remarks, "so much of Lessing's best writings consists of fragmentary effusions, or is so entangled with references to authors and characters long since consigned to oblivion, that it is somewhat difficult to present extended extracts complete and intelligible in themselves." The learned editor considered it, therefore, advisable to give some specimens of Lessing's multifarious activity "as fabulist, literary and dramatic critic, philosopher, and theologian," thus furnishing a useful practical introduction to the great writer's dramatic and critical works. The selections have been made with excellent taste, and the notes, which are very brief and concise, will be found most instructive. They abound particularly in bibliographical information.

The Teaching of Languages in Schools. By W. H. Widgery M.A. (*David Nutt*).—Writers on psychology in its relation to teaching have not laboured in vain. Here in the book before us is a practical teacher treating the subject of language-teaching, not merely from the empirical standpoint, but with the main results of psychological science kept clearly before him. "Language," says Mr. Widgery, "is psychologic activity manifested through physiological means; it must, therefore, obey all the laws of psychology and physiology." It is in the light of these laws that the writer interprets his experience. With these in view he goes through the whole round of language-teaching, phonetics, reading, grammar, vocabulary, translation, and philology. Mr. Widgery is very clear as to the ideal which should be kept before us in teaching languages. Briefly, it is that the thought of the mind should be expressed instantaneously, and exactly as a native of the foreign country would express it. Hence, the introduction of English into the foreign-language lesson should be reduced to a minimum. Isolated words should not be given, but, instead, sentences in which the force of the word to be taught is felt after, grasped, and appropriated in the manner a child learns its mother tongue. Accidence and syntax are to be discovered inductively by means of picked sentences given to the class, from which as mate-

* Sanders gives the nautical expression *Beilstock*, sub voce "beilen."

rial, agreements and differences can be discerned and rules deduced by the pupils themselves. As to philology, the teacher should know a great deal about it, but the children should hear uncommonly little. And to the growth of the language upon the ear and sight (especially on the ear) until the child can understand it as an *instrument* of reception and communication of thought, there succeeds the teaching of the *use* of the instrument. This leads to the subject of literature. We would draw attention here to Mr. Widgery's own words: "The crown and summit of the language master's activity is to make some of his sense for the splendour and beauty of foreign literature—some of his sense for the warm breath of humanity glowing in its pages—pass into the souls of his boys; they must catch some of our delight, our joy." Such are the main features of this book—it shows a knowledge of the child mind combined with close study of the nature of language, and the probing and investigation of practical experience in ascertaining the best means for establishing right relations between the two studies. The way in which Mr. Widgery has carried out this scientific study deserves recognition. He writes clearly—that is the first requisite for writing on pædagogic subjects—and he writes vividly—and that is the second. He is sometimes a trifle too epigrammatic, but he is not needlessly dogmatic. The following expressions, of more or less interest, are taken from the book:—"The main objections against phonetics seem to be the learning of a new alphabet, and a vague sort of fear that English literature will die a sudden death if we alter our orthography." In speaking of grammar, the author says: "A large portion cannot be explained logically; it is retained purely by the memory, and, like a well-worn coin, everybody knows what it stands for, though the time and place of its stamping have been long forgotten." Speaking of the eight alphabets with which the German is plagued, we read: "To an Englishman there is some slight solace in this alphabetical luxuriance, as it affords a retort to rude remarks on the stupidity of our weights and measures and spelling." Speaking of the way in which literature is too commonly treated, Mr. Widgery breaks forth with: "It is an indignity to turn a master-piece of literature into a happy hunting-ground for compound plurals, or even for the rules of the subjunctive. Shall we learn anatomy on the bodies of our dead friends?" Two points more. First, as to what Mr. Widgery has already done; secondly, as to what he hopes to do. In the first place, he has not only written ably on the teaching of modern languages, but he has added a Bibliography of books in which the teaching of languages has been discussed, extending from the time of Bede to our own. This will be found of value by the student of the history of language-teaching, and is in itself a creditable contribution to pædagogic knowledge. It deserves the honour of tempting others to add to it and improve it. Secondly, we trust it will not be long before Mr. Widgery carries out his intention of publishing a book for the teaching of phonetics in schools. There is probably no aspect of language-teaching so little understood, and consequently so little attended to, as that of a scientific knowledge of phonetics, and exact methods, founded upon experience, of teaching them.

English Writers. An Attempt towards a History of English Literature. By Henry Morley, LL.D. Vol. IV. (Cassell & Co.)—This volume deals with the fourteenth century. Professor Morley will require another volume to complete the history of the literature of that century. The scale on which the author is writing demands references, at considerable length, to literatures other than that of England. For instance, in this fourth volume, there is a chapter devoted to "The Romaunt of the Rose," and to the Florentine great writers, Dante, Petrarch, and Boccaccio. The connections of England with Florence through literature and learning might form the subject of an interesting and valuable study. Such a study, though on a small scale and for a limited period of history, Mr. Morley supplies; and no doubt he will, in a future volume, say more on the same subject. Yet there is an inevitable loss in interest from finding an account of Dante, Petrarch, and Boccaccio in Volume IV., and then having to wait for a later volume to read of the effect of the influence of Ficino, Politian, Pico della Mirandola, and above all, of Savonarola, in bringing about the recasting of modern thought which showed itself first in the Renascence and afterwards in the Reformation, in both of which movements England eventually shared. Who can adequately describe the leap forward, the "new life" of literature, due to these two revolutions in the world of thought? We look to Professor Morley to attempt it. With reference to the share that Florence had in the revival of learning and literature, it must be allowed to be a very great one—how great we hope to have to some extent, at any rate, gauged for us by Mr. Morley. At present, however, we must content ourselves with thanking Professor Morley for his accounts of Petrarch and Boccaccio. As descriptions of the works of these authors for the ordinary English reader they are excellent. We do, however, confess to a feeling of disappointment that those writers are not examined critically. We find they are described as "Patriarchs of Modern Literature," but we strongly object to this term as in any way finally disposing of those great Italian writers. It is, in fact, misleading, meaning anything or nothing. Professor Morley clearly belongs to the school of descriptive writers. He has an eye for the picturesque in authors and books. He can, if we may be pardoned the expression, suck the juice out of a book, but he does not give that light into the meaning of a man and his book which Charles Lamb would have looked for. He does not regard books so much from the literary standard of style, taste, finish, and subject them to artistic canons, but he looks on every book as the outcome of a man's thought, and cares for the one as the expression of the other. The man is always more to him than the book. We do not value lightly this point of view. It evokes the interest and affection of the reader. The enthusiasm which prompts such an attitude covers a multitude of sins. Mr. Morley's style of treatment is well illustrated by the chapter on Miracle Plays in this volume. He gives an interesting and comprehensive account of the subjects of these plays and the manner of their production. He also insists upon the fact that they were the "Biblia Pauperum" of the times. Mr. Ruskin has dwelt upon the fact that the mosaics of St. Mark's stood in precisely the same relation to the people of Venice, and it is too frequently forgotten in an estimate of these Miracle Plays, paintings, and mosaics in churches, how invaluable were all appeals to the eye in the ages when reading was not a common accomplishment. In other chapters of Volume IV. there are accounts of the Cursor Mundi, John Gower, Chronicle writers, Maundeville's Travels, William Langland's "Vision of Piers Plowman." The work, written with genuine enthusiasm for English literature, will be a most valuable storehouse of knowledge to the teacher, and should be in the sixth-form library of every good school.

The Theory of Perspective. By Frederick Harris, Head Master of the Chesterfield Central and Stafford Municipal Schools of Art. For the use of Students preparing for the Second Grade Examination. (Relfe Brothers.)—This is a mirth-producing book. We have read it through, and yet are uncertain whether it is intended as a satire on some recently published text-books; but are slightly disposed to think the author intends it to be taken seriously. That our readers may decide, we give quotations exhibiting (1) the eloquence of the work, (2) the science, (3) the art:—

(1) "Whether you pursue the principles as applied to colour, or whether you do not, you will have taken the first step up the great stairs of Nature's observatory, where you can look out at pleasure upon the wide world of unexplored beauty lying before you . . . . You take a walk through a wood with which you are familiar, and down in a quiet corner is a deep and stagnant pool surrounded and shaded by trees. The water is dark and motionless—too filthy for fish to live in, but not for reflections; and as you stand leaning over the wooden fence that guards its edge, you may see either the deep-dyed water's surface only, upon which the spiders skate and shadows slant, thrown from the overhanging trees, or you may see, apparently deep down, the reflection, &c. . . . . You have all seen your reflection in a mirror; but did it ever occur to you to think about it? It is an exact image of yourselves: it looks on you, smiles or frowns on you, admires you, loves you, makes the motion you make, imitates you in all you do, and pleases or displeases you, according to your frame of mind. But have you ever thought about it? . . . . I must confess to you that to my mind there is a great mystery in reflections. They are some of the most exquisitely complete and beautiful things we find in Nature. *Why* the glass or the water's surface reflects your face when you look on them, I cannot tell, except through this law of Nature; or whether the reflection exists at all even, I cannot tell. I am inclined to think it does not, save in the mind of the beholder."

(2) Next we have the science. Geometry is represented by such statements as the following:—

"The transparent vertical plane is *invariably* vertical. I know of no possible circumstances where it can be supposed to be placed in any other position. . . . We are basing our theory on the broad principles of an equilateral triangle."

Eight or ten pages are devoted to philosophical reflections, and eloquent descriptions of the sun, the moon, and the eye. From these we select the following quotations, and the conclusion which the whole is intended to prove:—

"There are luminaries in the world of humanity, whose splendours vanish as the morning cloud if we draw too near them. . . . How far our

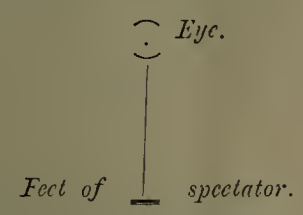
thought is directed by the sun's rays I would not like to say; but it seems reasonable to think it would be in part dependent on what ministers to all life and beauty in the animal, mineral, and vegetable world. . . . . The moon we suppose to be a luminous substance, deriving its light from the sun, and reflecting that light softly upon and illuming the earth beneath. . . . . We do not see with the *lens* of the eye, but *through* it. We see with the *soul* of the eye."

The conclusion to which all this leads is expressed as follows:—

"Thus we may satisfy ourselves that our eyes are in the best places in our heads to receive through the prepared medium the reflection of the light of heaven."

(3) Art occupies the smallest portion of the book. The following description and diagram are specimens:—

"The feet of the spectator are never shown in the working diagram, simply because they are never required for actual work. *A man sees with his eyes, and draws with his hands;* his feet merely support him, and raise his eyes into position above the ground. Besides, they could not be seen by the spectator himself. Yet, though not seen nor shown, I question whether I could make the meaning of the diagram clear to you at all if I did not refer you to the feet. I can show their position in a moment. Fix an eye on paper, and drop a vertical line from it five feet long, thus:—



But do you not see that in order to see his feet you must each suppose yourselves to be a spectator *other* than the one viewing the perspective picture? The eye I have drawn is looking straight before it; and the function of an eye is to see things around and before it, and not to look within and upon itself."

The Land of my Fathers. By T. Marchant Williams. (*Longmans, Green, & Co.*)—In his short preface, the author tells us that he has had two objects in view in writing this novel, namely, (1) "to expose the mischievous effects of the application of the principle of payment by results to the teaching and training of the young," and (2) "to throw a little light on some of the aspects of the present social, religious, and political condition" of Wales. In our opinion, he has been more successful in the second object than in the first. But we rise from a careful reading of the book with the conviction that Mr. Williams takes far too pessimistic a view of the condition of his countrymen. We naturally turn first to the scholastic part of the book. A School Board is secured for the district in spite of clerical opposition, and Board schools are erected. Over the boys' department a Mr. Gubbins is appointed; he is a conceited "crammer," a rigid disciplinarian, and very successful in obtaining high percentages. "To him, a child is but a trough for the reception of sundry scraps of information about such things as the gerundial infinitive, the pancreatic digestion of proteids, the names of the wives of King Henry VIII., the geographical position of Owhyhee, and the distinguishing characteristics of the Ghoorkas—to be paid for according to the cubical capacity of the trough." Over the girls' department a teacher of the exactly opposite type is placed, a Miss Enid Vaughan, a pupil and admirer of Matthew Arnold's, a true creature of "sweetness and light;" she is full of holy enthusiasm for her work; "she is a profound student of the history of the art she practises," and is familiar with the writings of Comenius, Locke, Rousseau, and Richter; she has a heart full of love and sympathy, and soon makes her department idyllic in its harmony and simple beauty; to pass from the boys' school to hers could only be compared to a transition from "hell to heaven, and from darkness to light." The ordeal of the annual inspection draws near, and Enid Vaughan is aghast at the thought of having her work tested by such men as the Rev. Mr. Drizzle, "a ruffian," though wearing the robes of a priest, and a bully of the worst type, and his assistant, Mr. Blight, who is equally obnoxious; on the report of such a pair of worthies her future must largely depend. The inspectors do not arrive until more than an hour after time, when the children are getting anxious and jaded; Mr. Drizzle approaches the mistress in the rudest possible manner without removing his hat or heeding the ordinary amenities of civilised life; and he states that he can only allow two hours and a half for the inspection of the whole school. He sets to work in such a manner as to frighten the children, and to play havoc with their work, and roundly abuses the teaching because none of the children can distinguish an *arrestive* from a *cumulative* conjunction, or give an example of a gerundial infinitive; he considers the "tone" of a school as "intangible, therefore unreal," and that "like poetry, it is moonshine, undiluted moonshine." Matters are pushed to such an extreme by the brutal behaviour of the inspector that some School Board members present intervene on behalf of the mistress (who has become prostrate with grief) and tell Mr. Drizzle that his method is "inhuman" and his treatment of the head teacher "disgraceful." The inspector becomes more moderate, and the threatened reduction of the grant is averted. The nervous shock, however, proves too much for the nerves of Enid Vaughan, and after a long illness she dies a victim to the cruelty of Messrs. Drizzle and Blight.

The reader's sympathy is strongly stirred, and Mr. Williams apparently wishes to enlist this potent factor against the system of payment by results. We are strongly in favour of a modification of this system, but we demur to any argument based on the incidents of this tale. The author pictures a most exceptional state of things; we can hardly believe that any inspector would be so brutal and coarse as Mr. Drizzle, or that two men, so repulsive and unsuitable, would be yoked together and inspect the same district. In any case, the moral is that greater care needs to be taken in the selection and grouping of the inspectors, who, under any system whatever of State aid, must have entrusted to them large discretionary powers. Even Enid Vaughan did not fear such an inspector as Matthew Arnold. We have known something of unreasonable inspectors; but, if Mr. Williams is aware of any who resemble Drizzle and Blight, he will do well to begin a crusade to secure their removal from the list.

OUR LIBRARY TABLE.

Crustula, or Unseen Passages for Lower Forms. By E. A. Wells, M.A. (*Rivingtons.*)—A neat and well-printed little book, containing many simple passages in Latin and in Greek for unseen translation. To increase its usefulness in the lower forms the author has added hints on how to make sense, both in the translation of Latin and Greek, and notes on difficulties occurring in the selections.

Analytical Geometry of the Straight Line and the Circle. By D. Munns, F.R.S.E. (*Rivingtons.*)—An introduction to the study of Analytical Geometry intended for the use of beginners. Cartesian co-ordinates alone are employed, for in spite of the advantages offered by the use of Polar, Trilinear, and Tangential co-ordinates, the author rightly considers that they tend to perplex the beginner and throw unnecessary difficulties in his way when brought before him too soon. An admirable feature of the book is the collection of results, at the end of each chapter, for reference.

The Tragedy of King Richard the Third. By W. H. Payne Smith. (*Rivingtons.*)—The notes to this edition of Shakspere's historical play, although not cumbrous, yet place before the student everything that is essential, and concentrate his mind on the most useful lines of study. The dramatic conception of the whole, and the dramatic bearing, value, and truth of the parts are the principal points dealt with; textual, historical, and etymological notes hold a secondary place.

Francis Bacon, his Life and Philosophy. By John Nichol, M.A., LL.D. (*Blackwood & Sons.*)—Part II. of this work is now published containing Bacon's Philosophy, with a sketch of the history of previous science and method, his relation to the past, and the "Instauratio Magna," with tables of the Greek men of science and philosophers to whom he referred, his most eminent predecessors and contemporaries, a list of his works, with their dates of composition and publication, and also a scheme of the "Instauratio Magna."

Longmans' New Atlas, Political and Physical. By Geo. S. Chisholm, M.A., B.Sc.—This atlas, although primarily intended for use in schools, is a school atlas and reference atlas in one. Maps are given dealing with climate, vegetation, products, distribution of population, ethnography, religion, and are 36 in number. There are also 16 plates furnishing typical views of the scenery, products, vegetation, architecture, animal life, and races of mankind in different parts of the world. The maps are not overcrowded with names, few, and those very clearly printed, being found. The index is very complete.

Outlines of German Literature. By Mrs. Mody. (*Sampson Low & Co.*)—This little manual of some sixty pages is intended, we are told, for those who are commencing the study of German literature. It contains eight chapters on the eight most important epochs, and is necessarily somewhat crowded with names and dates. It seems to have been composed with care and judgment, especially in the cases of the greater authors. But we certainly should not advise anyone to *commence* the study of a literature in this way—by studying the outlines of its history—*that* is work for the advanced student; and we fear the advanced student will find Mrs. Mody's manual too small. There are, however, some who think otherwise, and to such these outlines will probably prove useful.

The Jubilee Series. A Complete Grammar for Pupil-Teachers and Middle-Class Schools. (*Bemrose & Sons.*)—We are afraid we can find nothing to commend in this small book, and very much to condemn. The grammar is of the well-known antediluvian type, with additional confusions of its

own. Here is a specimen :—"As pronouns represent or stand for nouns, so (like nouns) they are inflected to show gender, number, and case. Pronouns are also inflected to show person. Person is an inflexion, or change of words, to show whether the noun or pronoun is speaking, or spoken to, or spoken of" (page 29). It would be hard to get more mistakes and misconceptions into so small a space. The greater part of the book consists of an outline of the history of English language and literature, and numerous passages for repetition. The annotations to these last are frequently very amusing.

Scott's Rokeby. Edited, with Introduction and Notes, by M. Macmillan. (*Macmillan & Co.*)—This is a volume of the series of "English Classics for Indian Students," and shares with its fellow volumes of the series the qualities of careful editing, good type, and neat binding. The introduction is appreciative and pleasantly written, touching with sufficient emphasis upon all the chief points of the poem. We do not, however, think that the editor makes out his case for a reconsideration of the popular verdict of the poem. It is sombre, and lacks the dash and enthusiasm of Scott's best narrative poetry, faults which the popular audience, for whom Scott wrote, will not be persuaded to overlook. It is written with care, it is true; but the effort is too manifest. There is little or no genuine inspiration. The Notes are very full, and, as far as we have been able to judge, accurate in detail. But the expositions and explanations strike us as somewhat bald and thin in many places. This is not, however, wholly the editor's fault. His Indian students require to be told much which must seem to an English student mere commonplace; and, besides this, Scott's poetry is itself so little thoughtful, is so little suggestive except to the eye, keeps so much to the outer surface of things, that really there is seldom anything to expound except an antique word here and there, or some reference to a feudal custom. This, however, makes his poetry much easier reading for beginners, and for those who are not born Englishmen; and such students will not find a better edition of "Rokeby" than Prof. Macmillan's.

Present Day Tracts. (*Religious Tract Society.*) — This, the tenth volume, yields to none of its predecessors, which we have already noticed, in the interest, value, and importance of its contents. It contains six "Tracts," three of which are on questions relative to the Scriptures of the Old and New Testaments. Dr. Godet discusses the authenticity of the four principal Epistles of St. Paul, showing the grounds on which the most eminent scholars of every school of criticism receive them as authentic; Dr. Conder meets the moral difficulties of so many readers in the Old Testament Scriptures; and Canon Girdlestone, who appears for the first time as a contributor to the series, has a Tract on "The age and trustworthiness of the Old Testament Scriptures." Of the three remaining Tracts, perhaps the one which will cause the greatest interest is from the pen of the Rev. M. Kaufmann, on "The prevalent teaching of Socialism examined in the light of Scripture." The subject is treated in a fair and thoughtful manner. Professor Blaikie discusses "The Christian Ideal of the Family, with especial reference to its modern assailants"; and Dr. Stoughton has written on "The Unity of Faith," a proof of the divine origin and preservation of Christianity. A special volume of these Tracts has also been issued, containing eight of the series on "Man in relation to the Bible and Christianity." The aim is to vindicate the representations of Scripture on the subject of Man, and to meet the objections to revealed truth that are so widely prevalent.

The Story of the City of Washington. By C. B. Todd. (*The Knickerbocker Press.*)—Mr. Todd has already written the "Story of the City of New York," which formed Volume I. of the series on the "Great Cities of the Republic." Volume II. is now before us and is from the pen of the same author. The style of the book is admirable, and the excellence of the binding and clearness of the printing—marked features of the productions of the Knickerbocker Press—are in keeping with the endeavours of the author. Both the historical and modern city is dealt with. Under the former heading we read an account of the most stirring time in the history of the States; under the latter we gain an insight into the workings of Congress, and glean information concerning the public institutions and the social life in Washington. There are more than sixty illustrations in this very readable work.

Questions on the English Language, set at the Matriculation Examinations of the University of London, 1858-1889. *Collected and arranged by F. W. Levander, F.R.A.S.* (*H. K. Lewis.*)—In this, the Second Edition, the Questions, which number considerably more than a thousand, have been brought up to date. Hints to candidates, as well as various tables in connection with the subject, have also been added.

The Tutorial Series (*published at the University Correspondence College Office, Cambridge*, a new but useful and thriving adjunct to the ordinary educational machinery) is the best of its kind; the printing is good and accurate. *The Matriculation Directory* contains all the questions set at the examination, including the alternative subjects—which some other books omit to their own loss. The pages are well loaded with puff, but still there is good value for the small charge made, 6*d.* for the Questions, and 1*s.* for Questions with Answers. The advice respecting choice of books is good generally, though somewhat misleading in the case of Light. For teachers in country villages, far from classes and tutors, this series will be of the greatest use. *The B.A.* 1888 *Model Solutions* is a book containing the questions and answers of the Final only.

Elementary Engineering. By J. S. Brewer. (*Crosby Lockwood & Son.*)—This is a manual for young marine engineers and apprentices, in the form questions and answers on metals, alloys, strength of materials, construction and management of marine engines and boilers, geometry, and many other subjects of great importance to the thousands of youths employed in engineering work.

Short Biographies for the People. By Various Writers. (*Religious Tract Society.*)—For some years this Society has been issuing monthly Biographical Tracts, the compilation of which has been entrusted to competent hands. The careers of a number of Reformers have already appeared, and the volume before us presents the lives of twelve of the most prominent collected from the series. No. 66 of the series which we have also at hand, sketches the brief life of Henry Kirke White.

The Young Man's Text Book and Birthday Calendar. (*Simpkin, Marshall, & Co.*)—Contains a short introduction by George Williams, Esq., President of the parent Y.M.C.A., and a text for every day of the year, with alternate pages for autographs.

The Uncrowded Atlas. By T. Ruddiman Johnston, F.R.G.S.—Contains 24 coloured maps, and certainly deserves the title which has been given it.

The Century Reader's Home Lesson Book, No. IV. (*Blackie & Son.*)—Maintains the high character of the previously published numbers of this series. The lessons on spelling and grammar are admirable, and the poetry for repetition judiciously selected.

The March number of the *Political Science Quarterly Review* (published in this country by *Mr. Henry Frowde*, Amen Corner), contains articles on the Political Crisis in France and the Significance of Boulangism, by A. Gauvian; the Ideals of the Scientific Anarchists, by H. L. Osgood; the Ballot in New York, by A. C. Bernheim; Irish Secession, by H. O. Arnold Forster; Income and Property Tax, by Prof. Gustav Cohn of Göttingen: and Boyce's American Commonwealth, by Prof. Woodrow Wilson.

We are glad to note that the publishers have issued *Burke's Treatise on the "Sublime and Beautiful"* as one of the volumes of Bohn's Select Library (*G. Bell & Sons*). An interesting biography of the author is prefixed, and the book, like the others of this admirable series, is sold at a very low price.

Correction.—In our last number we erred in announcing Swan Sonnenschein & Co. as the publishers of a translation of Baron Roger de Guimps' "Pestalozzi" from the edition of 1874, by Miss M. C. Crombie. We are all the more eager to correct this mistake as Swan Sonnenschein & Co. will shortly publish a translation of Guimps' "Histoire de Pestalozzi" by J. Russell, B.A., based on the second edition of the original, which was published last year, and the right of translation of which has been secured from the foreign publishers by Swan Sonnenschein & Co. The publisher of Miss Crombie's translation (Mr. Thomas Laurie) was correctly stated in another part of the paper.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending March 31st, 1889.

Adams (Sir F. O.) and Cunningham's (C. D.) The Swiss Confederation, 8vo, 14s. cl.
Andree (R.): Ethnographische Parallelen u. Vergleiche, New Series, 7m. 50.
Barkhausen (G.): Die Forth-Brücke, 8m.
Barre de Saint Venant's Elastical Researches, edited by K. Pearson, Vol. 2, 8vo, 9s. bds.
Baume's (P.) Class-Book of French and English General Correspondence, cr. 8vo, 2s. 6d. cl.
Bicentenary Lectures by Principal Fairbairn, J. Guinness Rogers, &c., 8vo, 6s. cl.
Blackie's Modern Cyclopædia of Universal Information, edited by C. Annandale, Vol. 1, 8vo, 6s. cl.
Brown's (C.) Commercial French, cr. 8vo, 2s. cl.
Cayley's (A.), Collected Mathematical Papers, Vol. 1, 4to, 25s.
Cecil's (E.) Notes of my Journey round the World, 8vo, 12s. 6d.
Creighton's (M.) Carlisle, cr. 8vo, 3s. 6d. cl. (Historic Towns.)
Croll's (J.) Stellar Evolution and its Relation to Geological Time, cr. 8vo, 5s. cl.
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MATHEMATICS.

9609. (Professor Sylvester, F.R.S.)—If ϕx is the number of proper fractions in their lowest terms none of whose denominators exceed the numerical quantity x; prove that $\phi x + \phi\frac{1}{2}x + \phi\frac{1}{3}x + \ldots = \frac{1}{2}\left[(\mathrm{E}x)^2 - \mathrm{E}x\right]$ (where as usual $\mathrm{E}x$ means x or the integral part of x, according as x is integer or fractional); and hence prove that, when x is infinite, $\phi x/x^2 = 3/\pi^2$, without making any assumption as to the form in which ϕx may be expressed as a function of x.

Solution by W. S. Foster.

The number of proper fractions, which have a denominator x, is equal to the number of numbers less than x and prime to it; and the number of those with denominator $\frac{1}{2}x$ is equal to the number of numbers less than x, and which have with x a G. C. M. $= 2$, and so on; and the number of numbers less than x, and having 2, 3, ... as their G. C. M. with x, must together be $x-1$; therefore, when x is a whole number,

$$\phi(x) + \phi(\tfrac{1}{2}x) + \phi(\tfrac{1}{3}x) + \ldots$$

must be equal to $\quad (x-1) + (x-2) + \ldots 2 + 1 = \frac{1}{2}x(x-1)$.

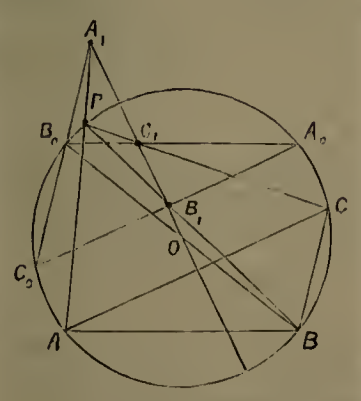
When x is not a whole number, the fractions of which $\phi(x)$ is the number will have for their denominators $\mathrm{E}x$, $\mathrm{E}x-1$, ..., and, as before,

$$\phi(x) + \phi(\tfrac{1}{2}x) + \ldots = \tfrac{1}{2}\left[(\mathrm{E}x)^2 - \mathrm{E}x\right].$$

[The rest in volume.]

9944. (Professor Morel.)—Un diamètre quelconque du cercle circonscrit à un triangle ABC coupe les côtés BC, CA, AB en A′, B′, C′; soient A_1, B_1, C_1 les symétriques de A′, B′, C′ par rapport au centre O du cercle. Démontrer que les droites AA_1, BB_1, CC_1 sont concourantes.

Solution by Professor Schoute.



Soient A_0, B_0, C_0 les points diamétralement opposés à ABC dans le cercle (O), de manière que A_1, B_1, C_1 sont les points où le diamètre rencontre les côtés du triangle $A_0B_0C_0$. Soit P le point commun à BB_1 et CC_1. Le lieu de P est une conique, les deux faisceaux BP et CP étant rapportés projectivement l'un à l'autre; cette conique passe par A_0, B_0, C_0 et par B et C, de manière qu'elle coïncide avec le cercle (O).

Comme BB_1 et CC_1 se coupent sur le cercle (O) il en est de même avec CC_1 et AA_1. Ainsi AA_1, BB_1, CC_1 passent par un même point du cercle circonscrit à ABC.

7735. (R. Knowles, B.A.)—A circle passes through the ends of a chord of a parabola and its pole; prove that, if the chord passes through a given point on the axis, (1) the envelope of the polar of the vertex with respect to the circle is an hyperbola, (2) the locus of the pole of this polar with respect to the parabola is an ellipse.

Solution by G. G. Storr, M.A.; Rev. T. Galliers, M.A.; *and others.*

The polar of (h, k) is $ky = 2a(x+h)$. Put $y=0$, therefore $x = -h$, a constant by the question. The equation of the circle is (see Vol. 41, p. 78)

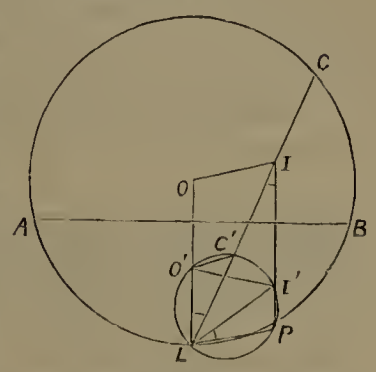
$$x^2 + y^2 - (1/a)(k^2 + 2a^2)x - (k/a)(a-h)y + h(2a-h) = 0,$$

and the equation of the polar of the vertex with respect to this circle is

$$(k^2 + 2a^2)x + k(a-h)y - 2ah(2a-h) = 0 \ldots\ldots\ldots\ldots (1).$$

The envelope of this polar is the condition that this quadratic in k should have equal roots, or $8a^2x^2 - (a-h)^2y^2 - 8ax(2a-h)x = 0$, an hyperbola passing through the vertex. [The rest in volume.]

Proof of Feurbach's Theorem. *By* W. S. McCay, M.A.



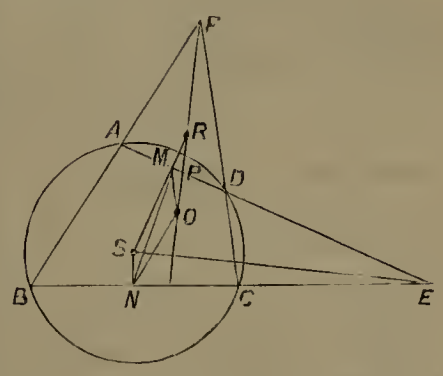
Let O, I be the circumcentre and incentre of ABC; L the lowest point of the circumcircle; O′, I′ the reflexions of O, I below AB.

Describe a circle through LO′I′ cutting II′ in P and CIL in C′. Then O′C′ is equal and parallel to 2NI when N is the nine-point centre and its magnitude is $R-2r$.

The figure OP is a parallelogram by symmetry, and $IP = R$, $PI' = R-2r$, $LP = OI = D$. From the relation $D^2 = R(R-2r)$ we see that the triangles ILP, LI′P are similar; hence $PLI' = PIL = O'LC'$, therefore $O'C' = PI' = R-2r$. Also $IC'.IL = IP.II'$ (by the small circle) $= 2Rr = IC.IL$, therefore $IC' = IC$. I is then the middle point of CC′ and N the middle point of CO′ (for, if H be the orthocentre, COO′H is a parallelogram, and N is middle point of OH). We see that $NI = \frac{1}{2}O'C' = \frac{1}{2}R - r$, and therefore the circles touch.

9910. (W. P. Casey.)—ABCD is a quadrilateral inscribed in a circle. The opposite sides meet in F, E; and the diagonals AC, BD intersect in O; M, N are the mid-points of AD, BC. Prove FO a tangent to the circum-circle of ΔONM.

Solution by R. F. Davis, M.A.; Professor Schoute; *and others.*



Let S be the centre of the circle; AD, BC meet in E; BA, CD in F; OF, SM in R; AD, OR in P; then, since SMEN are concyclic, the angle MNE = MSE = complement of SRO, for SE perpendicular to OR = OPD = OMD + MOR

= ONC + MOR,

from the similar triangles BOC, DOA. Hence we have

MOR = MNE − ONC = ONM;

and OR (that is, OF) touches the circle about ONM.

9961. (J. Villademoros.)—Trouver un nombre entier qui soit égal à la somme des chiffres de son cube.

Solution by R. W. D. Christie; G. G. Storr, M.A.; *and others.*

Let $\quad N^3 = (9x+y)^3 = 10^3a + 10^2b + 10c + d$;

then $\quad N^3 - N = (N-1)(N)(N+1) = 9(111a + 11b + c)$;

thus we get three sets of possible values for N, viz.,

8, 17, 26, 35, 44, &c., 18, 27, 36, 45, 54, &c., 10, 19, &c., inadmissible.

Now, it is easy to prove that every cube is of one of the forms 9M, 9M ± 1. Thus the only values admissible for y are 8 and zero, and therefore the last row is altogether inadmissible.

[The rest in volume.]

10053. (W. J. C. Sharp, M.A. Extension of Quest. 9513.)—If common tangents be drawn to a curve of the mth class and to a curve of the second class, and if these be arranged in m pairs, and from their m intersections other tangents be drawn to the first curve, prove that they will all touch a curve of class $m-2$. This theorem reduces to Quest. 9513, if the conic be replaced by two points, and if these points become coincident.

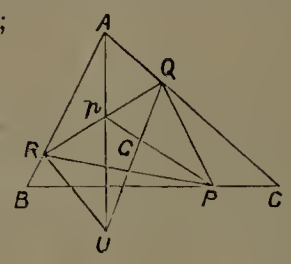
Solution by the Proposer.

This is the reciprocal of Question 8733—That if the $2m$ intersections of a conic and an m-ic curve be joined two and two, the m right lines so determined will cut the m-ic again in $m(m-2)$ points lying on an $(m-2)$-ic. Question 9513 follows when the conic consists of two coincident points and this introduces the idea of a curve which is the satellite of a point with respect to a given curve of class m. In the particular case of a class cubic, say a cuspidal cubic or tricuspidal quartic, it follows that, if three tangents be drawn from a point to the

curve, the three tangents which can be drawn to the curve from the points of contact all pass through the same point. Similarly, if tangents be drawn from any point to a class quartic, nodal cubic say, the eight tangents which can be drawn from the points of contact touch the same conic.

9958. (R. H. W. Wharham.)—ABC is a given triangle, P any point in BC; find points Q and R in CA and AB respectively, such that the centroid of the triangle PQR may coincide with that of the triangle ABC.

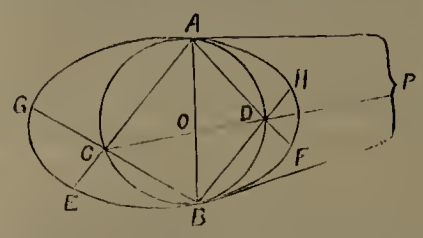
Solution by R. F. Davis, M.A.; J. C. St. Clair; *and others.*



Let G be the common centroid; produce PG to p so that $PG = 2Gp$, then p is the mid-point of the side QR. Produce Ap to U so that A$p = p$U, parallels through U to CA, AB will then determine Q, R.

9941. (Professor Madhavarao.)—Two conics ACBD, GEFH have double contact at A and B. CD is the polar of a point in AB with regard to the first conic. If right lines ACE, ADF, BCG, BDH be drawn, show that the lines CD, EF, GH concur in a fixed point.

Solution by J. C. St. Clair; Rev. T. Galliers, M.A.; *and others.*



Since the pole of CD lies on AB, CD passes through P, the intersection of the tangents at A and B. Let AB, CD meet in O.

Then (A . PCOD) ≡ (A . PEBF) is an harmonic pencil, and since AP ≡ AA, (AEBF) is an harmonic system of points, and for similar reasons so also is (BGAH). Consequently EF, GH, CD are concurrent at the fixed point P. (Townsend, *Mod. Geom.*, Art. 257; Cremona, *Proj. Geom.*, Art. 195.)

9988. (Professor Hudson.)—A particle is projected with a given velocity in a medium in which the resistance varies as the cube of the velocity; find the time in which it will traverse a given distance, and the velocity which it will have at the end of a given time.

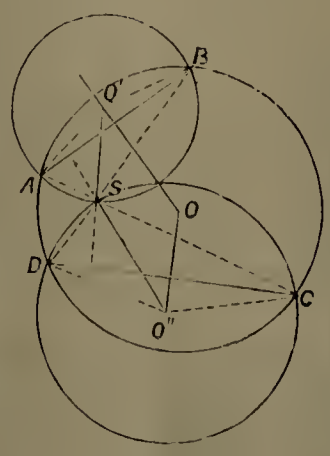
Solution by Professor De Wachter.

The equation of the problem is $\dfrac{d^2x}{dt^2} + k\left(\dfrac{dx}{dt}\right)^3 = 0$;

or, by putting $\dfrac{dx}{dt} = v$; $\dfrac{dv}{dt} + kv^3 = 0$. [The rest in Volume.]

9939. (Professor Fouché.)—On donne un cercle O, une corde fixe AB, et une corde CD de longueur constante, mais de position variable. On trace AC et BD, qui se coupent en S. Démontrer que le lieu du point S, et celui du centre du cercle circonscrit au triangle SCD, sont deux figures égales.

Solution by Professor De Wachter; R. F. Davis, M.A.; *and others.*



The complete locus of S is a circle described on AB, S being *within* or *without* the circumference O according to the intersection of AB and CD, being *without* or *within* that circumference.

Let O′ be the circumcentre of ASB and O″ that of CSD; O″ is at a given distance from O, and therefore, describes a circumference about it, with radius OO″. It is easy to see that, owing to the similarity of SAB and SDC, the quadrilaterals O′ASB and O″DSC must be similar figures.

Hence, the radii O′S and O″S are equally inclined on DSB and ASC, which implies (according to a known property) that O′S is perpendicular on CD and O″S on AB.

[The rest in volume.]

9974. (V. Jamet.)—Intégrer l'équation aux dérivées partielles

$$\frac{dz}{dx}\,\frac{dz}{dy} = z\,\frac{d^2z}{dx\,dy}.$$

Solution by J. D. Hamilton Dickson, M.A.

Write $\dfrac{1}{z}\,\dfrac{dz}{dx} = \dfrac{d}{dx}\left(\dfrac{dz}{dy}\right)\Big/\dfrac{dz}{dy}$,

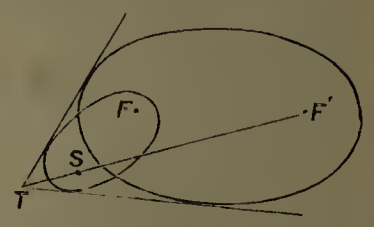
then $\dfrac{d}{dx}\left(\log\dfrac{dz}{z\,dy}\right) = 0$;

therefore $\dfrac{dz}{z\,dy} =$ const. independent of $x = \psi'(y)$.

Integrating again, $z = e^{\psi(y)}$ B, where B is a constant independent of y, (say) F (x). Hence the solution is $z = f(y)$. F (x), where f and F are two arbitrary functions.

9918. (B. H. Steede, B.A.)—One fixed conic and another, given in all but position, have a common focus; prove that the locus of intersection of common tangents is a circle.

Solution by the Proposer; W. E. Brunyate; *and others.*



If both conics be central, the focus S which is not fixed describes a circle round the fixed common focus F, and will lie on the right line joining the remaining fixed focus F′ with the intersection T of the common tangents. Then, since product of the perpendiculars from the foci is equal to square of semi-axis minor, we see that the ratio of F′T to ST is same as ratio of the squares of semi-axes minor of the conics, and is therefore constant. Therefore the locus of T is a circle.

[If one conic be a parabola, supposing the focus F′ to be at an infinite distance, it is easy to prove that TS is constant, and that, therefore, the locus of T is still a circle.]

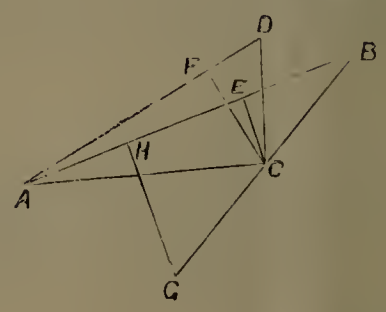
9639. (J. Young, M.A.)—Construct a quadrilateral whose diagonals AB, CD and one pair of opposite sides AD, BC are given in magnitude, such that the difference of the areas of the triangles ABC, ADC may be (1) equal to a given area, (2) a minimum. [See Vol. xxxv., p. 99, Quest. 6605, and Vol. xxxvii., p. 73, Quest. 6910.]

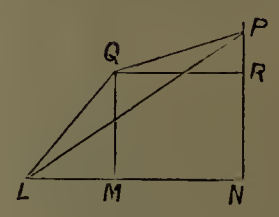
Solution by the Proposer; Sarah Marks, B.Sc.; *and others.*

1. Take BG a fourth proportional to AD, AB, BC. Draw the perpendiculars CE, CF, GH. Twice the difference of the areas equals

$$AB\,.\,CE - AD\,.\,CF = AD\,(GH - CF);$$

also
$$AD^2 + DC^2 - 2AD\,.\,DF = AB^2 + BC^2 - 2AB\,.\,BE$$
$$= AB^2 + BC^2 - 2AD\,.\,BH.$$





[The rest in volume.]

9411. (Asparagus.)—Two radii vectores OP, OQ of the curve $r = 2a\cos^3(\frac{1}{4}\pi + \frac{1}{3}\theta)$ are drawn equally inclined to the initial line; prove that the length of the intercepted arc is $a\alpha$, where α is the circular measure of the angle POQ.

Solution by the Proposer.

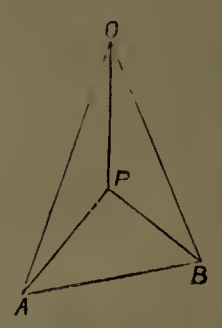
$$ds/d\theta = 2a\cos^2(\tfrac{1}{4}\pi + \tfrac{1}{3}\theta) = a\left\{1 + \cos(\tfrac{1}{2}\pi + \tfrac{2}{3}\theta)\right\} = a\,(1 - \sin\tfrac{2}{3}\theta);$$

whence s, that is the arc PQ $= a\displaystyle\int_{-\frac{1}{2}\alpha}^{\frac{1}{2}\alpha}(1 - \sin\tfrac{2}{3}\theta)\,d\theta = a\alpha.$

9761. (H. F. W. Burstall.)—Show that the potential of a uniform polyhedron of density σ at its centre is

$$\tfrac{1}{2}\,\sigma r^2\left\{\cot I \log\frac{1 + \cot I \cot \pi/n}{1 - \cot I \cot \pi/n} - 2\pi\,(1/n + 1/m - \tfrac{1}{2})\right\}.$$

Solution by the Proposer.



Let AB be an edge, O the centre, P the centre of the face; divide the pyramid into thin sections by planes parallel to the face.

$$\text{Potential} = \sigma\int_0^r dz\int_{-\pi/m}^{+\pi/m} d\theta\int_0^{z\cot I\cos\theta}\frac{r\,dr\,d\theta}{(r^2+z^2)^{\frac{1}{2}}}$$
$$= \tfrac{1}{2}\,\sigma r^2\left\{\int_{-\pi/m}^{+\pi/m}\frac{d\theta\,(1 - \sin^2 I\sin^2\theta)^{\frac{1}{2}}}{\sin I\sin\theta} - \frac{2\pi}{m}\right\},$$

and putting $\sin\theta\sin I = \sin\phi$, and noting that $\sin I = \dfrac{\cos\pi/n}{\sin\pi/m}$, we get

$$\tfrac{1}{2}\,\sigma r^2\left\{\int_{-(\pi/2-\pi/n)}^{+(\pi/2-\pi/n)}\frac{d\tan\phi}{\tan^2 I - \tan^2\phi} - 2\pi\,(1/m + 1/n - \tfrac{1}{2})\right\},$$

and the result follows easily.

QUESTIONS FOR SOLUTION.

10061. (Professor SYLVESTER, F.R.S.)—Prove analytically that four groups (one quite arbitrary) of four concyclic points may be formed such that the line joining any pair of points in any one set, and the line joining a corresponding pair of points in each of the other three sets shall be the diagonals of a rectangular parallelogram. [See Quest. 9024.]

—062. (Professor AIYAR, M.A.)—A man on a hill observes that three towers on a horizontal plane subtend equal angles at his eye, and that the depressions of their bases are a_1, a_2, a_3; prove that, c_1, c_2, c_3 being the heights of the towers, $\dfrac{\sin(a_2-a_3)}{c_1 \sin a_1}+\dfrac{\sin(a_3-a_1)}{c_2 \sin a_2}+\dfrac{\sin(a_1-a_2)}{c_3 \sin a_3}=0.$

—063. (Professor MOREL.)—Dans un triangle ABC dont les côtés sont en progression arithmétique, démontrer que le plus grand angle A est lié au plus petit angle C par la relation

$$4(1-\cos A)(1-\cos C)=\cos A+\cos C.$$

—064. (Professor BORDAGE.)—Examine the surface that has for equation $e^{-z}=\cos x \cos y$, and find its lines of curvature.

—065. (Professor MATZ, M.A.)—A man, standing on a plain, observes a row of equidistant pillars, the tenth and seventeenth of which subtend the same angles as they would if they stood in the position of the first and were respectively one-half and one-third of the height; show that, neglecting the height of the eye, the line of the pillars is inclined to the line drawn to the first at an angle whose cosine is nearly $\frac{5}{13}$.

—066. (Professor ASÛTOSH MUKHOPADHYAY, M.A.)—An embankment of triangular section ABC supports the pressure of water on the side BC; find (1) the condition of its not being overturned about the angle A when the water reaches to B, the vertex of the triangle; and prove (2) that, if s is the specific gravity of the embankment, when the area of the triangle is reduced to the minimum consistent with stability for a given depth of water, $\tan A=(s^2+2s+9)^{\frac{1}{2}}/(s-1)$, $\tan C=(s^2+2s+9)^{\frac{1}{2}}/(3-s)$.

—067. (Professor STEGGALL.)—Assuming that the friction on the bearings of a pendulum is constant, prove that a pendulum left to itself will vibrate in arcs that successively decrease by a constant quantity. What is the physical meaning of this quantity?

—068. (Professor DE LONGCHAMPS.)—Résoudre l'équation

$$(x+b+c)(x+c+a)(x+a+b)(a+b+c)-abcx=0.$$

—069. (Professor NEUBERG.)—On construit extérieurement sur les côtés du triangle ABC les triangles semblables entre eux A'BC, AB'C, ABC'. Soient K_a, K_b, K_c les points de Lemoine de ces triangles; K'_a, K'_b, K'_c leurs symétriques par rapport à BC, CA, AB. Démontrer que les triangles $K_aK_bK_c$, $K'_aK'_bK'_c$ sont inversement semblables et ont même centre de gravité.

—070. (Professor SCHOUTE.)—Find the locus of the centre of an equilateral triangle circumscribed to a given ellipse?

—071. (Professor DÉPREZ.)—Soient G, I, K le centre de gravité, le centre du cercle inscrit et le point de Lemoine du triangle ABC. Démontrer que

$$GIK : ABC = \{a^2(b-c)+b^2(c-a)+c^2(a-b)\}/3(a+b+c)(a^2+b^2+c^2).$$

—072. (Professor EMMERICH, Ph.D.)—Construct a triangle from the symmedian $AK_a=k_a$, and its distances p and q from B and C.

—073. (Professor MATTHEWS, M.A.)—Prove (1) that

$$\tan^{-1}\tfrac{1}{4}+\tan^{-1}\tfrac{1}{9}+\tan^{-1}\tfrac{1}{16}+\ldots \textit{ad inf.}=\tan^{-1}\left\{-\tanh\frac{\pi}{\sqrt{2}}\cot\frac{\pi}{\sqrt{2}}\right\},$$

when all the $\tan^{-1}$'s are to be taken between 0 and $\frac{1}{2}\pi$; and (2) verify this result numerically, so as to show the equality of the two expressions within 1 degree of angle.

—074. (Professor GOB.)—Le centre radical des sommets B, C d'un triangle ABC, et du cercle (N_a) de Neuberg est le sommet A_1 du premier triangle de Brocard.

—075. (Professor NILKANTHA SARKAR, M.A.)—The vertices A, B, C, D of a plane quadrilateral are to be connected by a system of straight lines; prove that (1) the systems AP, BP, PQ, QC, QD and BP, CP, PQ, QA, QD, where P, Q are such that the angles at P, Q are all equal, are systems whose total lengths are minima; (2) if equilateral triangles AEB, CFD, BGC, AHD be drawn outside the quadrilateral, the length of the first system is equal to EF, and of the second to GH; and (3) that if d, d' are the lengths of the diagonals AC, BD, and α the angle between them, these lengths are the two values of

$$\{d^2+d'^2\pm 2dd'\cos(\alpha\mp\tfrac{1}{3}\pi)\}^{\frac{1}{2}}.$$

—076. (Professor GENESE, M.A.)—ABA'B' is any quadrilateral; AB', BA' meet at C; from C are drawn parallels to AB, A'B', meeting A'B', AB respectively in D', D. Prove that B'A' : A'D' :: BA : AD. Hence show that the well-known theorem about the middle points of the diagonals of a completed quadrilateral, is a particular case of the theorem, that the mass-centre of two particles with uniform rectilineal velocities describes a straight line.

—077. (Professor WOLSTENHOLME, Sc.D.)—The signs of the terms of a certain series are determined by the following rule: if the first 2^n terms be taken, the signs of the second half of these terms are respectively opposite to the corresponding signs of the first half; find the sign of the nth term, that of the first being positive.

10078. (Professor MALET, F.R.S.)—Writing $f(\kappa,\theta)$ for $\left(\dfrac{\kappa\sin\theta\cos\theta}{1-\kappa\sin^2\theta}\right)^{\frac{1}{2}}$, prove that, if κ and λ are connected by the relation $4[(1-\kappa)(1-\lambda)]^{\frac{1}{2}}=\kappa\lambda$, then

$$\int_0^{\frac{1}{2}\pi} f(\kappa,\theta)\,d\theta+\int_0^{\frac{1}{2}\pi} f(\lambda,\theta)\,d\theta=\frac{\pi}{\sqrt{2}}.$$

—079. (Professor BASÛ).—An invariable triangle has two of its vertices (x_1y_1), (x_2y_2) on the two curves $\phi_1=0$, and $\phi_2=0$, the locus of the third vertex is $\phi_3=0$, its coordinates being $(R_3)_3$; prove that

$$\begin{vmatrix} \dfrac{d\phi_1}{dx_1}, & \dfrac{d\phi_1}{dy_1}, & x_1\dfrac{d\phi_1}{dx_1}-y_1\dfrac{d\phi_1}{dy_1} \\ \dfrac{d\phi_2}{dx_2}, & \dfrac{d\phi_2}{dy_2}, & x_2\dfrac{d\phi_2}{dx_2}-y_2\dfrac{d\phi_2}{dy_2} \\ \dfrac{d\phi_3}{dx_3}, & \dfrac{d\phi_3}{dy_3}, & x_3\dfrac{d\phi_3}{dx_3}-y_3\dfrac{d\phi_3}{dy_3} \end{vmatrix}=0.$$

—080. (Professor SYAMADAS MUKHOPÂDHYÂY, B.A. Extension of Quest. 9849.)—Similar triangles are similarly drawn on the sides of a polygon as bases, all externally or all internally. If equal particles be placed at their vertices, the C. G. of the system will coincide with the C. G. of equal particles placed at the angular points of the polygon.

—081. (The EDITOR.)—On the surface of a sphere there are taken at random two points and a small circle; find the probability that the great circle drawn through the two points will intersect the small circle.

—082. (D. BIDDLE.)—The circumference of a circle being represented, as to length, by a given straight line; show how (by *pure* geometry) to find the radius, with at least sufficient accuracy for any practical purpose. [The Proposer trusts that this will call forth several different methods.]

—083. (CH. HERMITE.)—Démontrer que, pour $x>1$, on a la relation $\log x>2(x-1)/(x+1)$, le logarithme étant pris dans le système Népérien.

—084. (H. L. ORCHARD, M.A., B.Sc.)—Solve, by a quadratic method the equation

$$x^8+(x^2-x)^4+(x^2-2x)^4+(x^2-3x+2)^4+9(x-1)^4+7(x-2)^4+16x^4+63=0.$$

—085. (D. EDWARDES, B.A.)—Given that

$$x(\alpha^2-m\beta\gamma)=y(\beta^2-m\gamma\alpha)=z(\gamma^2-m\alpha\beta),\quad m^2(\alpha^3+\beta^3+\gamma^3)=(1+2m^3)\,\alpha\beta\gamma$$

prove that

$$\alpha(x^2-myz)=\beta(y^2-mzx)=\gamma(z^2-mxy),$$
$$m^2(x^3+y^3+z^3)=(1+2m^3)\,xyz.$$

—086. (W. J. GREENSTREET, M.A.)—Through any point M on the normal to an ellipse at P, draw normals MQ, MR, MS. Find the locus of the ortho, the circum, and mass centres of the triangle QRS.

—087. (W. J. JOHNSTON, M.A. Suggested by Question 9948.)—Let A'B'C'D' be four concyclic points, and let A, B, C, D be any four points in space. Then, connected with the triangle ABC, there are four points which are the centroids of masses proportional to $\pm$ B'C', $\pm$ C'A', $\pm$ A'B' placed at A, B, C. There are four points similarly connected with the triangles BCD, CDA, DAB. Prove that these sixteen points lie in fours on eight straight lines.

—088. (F. R. J. HERVEY.)—Prove that if, for each of the four triangles formed by four lines, a line be drawn bisecting perpendicularly the distance from circumcentre to orthocentre, the four bisecting lines are concurrent.

—089. (E. LEMOINE.)—Si l'on joint les centres des cercles tangents aux trois côtés d'un triangle, chacun au point de Gergonne du cercle correspondant, on a 4 lignes concourantes au point dont les coordonnées normales sont $\cos A-\cos B\,.\cos C$, etc. C'est le conjugué harmonique du centre de gravité par rapport à l'orthocentre et au centre du cercle circonscrit.

—090. (J. C. ST. CLAIR.)—Prove that the point Q, in Question 9997, is the centre of an equilateral hyperbola passing through the points A, B, C, D.

—091. (ARTEMAS MARTIN, LL.D.)—Required a *general* solution of the equation $\frac{1}{6}x(x+1)(2x+1)+1=p^2$, which will always give integral values for x. [Two such values of x are $x=47$, and $x=48$. Are there any other integral values of x?]

—092. (H. W. SEGAR.)—Three ellipses A, B, C are similar, and similarly situated. A, B are also concentric. C cuts A in P, Q; and B in R, S. Show that PQ, RS intercept, on the line joining the centres of the conics, a constant length.

—093. (R. H. W. WHAPHAM, B.A.)—From any point P on the evolute of a parabola are drawn normals PQ, PQ' to the involute, Q being on the same side of the axis as P; prove that the distance from the vertex of the evolute to the foot of the perpendicular from P on the axis is three times the part of the axis intercepted between this latter point and the normal PQ, and that it is also three times the part of the axis intercepted between the vertex of the evolute and the normal PQ?

10094. (Capitaine de Rocquigny.)—La somme des n^2 termes des n progressions arithmétiques 1, 3, 5 ..., 1, 5, 7 ..., 1, 7, 13 ..., &c., composées chacune de n termes, est exprimée par un nombre triangulaire.

—095. (Rev. J. J. Milne, M.A.)—If G is the centroid of any triangle, prove that (1)

$$\cot GAB + \cot GBC + \cot GCA = 3\cot\omega = \cot ABG + \cot BCG + \cot CAG,$$

$$\cot AGB + \cot BGC + \cot GCA + \cot\omega = 0, \quad \cot\omega = \cot A + \cot B + \cot C;$$

(2) if K be the symmedian point, that is, a point within the triangle such that $\angle KAC = \angle GAB$, and two similar relations, then

$$\cot AKB + \cot BKC + \cot CKA + \tfrac{1}{2}\cot\omega + \tfrac{3}{2}\tan\omega = 0.$$

—096. (W. S. M'Cay, M.A.)—Let A′, B′, C′ be three corresponding points on the perpendicular bisectors of the sides of a triangle ABC, whose parameter is θ (*i.e.*, vertices of three isosceles triangles on the sides, with base angle θ). Prove that the lines joining ABC to the middle points of corresponding sides of A′B′C′ concur at a point on Kiepert's hyperbola whose parameter is $-\theta$.

—097. (W. J. C. Sharp, M.A.)—Prove that the feet of the perpendiculars from any point, whose isogonal conjugate lies upon the plane at infinity, upon the faces of the tetrahedron of reference lie in a plane.

—098. (Rev. T. P. Kirkman, M.A., F.R.S.)—G is any group transitive or intransitive of the order k, made with n elements $abc\ldots n$. G and $(n!/R)-1$ derivates PG, QG, &c., exhaust the group of order $n!$ Let S be any substitution of this latter group, and let i be the number of the derivates, PG, &c. of G, which satisfy PG = GP. Prove that the number of conjugate functions each of k terms $a^\alpha b^\beta c^\gamma \ldots$, all carrying the same n different exponents $\alpha\beta\gamma\ldots$, which are made on G, PG, &c., and remain unaltered by the substitution S, is always either $i+1$ or none.

—099. (R. Lachlan, M.A.)—If from any point O on a cubic tangents OP, OQ, OR, OS be drawn to the curve, show that any conic passing through the points O, Q, R, S cuts the cubic in points M, N which are collinear with P; and the tangents at M and N to the cubic intersect on the conic.

—100. (J. W. Russell, M.A.)—It is commonly stated (without proof) in text-books that $x-\frac{1}{2}x^2+\frac{1}{3}x^3-\frac{1}{4}x^4+\ldots$ is divergent if x is positive, and greater than unity; required a proof of this statement.

—101. (R. Tucker, M.A.)—$\alpha\beta\gamma$ is the pedal triangle of ABC, $\alpha'\beta'\gamma'$ the pedal triangle of $\alpha\beta\gamma$, prove that (1) $A\alpha'$, $B\beta'$, $C\gamma'$ cointersect in a point π_2 [cos² A sec A, ...] which lies on the CONG line of ABC; (2) if the joins of α', β', γ' with O meet BC, CA, AB in L, M, N, then AL, BM, CN cointersect in π_3 [sec A sec 2A, ...] which lies on the join of the orthocentres of ABC, $\alpha\beta\gamma$. The α-coordinates of the Symmedian, and B. points of the nth medial triangle of ABC are proportional to

$$pk/a+(-1)^n a, \quad p\lambda^2/a+(-1)^n ac^2, \quad p\lambda^2/a+(-1)^n ab^2,$$

where

$$p \equiv \{2^n-(-1)^n\}/3,$$

$$\left[k \equiv a^2+b^2+c^2, \quad \lambda^2 \equiv a^2b^2+b^2c^2+c^2a^2\right].$$

—102. (L. J. Rogers.)—If $q<1$, show that the value of the infinite continued fraction $\dfrac{q(1+q^2)}{1-q^3+}\ \dfrac{q^2(1+q)(1+q^3)}{1-q^5+}\ \dfrac{q^3(1+q^2)(1+q^4)}{1-q^7+}$ is q.

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LONDON MATHEMATICAL SOCIETY.

Thursday, March 12th.—J. J. Walker, F.R.S., President, in the Chair. Rev. C. E. Haselfoot, B.A., Fellow of Hertford College, Oxford, was elected a member, and Messrs. Roseveare and W. W. Taylor were admitted into the Society. The following papers were read:—"Notes on Plane Curves: (iv.) Involution-Condition of a Cubic and its Hessian; (v.) Figure of a certain Cubic and its Hessian," the President (E. B. Elliott, M.A., in the Chair); "The Problem of Duration of Play," Major MacMahon, R.A.; "Some Results in the elementary Theory of Numbers," C. Leudesdorf, M.A.; "The Characteristics of an Asymmetric Optical Instrument," Dr. J. Larmor; "A new Angular and Trigonometrical Notation, with applications," Hugh McColl, B.A. A discussion ensued after the reading of each paper in which the President, Messrs. Greenhill, Hammond, Jenkins, Larmor, MacMahon, S. Roberts, and Heppel took part.

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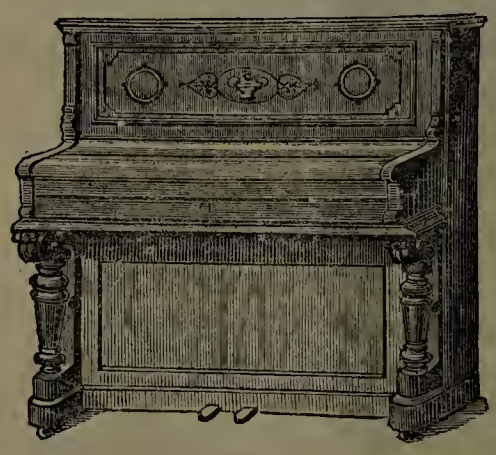

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THE

EDUCATIONAL TIMES,

AND

Journal of the College of Preceptors.

Vol. XLII.] New Series, No. 337. MAY 1, 1889. { Registered for Transmission Abroad } *Price to Non-Members, 6d. By Post, 7d.*

COLLEGE OF PRECEPTORS.—
EXAMINATIONS FOR 1889.

1. DIPLOMAS.—The Midsummer Examination of Teachers for the Diplomas of the College will commence on the 2nd of July, 1889.

2. CERTIFICATE EXAMINATIONS.—The Midsummer Examination of Pupils in Schools, or under private tuition, will commence on the 4th of June, and the Christmas Examination on the 3rd of December.

N.B.—The Higher Certificates of the College are recognised by Her Majesty's Judges, and by the General Medical Council, as guarantees of good general education; and consequently the holders of them, who may be intended for the Legal and Medical Professions, are exempted from the necessity of submitting to the Preliminary Literary Examinations held by the Incorporated Law Society, and by the various Medical Corporations of the United Kingdom. The Lords of the Committee of Council on Education admit the holders of the same Certificates, without further examination, to the Competition for allowances granted to Students of the Junior Training Class of the National Art Training School. All the College Certificates above the Third Class, the holders of which have passed an Examination in Latin, are also recognised by the Pharmaceutical Society and the Royal Veterinary College.

3. EXAMINATIONS FOR CERTIFICATES OF PROFICIENCY IN MERCANTILE SUBJECTS.—These Examinations will take place on the 3rd of June and the 2nd of December.

4. PROFESSIONAL PRELIMINARY EXAMINATIONS.—These Examinations are held in March and September. The next Examination will commence on the 3rd of September, 1889.

5. INSPECTION OF SCHOOLS.—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

PRIZES.

Diploma Examination.—The following Prizes will be competed for: Theory and Practice of Education, £10; Classics (Greek and Latin), £5; Mathematics, £5; Physical Science, £5.

Certificate Examination.—The "Isbister Prize" will be awarded to the Candidate who stands First, and the "Pinches Memorial Prize" to the Candidate who stands Second in General Proficiency. Prizes of Books will also be awarded to the Third and Fourth in General Proficiency, and to the First and Second in the following subjects:—Classics, Mathematics, Modern Languages, Natural Science, English Subjects. The "Taylor Jones Memorial Prize" will be awarded to the best Candidate in Scripture History.

The Regulations of the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—
(Bloomsbury Square, W.C.)

The next Monthly Evening Meeting of the Members will take place on Wednesday, the 15th of May, when H. COURTHOPE BOWEN, Esq., M.A., will read a Paper on "Character, Conduct, and Religion; or, Fröbel's Views on Moral Training."

The Chair will be taken at 7.30 p.m., and a discussion will follow the reading of the Paper.

Members have the privilege of introducing their friends.

C. R. HODGSON, B.A., *Secretary.*

PRELIMINARY EXAMINATION of MEDICAL STUDENTS.—The COLLEGE of PRECEPTORS will hold an Examination for Certificates recognised by the General Medical Council as qualifying for Registration as a Medical Student, on the 3rd, 4th, and 5th of September.

The Examination will take place in London, and at the following Local Centres:—Birmingham, Bristol, Leeds, Liverpool.

Examination Fee, 25s.

Regulations and Entry Forms may be obtained on application to the Secretary of the College of Preceptors, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—
CERTIFICATE EXAMINATION,
MIDSUMMER, 1889.

NOTICE is hereby given, that at the above Examination, papers will be set for the First and Second Classes in Virgil, Æneid, Book VII., in addition to the Books specified in the Regulations.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—
CERTIFICATE EXAMINATION,
MIDSUMMER, 1889.

NOTICE is hereby given, that at the forthcoming Examination, alternative Papers will be set for candidates of the Jewish Faith in the subjects taken on the 5th of June, being the date of the Jewish Feast of Pentecost. The special papers will be taken on another day, to be subsequently announced, and the cost of setting and printing the papers, and of the extra supervision required, must be paid by the candidates desiring to take such papers, in addition to the ordinary examination fee.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—
SCHOLARSHIPS FOR INTENDING TEACHERS.

With the view of encouraging the systematic training of teachers for their profession, the Council have established four Scholarships (two for male and two for female candidates), which will be offered for competition at the Certificate Examination in June, 1889.

The value of each of these Scholarships is £45 for a single year, or £30 a year for two years, if the candidate should determine to extend the period of training over more than one year.

The Scholarships are tenable

(*a*) At any Training College for Teachers in Secondary Schools, either at home or abroad, that may be approved by the Council; or

(*b*) At any school of established reputation, approved by the Council, which is prepared to offer such facilities for training as may be satisfactory to the Council; it being open to the Council to require the attendance of the scholar at such lectures on the Theory and Practice of Education, and to require him or her to pass such examinations in the Science and Art of Teaching, as the Council may determine.

Candidates (who must not be under 18 or over 24 years of age at the date of the Examination) are required to declare their intention of competing for these Scholarships prior to the Examination, and to submit such testimonials of character as may be considered satisfactory by the Council.

The Scholarships will be awarded to those candidates who, having fulfilled the above conditions, obtain the highest places in the Honours Division of the First Class.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—
LECTURES FOR TEACHERS.

A Course of Lectures on "Language and Linguistic Methods in the School," will be delivered at the College, Bloomsbury Square, by S. S. LAURIE, Esq., M.A., Professor of the Theory, History, and Practice of Education in the University of Edinburgh—to commence on Friday, the 3rd of May.

The Lectures will be given on Tuesday and Friday evenings, from 7 to 8 o'clock.

Members have free admission to all Lectures delivered at the College, and may obtain, on application to the Secretary, a Ticket of admission to the above Course for a member of their own teaching staff.

For Syllabus, see page 229.

C. R. HODGSON, B.A., *Secretary.*

UNIVERSITY DIPLOMA FOR WOMEN.

THE UNIVERSITY OF ST. ANDREWS grants Diploma and Title of L.L.A. to WOMEN. *Subjects of Examination and Examination Papers* include those for the M.A. Degree. For Prospectuses, apply to the SECRETARY L.L.A. Scheme, The University, St. Andrews, N.B.

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Communications regarding Examinations, Attendance, and University business generally, should be addressed, The REGISTRAR, Victoria University, Manchester.

The Calendar (price 1s.), containing the Regulations, Copies of Examination Papers, Lists of Graduates, &c., is published by Mr. J. E. CORNISH, Manchester, and by Messrs. MACMILLAN & Co., London.

THE UNIVERSITY EDUCATION
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The University of St. Andrews will open Professorial Classes in June and July, 1889, for the University Education of Women.

The Subjects of Instruction will be those now taught in the University, and in addition the Languages and Literatures of France and Germany. The Fee for each Class will be £2. 2s.

Intending Students must send in their Names and Addresses (with the Subject or Subjects they propose to study), to *the Secretary of the University*, not later than the 10*th of April*.

SOCIETY OF APOTHECARIES OF LONDON.

THE Next EXAMINATION in ARTS will be held at the Hall, Blackfriars, E.C., on Friday and Saturday, the 7th and 8th of June, 1889.

This Examination will qualify Candidates for Registration as Medical Students.

A syllabus of the subjects which, according to the Regulations of the General Medical Council, may be passed at one or more Examinations can be had on application.

An Examination in Arts will again be held on the 6th and 7th of September, 1889.

T. PEREGRINE, M.D.,
Secretary to the Board of Examiners.

THE SOCIETY OF ARTS PRACTICAL EXAMINATIONS in VOCAL and INSTRUMENTAL MUSIC will be held this year at the Society's House during the week commencing on Monday the 20th May. Full particulars can be obtained of the Secretary.

(By order)

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H. TRUEMAN WOOD, M.A.,
Secretary.

For Advertisements, see pages 199, 213, 215.

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UNIVERSITY OF LONDON.

NOTICE IS HEREBY GIVEN, That the next Half-yearly Examination for Matriculation in this University will commence on Monday, the 10th of June, 1889.—In addition to the Examination at the University, Provincial Examinations will be held at University College, Aberystwith; University College, Bangor; The Modern School, Bedford; Queen's College, Birmingham; University College, Bristol; University College, Cardiff; The Ladies' College, Cheltenham (*for Ladies only*); St. Gregory's College, Downside; New College, Eastbourne; The Heriot Watt College, Edinburgh; The Royal Medical College, Epsom; The Yorkshire College, Leeds; University College, Liverpool; The Owens College, Manchester; The School of Science and Art, Newcastle-on-Tyne; University College, Nottingham; The High School, Oswestry; Firth College, Sheffield; Stonyhurst College; and St. Cuthbert's College, Ushaw.

Every Candidate is required to apply to the Registrar (University of London, Burlington Gardens, London, W.) for a Form of Entry *not less than five weeks* before the commencement of the Examination.

Candidates are particularly requested to notice that the June Examination is, in the present and future years, to be held *a week earlier than heretofore.*

ARTHUR MILMAN, M.A.,
April 10th, 1889. *Registrar.*

UNIVERSITY COLLEGE of NORTH WALES, BANGOR.

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Principal—H. R. REICHEL, M.A., late Fellow of All Souls College, Oxford.

DEPARTMENTS.

I. *Arts.*

Subjects.	Professors.
Greek	W. Rhys Roberts, M.A., late Fellow of King's College, Cambridge.
Latin	E. V. Arnold, M.A., late Fellow of Trinity College, Cambridge.
French and German.	Frederic Spencer, B.A. (Camb. and London), Ph.D. (Leipzig).
English	The Principal.
Philosophy	Henry Jones, M.A., late Clark Fellow of Glasgow University.
Mathematics	G. B. Mathews, M.A., Fellow of St. John's College, Cambridge.
Welsh	Lecturer—J. Morris Jones, B.A., late Scholar of Jesus Col. Oxford.

II. *Science.*

Physics	Andrew Gray, M.A., F.R.S.E.
Chemistry	J. J. Dobbie, M.A., D.Sc., late Clark Fellow of Glasgow University.
Biology	R. W. Phillips, M.A. (Camb.), B.Sc. (Lond.), late Scholar of St. John's College, Cambridge.

The next Session opens on October 1st, 1889. Inclusive Tuition Fee, £10 a year. Registration Fee, £1. 1s. 0d. Laboratory Fees additional, on the scale of £1. 1s. per term for six hours a week. The College possesses extensive and well-equipped Laboratories in Physics, Chemistry, and Biology.

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Arrangements are being made for the opening of an Agricultural Department next Session.

The average cost of living at Bangor for the Session (33 weeks) is from £20 to £30. A list of registered Lodging-houses is kept at the College. A Hall of Residence for Women was opened in October, 1888. For detailed information as to Courses, Entrance and other Scholarships, &c., apply to the Registrar,

Bangor, March 1, 1889. W. CADWALADR DAVIES.

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For further information apply to the Lady Principal.

N.B.—The College Courses include most of the subjects required for the Oxford Higher Examinations for Women.

FROEBEL SOCIETY.—SATURDAY LECTURES.—Summer Courses. Saturdays, May 4th to July 6th (inclusive), at St. Martin's Schools, Charing Cross.

Ten Lectures on "Blackboard Drawing." Mrs. HILL. 10 a.m. Fee, 12s. 6d.

Ten Lectures on "Elementary Science." Miss MACMISH. 12 o'clock. Fee, 12s. 6d.

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EVENING CLASSES, on "Gifts and Occupations," by Miss PATTISON, A.F.S., at the Office, beginning the first week in May. Fee for the Course, £1. 1s.

THE EXAMINATIONS OF THE NATIONAL FROEBEL UNION.

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All particulars may be had from the SECRETARY, 17 Buckingham Street, Adelphi, W.C.

MISS LOUISA DREWRY will give THREE LECTURE-READINGS FROM SHAKSPERE, at her own house, on Tuesday afternoons, between the hours of Three and Half-past Four.

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MILTON MOUNT COLLEGE.—The Board of Management is prepared to receive applications, on or before May 10th, for the office of LADY PRINCIPAL. Particulars may be had of the Secretary, the Rev. D. M. JENKINS, 202 Portsdown Road, Maida Vale, W.

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COLLEGE OF PRECEPTORS.

EVENING MEETING, APRIL 17TH, 1889.

THE Chair having been taken by Sir PHILIP MAGNUS, Mr. J. G. FITCH, M.A., LL.D., delivered the following Lecture:—

ON HAND-WORK AND HEAD-WORK.

There has been a strong wave of public opinion of late in favour of what is variously called Technical Instruction, *Hand-arbeit*, or Manual Training. These phrases are used in various senses, sometimes with much vagueness, and often by persons who have very different objects in view. But they have become popular, and we are invited to think to-night of the two or three very different meanings which are assigned to them.

First of all, we have to reckon with those advocates of manual training who see it chiefly in connexion with different forms of skilled industry. They desire to obtain for the artisan such instruction in handicraft as may prepare him for the special employment of his life, and as may make all the difference between the skilled and the unskilled workman. Those who view the whole question in this aspect are anxious to secure the industrial and material success of the community to which they belong, and to obtain for it a good place in the labour market and a good share of the trade and manufactures of the world.

There are others who, without seeking to prepare the young scholar for the particular form of handicraft by which he is to get his living, wish to provide for him the means of obtaining such general tactual skill, such knowledge of the properties of the substances which have to be handled, and such aptitude in the use of tools, as shall make him readier for any form of mechanical industry which he may happen to choose.

A third class of advocates of manual training urge that in all our systems of general education the memory, the judgment, and the purely intellectual faculties have been too exclusively cultivated, and that the discipline of hand and eye and of the bodily powers generally has been too much neglected. The Spartan training of the bow and the *palaestra* proceeded on the assumption that, in fitting a man for the business of life, we have to consider not only what he knows but what he can *do*. Is he deft with his fingers? Can he run and swim, handle tools, use all his physical powers with promptitude and energy? If not, the Greeks would have said he is not a well-trained or complete man. His education is deficient.

There is a fourth class of persons who rank as advocates of industrial education because they dislike intellectual training for the poor and the humbler classes altogether. They say, in effect, We must have a *proletariat*. It is fitting that there should be "hewers of wood and drawers of water." Let us train the lowest class of our people on the supposition that they are to fulfil this function. For them, strength of limb, hardihood, handiness are needed. Books, and the sort of aspiration which is encouraged by books, would only tempt them into employments wherein, possibly, they might compete with persons of a higher social level, and become inconvenient rivals. The education of the artisan should not be too ambitious. It should be designed to fit him for the humble work to which the circumstances of his birth have called him, and to keep him in this lower rank. This sort of reasoning is hardly avowed, but it closely underlies some of the arguments we occasionally hear used on this subject. Under the disguise of a solicitude in favour of more practical training for the ploughman or the labourer, there lies in many minds a deep distrust of the value of mental training altogether—a desire to use schools as a means of maintaining the established order of society, and of repressing inconvenient social or intellectual ambition. In short, there is in the minds of many people, who would hardly like to acknowledge it, a wish to restrict the instruction of the artisan classes to the special work of their trade, not necessarily because they will thereby do that work better, but because they may be practically disqualified for attempting anything else.

For the present, we need not dwell either on the motives or the projects of this last class, except perhaps for the purpose, with which I hope this audience at least will sympathise, of earnestly repudiating them. But we ought not to overlook the fact that the class is neither small nor uninfluential in the world in which we live, and that its existence as a potent though unacknowledged factor in our educational controversies cannot altogether be disregarded.

Let us consider, however, the three separate objects aimed at by the other sharers in this discussion, and look at the manner in which their objects have been and are likely to be attained.

In earlier times, the skilled workman was trained as an apprentice. No one could, in the Middle Ages, hope to become a member of any trade guild who had not served a regular apprenticeship under a master. And apprenticeship was a reality. The sort of relations which subsisted between Edward Osborne, or the apprentices of Simon the Glover, in the "Fair Maid of Perth," or those of Gabriel Varden the locksmith, and their master, were, in an industrial sense, those of sons to a parent. The master worked side by side with the youths, cared for them as inmates of his house, and was proud of their successes when they joined the ranks of skilled workmen. That state of things has passed away, never to return. There are, all over England, endowments for apprenticeship, survivals from a time when they served a valuable purpose; but they serve no such purpose now. They are more often disguised doles to parents, contributions to a lad's maintenance before he is able to earn the whole of his living; but they do not help a boy to obtain systematic instruction in the art and mystery of an honest craft.

The conditions of industrial life are wholly changed. The concentration of manufactures into large establishments, the division of labour, the keenness and restlessness of modern competition, are all inconsistent with the old conception of apprenticeship. The master does not live with his young assistants; he hands them over to foremen who are often themselves comparatively untaught mechanics, familiar only with one particular department of work, and incapable of giving instruction in the trade as a whole.

Now, what should be the modern substitute for this interesting but now obsolete system of apprenticeship? We want as much as ever, nay much more than ever, intelligence and good training on the part of our workmen. But it is clear that this must now be sought in a different way. We must begin by recognising that it is discreditable to a man of any self-respect to handle everyday materials of whose qualities he is ignorant, and to employ natural forces, machines, and instruments, the nature of which he has never cared to investigate. There is a science underlying every art however humble; and the main difference between the unskilled and the skilled workman is, that the one knows, and the other does not know, something about that science and about the meaning of what he is doing. And for the acquisition of this knowledge, as well as for due practice in the right manipulation of tools and instruments, we must look in these days rather to schools and technical institutes, than to the sort of industrial pupil-teachership which was once known under the name of the apprentice system.

On the continent of Europe, especially in France and Belgium,

there are institutions known as "Écoles des Arts et des Métiers" which seek to supply this want. I visited, a year or two ago, a very characteristic establishment of this kind at Courtrai. Its professed object is to encourage the introduction of new industries, to form good workmen and good foremen, to inspire them with the love of work and with habits of order, to impress them with the sense of social and religious obligation, to increase the means of subsistence and to arrest the progress of pauperism.

The institution with this large and comprehensive programme has an extensive building devoted partly to the purposes of general instruction and partly to the *ateliers* or workshops. The minimum age of admission is twelve, but the ordinary age is fourteen. The course lasts three years. No one is admitted who has not received a fair elementary education.

The course of general instruction comprises, in the first year, Drawing, Arithmetic, French Language, Practical Geometry; in the second year, Drawing, French, Experimental Physics, Mechanics, Geometry, Inorganic Chemistry; and in the third year, Drawing, Applied Mechanics in its application to trades, Knowledge of Materials, Organic Chemistry, Industrial Economy, the Calculus.

Six ateliers are attached to the Institute—(1) Mechanical construction; (2) a Foundry; (3) Furniture; (4) Electricity and its applications; (5) Hosiery; (6) Weaving. Each of these is under the care of a skilled director, chosen partly for his practical knowledge of the business, and partly for his scientific acquaintance with the principles on which the particular industry depends. The workshops are real places of business, and are not educational only. They produce machines, electrical and other apparatus, furniture, and articles of many kinds, which are sold in the market at a profit. A substantial part of every day is spent by each student in the workshops, the work being regularly graduated in difficulty, and carried on under supervision. But it is notable that from two to three hours per day are devoted to ancillary studies, not directly mechanical, but calculated to secure *pari passu* the development of the students' intelligence. Hence, exercises in language are continued during the whole course. Drawing, design, and geometry are part of the routine prescribed for every student; while courses on electricity, chemistry, strength of materials, mechanics, etc., are given to each group of students to correspond to the special character of the department of industry to which they are severally attached. In the last year there is a special course of lectures on Economic Science and the laws which regulate industrial life and progress—*e.g.*, Production, Division of Labour, Capital, Money, Banking, Partition of Profits, Partnership, Wages, Trades Unions, Strikes, Savings, Investment, Credit, Direct and Indirect Taxation. Visits to neighbouring factories and industrial centres are regularly organised, especially in the third year of training, and after each visit a full account, with illustrative drawings and descriptions, is required of every pupil. An elaborate scientific and general library, with abundance of drawings and plans of famous machines and factories, is accessible to the students.

Now, the object of such an institute is technical instruction in its definite relation to the particular form of skilled industry which the student proposes to adopt as the business of his life. It has an essentially economic and industrial purpose. That purpose is, to provide fully for the future masters, foremen, and captains of industry a sound professional training. But it is to be observed that, from the first, mental cultivation by means of language and abstract science, and the investigation of principles, is regarded as an indispensable part of this training. There is, on the part of the enlightened founders of this institution, even though its object is so distinctively utilitarian, no belief in any antagonism or inconsistency between hand-work and head-work. The two are regarded as inseparably connected.

And the same may be said, in a still higher degree, of those other institutions which are now coming into prominence on both sides of the Atlantic under the name of Technical or Science Schools. These are in no sense factories, and do not profess to carry on a business, but their aim is more purely educational. The most remarkable example of the kind in the United States is the Massachusetts Institute of Technology in Boston. Here there is a sumptuous building, admirably equipped, not only with chemical and physical laboratories, but also with departments for the study of mechanical engineering, of electricity, of architecture, of biology with a view to the requirements of medical students, of heat and ventilation, of mining and metallurgy. The characteristic feature of the institution is that in every department practical work supplements oral or book-teaching. The student is required, as soon as he knows anything, to *do* something which requires the application of his knowledge. There are upwards of 800 students in the three departments of Practical Design, Mechanic Art, and Industrial Science. All of them must have passed successfully through a good course of grammar and high school instruction before entering; and all of them are looking forward to becoming either masters or superintendents in factories or houses of business.

Perhaps in England the most characteristic of the many modern institutions of a similar type is the Yorkshire College of Science. It is situated in Leeds, in the centre of the great cloth industry, where dyeing, weaving, and cognate processes form the chief employments of the people. Besides costly and elaborate provision in the form of laboratories, lecture-rooms, and libraries, designed both for theoretical and practical instruction in the several arts which I have already enumerated, there are large departments especially devoted to dyeing and weaving. In one room you may see a group of students each before his own compartment manipulating his apparatus, and making his own experiments in the application of different colouring matters to different fabrics. Each student makes a careful statement of the nature of the material on which he works, the chemical composition of his pigments, the time occupied by the process, the phenomena of change observable while it lasted. Then he places his memoranda with a specimen of the coloured piece of cloth itself in a book as a permanent record of the experiment for future reference. The weaving laboratory is, in some respects, a still more curious and novel department. Each student has a small hand-loom, on which he himself works, and on which he is encouraged to try all kinds of new artifices for combining warp and woof of different textures and colours, and for inventing new patterns. In another laboratory, which can be wholly or partially darkened for the purpose, there is a special series of investigations into the nature of light and colour, and students are helped to understand truths about the science of optics, not only by actual experiment, but also to a large extent by themselves making some of the apparatus by which those experiments are conducted. In short, in this and many more great modern institutions than I have time here to enumerate, we have almost a full realisation of Bacon's dream in the New Atlantis, of Solomon's House, with its manifold chambers of experiment and observation, and, what is more, a distinct addition to the material resources of our own time, and a solution to many economical difficulties. It may be that the old-fashioned foremen in mills and the factory overseers who have achieved by dint of industry and shrewdness certain substantial successes, but whose knowledge and experience are only limited, rebel a little at the intrusion into their places of the new race of young upstarts, fresh from college studies, scornful about traditional methods of work, full of scientific theories, and eager to try new experiments. But no one who looks with any care at the conditions of modern industry can doubt that it is to be developed, if at all, by men of a new stamp, whose senses have been disciplined, whose hands have been trained, and whose attention has been directed to scientific principles as well as to mechanical processes. These men may be safely expected to excel their predecessors as leaders and captains of industry, to make fewer mistakes, to initiate more fruitful experiments, and to economise more successfully the materials they employ.

I spoke of another view of the subject of technical intruction—that which regards the training of the hand *per se* as an essential part of human culture, apart altogether from its value as a help in doing the business of life. The advocates of this view cite Rousseau, and Froebel, and Pestalozzi, and urge with truth that the brain is not the only organ which should be developed in a school; that, to do justice to the whole sum of human powers and activities, there should be due exercise for the senses, and definite practice in the use of the fingers and the bodily powers. They do not want to specialise the work of the primary school with a view to the production of economic results. One of the ablest writers on this subject, Mr. James MacAlister, Superintendent of the Public Schools of Philadelphia, puts the case clearly: "The object of the public school is education in its broadest sense. If industrial training cannot be shown to be education in this sense, it has no place in the public school. We have no more right to teach carpentry and book-binding than we have to teach law and medicine. The supreme end of education is the harmonious development of all the powers of a human being. Whatever ministers to this end is education; whatever interferes with its accomplishment, no matter how valuable it is, lies outside of the elementary school."

I think this is the aspect of the whole controversy which is

most interesting and significant to us as teachers. Grant that the Trade School and the Technological Institute are fulfilling an important national purpose, yet they lie out of our province. The question arises, Can hand-work claim a place in a well-considered scheme of general school education; and, if so, what place?

We have in England some experience which is well calculated to carry us a little way, though not very far, towards a reply to this question. Connected with all our public elementary schools, in which nearly five millions of children are now in daily attendance, there are infant schools or classes, designed mainly for scholars below and up to the age of 7. Before 1880, the main subjects of instruction in these infant departments were the rudiments of reading, writing, and arithmetic, with a few occasional lessons on objects, and on form and colour; and the chief test of the efficiency of such schools applied by the Inspector, was an examination in the elements of reading, writing, and arithmetic. But, when the Code of Instructions was recast seven years ago, the requirements of the infant school were so enlarged as to include, not only reading, writing, and arithmetic, and lessons on objects, and on the phenomena of nature and of common life, but also varied and interesting manual exercises and employments. And, since that date, no infant school has been able to claim the highest grant unless it satisfied the Inspector in this last particular. In other words, the Kindergarten system and the little gifts and manual occupations devised by Froebel have become a recognised part of the system of early training in the English schools. So we have marching and drill, plaiting and moulding, the building up of wooden bricks in different forms, drawing, cutting little patterns, weaving, and many other employments designed to give delicacy to the touch, keenness to the observant powers, a sense of beauty in form and colour, and the power to use the fingers with dexterity and care. Teachers have been specially warned, in the Instructions to Her Majesty's Inspectors, that "it is of no use to adopt the gifts and mere mechanical exercises of the Kindergarten, unless they are so used as to furnish real training in observation, in accuracy of hand and eye, and in attention and obedience."

Two results have followed the trial of this experiment. It has been found that the infant schools have become much more attractive to the little ones and to their parents, that order is more easily obtained, and that the infant schools are happier and more cheerful places than they once were. And the other result is not less important. It is found that children who have been thus trained pass the simple examinations in reading, writing, and arithmetic, appropriate to the eighth year, not less satisfactorily, and much more easily, than before. The withdrawal of some of the hours of the day for varied manual occupations, so far from diminishing the chance of progress in the ordinary departments of school instruction, has actually had the effect of accelerating that progress, by means of the general quickening of intelligence and increase of power developed by the Kindergarten.

And so the question naturally arises: Why should exercises of this kind cease when a child leaves the infant school at seven years of age? Why should they not be continued further? Relatively to his needs and his general development, is not manual and physical training as important through the later as through the earlier stages of his education?

It cannot be said that the theory underlying these questions has been adopted to a very large extent in Europe, or that the best educational authorities are giving much effect to it. In Sweden, under the name *Slojd*, there is much exercise in wood-carving and in the use of tools. At Gothenburg and at Nääs, manual instruction is begun at the age of ten or eleven, and the scholars are drafted into the workshops for two or three hours of every week. There is a carpenters' shop, a forge, a room for the cutting and manipulating of paper patterns and ornaments, a painting and decoration school, and a factory for the making of baskets, toys, and other fabrics. The object of the first year's course is mainly to give to the pupil not merely general aptitude but a respect for manual labour. In this way he is helped in his second year to discover his own *métier* and to devote himself to it. In the words of one of the ablest writers and observers of the system, M. Sluys, of Brussels:—"The object aimed at is purely pedagogic. Manual labour is considered as an educative instrument, holding a rank equal to that of other branches of the programme."

There is a remarkable school in Brussels called the Model School, which provides for pupils from the age of six to sixteen, and gives a very efficient and liberal education, including language, mathematics, and physical science, according to the most approved modern types. In this school the experiment has been tried of carrying forward the theories of Froebel all through the classes from the lowest to the highest. Up to six, the ordinary employments of the Kindergarten are systematically pursued. From six to eight, similar exercises of a more artistic character, chiefly modelling, are used. From eight to ten, the chief employments are those included under the general heading *Cartonnage*, the cutting out and fixing of paper patterns in all sorts of geometrical and ornamental forms. From ten to twelve, wood-carving is the chief employment; while in the higher classes artistic and decorative work in wood, metal, and other materials is required from every pupil.

Let me give you, from my own recent evidence before the Royal Commission, a description of what was going on in a class of children about ten years old which I found at work in the Ecole Modèle. There was a continuous black-board round the room, it was marked off in sections, and each child stood in front, and had on a shelf—clay, a graduated metrical rule, a little wooden instrument for manipulating the clay, compasses, and chalk. The master stood in the middle of the room, and said: 'Now draw a horizontal line five centimetres long,' and he walked round and saw that it was done. 'Now draw, at an angle of 45°, another line three centimetres long.' And so by a series of directions he got them all to produce a pre-determined geometrial pattern that was in his own mind. 'Now,' he said, 'take clay and fasten it on to the outside, making a sort of ornamental framework, and let it be exactly such a fraction of a metre thick.' They worked it round with the help of the instrument. Then he said at the end, 'Now which of you thinks he can do anything to improve it, and make it more ornamental?' And some by means of the compasses, and some by means of the rule or by fixing pieces of clay, placed little additional ornaments at the corners, or round the border. At the end of the lesson every child had before him a different design. That was throughout an exercise, not in hand-work only, but in intelligence, in measurement, in taste, and in inventiveness. It was really an educational process. I should like very much to see something of that sort introinto the English schools." (*Report of Royal Commission, Vol. III., Question* 57,667.)

We have not, it is true, yet advanced so far. Indeed, it is observable that, even in Belgium, the school I refer to is an exceptional institution, in no sense typical of the ordinary "Communal School." But all the recent regulations of our English Education Department emphasize strongly the importance of drawing, and offer increased encouragement to its universal adoption in our primary schools. And of drawing it may at least be said, that it is the one form of manual art most certainly educational in its aim and character, most generally applicable to all the business of life, and least likely to degenerate into mechanical routine. Carpentering, work in metal, or in paper, may easily, when the difficulty of handling tools has once been overcome, become very unintelligent and monotonous processes. But drawing and design afford infinite scope for new development and varied invention. Whatever educational value they possess at first, they continue to possess as long as they are pursued at all. And this is more than can be safely said of many other forms of hand-work.

I found, for each of the several forms of manual exercise adopted in the École Modèle—for modelling, for basket-making, for wood-carving, and for working in metals—the teachers had been at the pains to make out from the results of their experience a special tabulated report, showing the effect of the exercise on general power, on the habit of attention, on order, on cleanliness, on the æsthetic faculty, on physical vigour generally, and on manual skill. All the exercises did not profess to serve equally the same purpose, but each was found in its own way to serve one or more of these purposes in different degrees.

The tabulated statement of the results which is given on following page is not a little curious.

But the chief points noticeable in all these exercises are: (1) That they are always connected with drawing, measurement, accurate knowledge and thinking in some way; and are never isolated, or simply manual. (2) That they are superintended by the director of studies and co-ordinated with other work, not handed over to artisan specialists; and (3) that the manual exercises do not occupy more than two hours a week of the ordinary school course.

Now, the subject of chief interest to us in the College of Preceptors, an institution devoted to the investigation of educational methods and principles, is to enquire whether this new demand for

	1	2	3	4	5	6	7	8	9	10
	Habileté manuelle générale.	Attention, Intelligence.	Ordre, Correction.	Propreté.	Utilité générale.	Sentiment esthétique.	Pas de division du travail.	Développe la vigueur générale.	Proportionné aux forces corporelles des enfants.	Série progressive.
Travail du fer (forge et serrurerie)	Non	±	±	Non	Limitée	Peu	Non	Oui	Non	?
Vannerie	Non	Oui	Oui	Oui	Oui	Oui	Non	Non	Incomplète	Oui
Reliure	Non	Oui	Oui	Oui	Limitée	Oui	Oui	Non	Non	Limitée
Cartonnage	Non	Oui	Oui	Oui	Limitée	Oui	Oui	Non	Non	Oui
Travail du bois (menuiserie et boisellerie)	Oui	Oui	Oui	Oui	Oui	Oui	Oui	Oui	Oui	Oui
Sculpture	Non	Oui	Oui	Oui	Non	Oui	Oui	Non	Oui	Oui
Tournage	Non	Oui	Oui	Oui	Oui	Oui	Oui	Oui	Oui	Oui

hand-culture is a passing fashion, or whether it is to be justified by a real insight into the philosophy of education, and the constitution and needs of human nature. I think there is a good answer to this question. A true psychology, when it comes to be applied to the practical business of teaching, shows us that the acquisition of knowledge is not the only means by which the human soul can be enriched and the future man provided with his outfit for the business of life. His training should, of course, enable him to know much that he would not otherwise know; but it should also enable him to see much that he would not otherwise see, and to do what he would not otherwise do. Books alone cannot fulfil this purpose. It is not only by receiving ideas, but by giving them expression, that we become the better for what we learn. A thought received, and not expressed or given out again in some form, can hardly be said to have been appropriated at all. We have long recognised this truth within the limited area of book-study, for we demand of our pupils that they shall use a language as well as acquire it. But, after all, language is not the only instrument of expression. There are many other ways in which thought can find utterance. It may take the form of delineation, of modelling, of design, of invention, of some product of the skilled hand, the physical powers, or the finer sense. Of course, the value of any vehicle of expression depends entirely on what you have to express. If the mind is barren of ideas, there can be no worthy outcome, either through hand or voice. Ideas and materials for thinking are no doubt largely obtainable from books. But the study of form and colour is in its way as full of suggestion as the study of history. The love of the beautiful is as inspiring and ennobling a factor in human development as the love of the true. Drawing, representation, construction, and decorative work are educational processes as real and vital as reading and writing; they touch as nearly the springs of all that is best in human character. They may have results as valuable and as far-reaching. Professor Fiske has wisely said,—"In a very deep sense, all human science is but the increment of the power of the eye, and all human art is but the increment of the power of the hand. Vision and manipulation—these in countless, indirect, and transfigured forms, are the two co-operating factors in all intellectual progress." We may safely admit all this, and yet not lose sight of the fact that, after all, the main factors in both art and science are the intellectual power, the reflection, the number of ideas, the spiritual insight which lie behind the merely physical powers of vision and manipulation, and which give to those powers all their value.

One of the strongest arguments which justify the modern demand for manual training is that, by means of it, we may often offer an opportunity for the development of special talents and aptitudes for which there is no adequate scope in the ordinary school course. Every school numbers among its scholars some who dislike books, who rebel against merely verbal and memory exercises, but who delight in coming into contact with things, with objects to be touched and shaped, to be built up and taken to pieces—in short, with the material realities of life. And a school system ought to be so fashioned as to give full recognition to this fact. We cannot permit ourselves, of course, to be wholly dominated by the special preferences and tastes of individual scholars; but we ought to allow them fuller scope than has usually been accorded to them in educational programmes. The late Mr. Thring was fond of saying, "Every boy is good for something." He did not believe in the existence of a good-for-nothing child. He thought that in the most perverse and uninteresting scholar there were the germs of goodness, aptitudes for some form of useful activity, some possibilities even of excellence, "would men observingly distil them out"; and that it was the duty of every wise teacher to discover these, encourage their development, and set them to work. We make a grave mistake if we suppose that all good boys should be good in one way, and that all scholars should be interested in the same things, and reach an equal degree of proficiency in all the subjects of our curriculum. This is, in fact, not possible. Nor, even if it were possible, would it be desirable. So one of the strongest arguments in favour of the recognition of manual and artistic exercises in our schools is, that by them we call into play powers and faculties not evoked by literary studies, and so give a better chance to the varied aptitudes of different scholars. Boys and girls do not always like the same things. The world would be a much less interesting world than it is if they did. A school course, therefore, should be wide enough, and diversified enough, to give to the largest possible number of scholars a chance of finding something which is attractive to them, and which they will find pleasure in doing.

I think, too, that a legitimate argument in favour of more handwork in schools may be found in the fact that by it we may, if it is wisely managed, overcome the frequent and increasing distaste of many young people to manual labour. In progressive countries there is often a vague notion that such labour is in some way servile and undignified, and less respectable than employments of another kind. In America, especially, this feeling prevails even to a larger extent than in this country. Perhaps the stimulating climate, the general restlessness and eagerness with which life is carried on, the desire and the numerous opportunities for rapidly acquiring wealth, have had a tendency to discourage young and aspiring men from handicrafts. There is much in our common conventional phraseology, there are even expressions in the Bible itself, which imply that physical labour has been imposed on man as a curse, and is a sign of his degradation.* It is hard, under these conditions, to awaken in any active-minded community a true respect for the dignity of labour. How is it to be done? Mainly, in my opinion, by associating manual work with intellectual work; by recognising in our systems of education that all art, even the humblest, rests ultimately on a basis of science; and that handwork, when guided and controlled by knowledge, becomes ennobled, and takes a high rank among the liberal employments of life, even among the pursuits of a gentleman. Take a single example. A century or two ago, blood-letting was part of the business of barber-surgeons. They were tradesmen, and their trade was not one of the highest repute. But in time it came to be understood that the operation of bleeding was one which ought neither to be recom-

* Jeremy Taylor had learned a higher lore. "If it were not for labour, men neither could eat so much, nor relish so pleasantly, nor sleep so soundly, nor be so healthful nor so useful, so strong nor so patient, so noble nor so untempted. God hath so disposed of the circumstances of this curse, that man's affections are so reconciled to it, that they desire it and are delighted in it. And so the anger of God is ended in loving kindness; and the drop of water is lost in the full chalice of the wine; and the curse is gone out into a multiplied blessing." (Sermon on the Miracles of the Divine Mercy.)

mended nor practised by any but a properly qualified surgeon; and the art, such as it was, ceased to belong to a trade and became part of a profession, and in this way lost all ignoble associations. And, in like manner, it is argued with some truth that, when you make manual dexterity and the right use of tools a part of general education, and duly connect it with a study of form, of beauty, of the properties of the materials employed, and of the laws of mechanical force, you are doing something to surround handicraft with new and more honourable associations, to disarm vulgar prejudice, and to impress the young with a true sense of the dignity of skilled labour.

Such are some of the considerations which justify the fuller recognition of finger-training and sense-training generally as parts of a liberal education. But these very considerations are, at the same time, well calculated to warn us not to expect too much from such training if it is not duly co-ordinated with discipline of another kind. The true teacher will not seek to make physical training a rival or substitute for intellectual exercise, but will desire rather to make the whole training of his pupil more harmonious. He will hold fast to the belief that, after all, mental culture is the first business of a school, and ought never to be permitted to become the second. The reaction from excessive bookishness, from the rather abstract character of mere scholastic teaching, is, on the whole, well justified; but the opposite of wrong is not always right; and it would be very easy to make a grave mistake by emphasising too strongly the value of manual exercise, and making too great claims for it.

For what, after all, is the main function of the teacher who is seeking to give to his pupil a right training, and a proper outfit for the struggles and duties of life? It is, no doubt, to give a knowledge of simple arts, and of those rudiments of knowledge which, by the common consent of all parents and teachers, have been held to be indispensable; but it is also to encourage aspiration, to evoke power, and to place the scholar in the fittest possible condition for making the best of his own faculties and for leading an honourable and useful life.

If this be so, we have to ask, what, among all possible exercises and studies, are the most formative and disciplinal. Darwin has shown us that, by the law of what he calls "Concomitant variations," there is such a relation between powers and organs, that the cultivation of one leads, by a reflex action, to the strengthening of the other; you cannot, in fact, call into active exercise any one power without, *pro tanto*, making the exercise of other powers easier. But here we must discriminate. This correlation and this mutual interchange of forces do not act uniformly. Take an example. You want, it may be, to give to a large number of recruits, none of whom have had any previous practice, a knowledge of military evolutions, the power to handle a rifle, and to do the duties of camp life. Say that half of them are clowns fresh from the plough, and the other half are men of similar age who have had a liberal education. Both groups are equally unfamiliar with what you have to teach, but there is no doubt as to which group will learn most quickly. The clowns will need hard work to bring them into discipline. They will misunderstand commands and be clumsy in executing them. The greater intelligence of the second group will be found to tell immediately on the readiness with which they see the meaning of the manœuvres, and on the promptitude and exactness with which they perform them. Here the mental training has been a distinct help to the mere physical exercise. But it cannot be said in like manner that the handicraftsman is a likelier person than another to take up intellectual labour with zest, and to be specially fitted to do it well. Intelligence helps labour much more than labour promotes intelligence. Nobody who knows the British workman would contend that the practice of a skilled industry—even though it be the successful practice—has carried him very far in the general education of his faculty and the development of his full power as a man and a citizen.

Ever since the time when Socrates paid his memorable visit to the workshops of Athens, it has been a familiar fact of experience that your mere workman may, though skilled, be, so far as his understanding is concerned, a very poor creature, *borné* right and left by the traditions of his craft, and by rules of thumb, and with very confused and imperfect ideas about matters outside the region of his own trade. The use of tools, though a good thing, is not the highest, nor nearly the highest thing to be desired in the outfit of a citizen for active life. The difference between a handy and an unhandy man is no doubt important all through life; but the difference between an intelligent, well-read man and another whose mind has been neglected, is fifty times more important, whatever part he may be called on to play hereafter. It is quite possible so to teach the use of tools that the teaching shall have little or no reflex action on other departments of human thought and activity, that it shall appeal little to the reflective, the imaginative, or the reasoning power, and that it may leave its possessor a very dull fellow indeed.

We must not forget, also, that experience has something to say on this point in schools as well as in the world outside. In Bedfordshire and adjacent counties, for example, the straw-plaiting industry engages a large number of the children. The art is a pleasing, a comparatively easy, and at the same time a lucrative and useful one. There are schools for practising it, and many hours are spent in them. But I suppose nobody would seriously contend that the children so taught are more intelligent and generally capable than other scholars; or that, except in so far as this particular accomplishment may help them to earn money, they have derived any educational advantage from it. Theirs is, for the most part, hand-work without head-work; technical instruction without any concomitant training of the intelligence; and the result is very barren. In all our girls' schools, also, we have long had one form at least of technical instruction. Needlework is not only a beautiful art, but it is one of undoubted domestic utility, indeed an indispensable element in a girl's education. It has long received a large, perhaps an inordinate, share of attention in England, and has been prescribed by the Government as a necessary subject of instruction in all public elementary schools to which girls are admitted. This requirement has not only been approved, but it has been emphasised by the opinion and practice of the local managers to whom the administration of the details is so largely entrusted. In villages in which the influence of Lady Bountiful or the Vicar's wife is dominant, nearly the half of every day is sometimes spent by little girls,—not in being *taught* to sew, for that might be effectively done in one-third of the time,—but in mere dawdling over needlework and in the manufacture of garments for sale or for home use. From the point of view of those who desire to make the common school effective as a preparation for the duties and responsibilities of an intelligent life, the amount of time and effort thus spent appears to be out of all proportion to the value of the results produced. In fact, experience has shown that needlework, regarded simply as a manual art, and not taught with intelligence, does little or nothing to improve the general capacity of the learner; and that proficiency in this one accomplishment may easily co-exist with dulness and mental vacuity, and with complete helplessness in regard to all the other duties and claims of life. Such experience as this is well calculated to moderate any extravagant anticipations, and to warn us that, for boys and girls alike, hand-work is not necessarily educative, unless it is associated with work of another kind.

I conclude, then, with this general inference from recent discussions. There is room in our schemes of instruction for increased attention to manual training. The neglect of this subject is an undoubted mistake, and it needs to be corrected. But the necessary change in our educational procedure should be made with caution. We must not exaggerate the educational value of mere hand-work, and not make it a substitute for intellectual effort. We must not make a fetish of technical or manual instruction, or assume too readily that it will prove a panacea either for all our social ills, or for our educational deficiencies. We must not suppose that the world is to be regenerated by turning schools into workshops, or by dethroning the schoolmaster to make room for the artisan. The urgent questions now demanding the attention of all serious educators are: What is the true and rightful place to be held by the training of the fingers and the senses, and of the artistic faculty, as part of a liberal education; and how can this training be so given as to be instrumental in fulfilling the highest purpose of a school—the development of a complete and rounded character, in force, in refinement, in intelligence, in moral purpose? This is not an easy problem. It is not yet solved. It will not be solved until much larger experience, and more thought and knowledge, have been brought to bear upon it. But every such meeting as this, in which earnest teachers assemble together to encourage one another in the pursuit of lofty ideals, and to confer with each other respecting the best way to make teaching nobler, and schools more useful, will do something to render the ultimate solution of the problem easier and more fruitful.

Mr. Heppel said that the lecturer had pointed out three aspects in which the combination of hand-work and head-work might be regarded, viz., in relation to the economic advantage, the advantage to the individual from superior culture, and the advantage of nourishing a sense of

the dignity of labour. With respect to the last two, he thought all would be pretty well agreed, and it would be rather a question of degree than of kind; but with regard to the first head, there was room for considerable difference of opinion; some persons setting much greater value on the practical side, while others insisted rather on what might be called the theoretical side of education. In dealing with this point the lecturer had made use of the pregnant word "supplement," which seemed to suggest the true solution of the question. It should always be remembered that what was taught in technical schools and colleges should supplement the more purely theoretical portion of education, and that a clear theoretical knowledge should first be obtained before proceeding to its practical application. On this matter he was of opinion that a great deal of error prevailed. It seemed to be thought that the subjects of instruction which were taught at schools and colleges resembled the fruits in a large kitchen garden, in which every one could select the particular products which would suit his special needs, and leave out all else as of comparatively little importance. That he believed to be an entire mistake. It was impossible for one who was going to devote his attention to mechanics, electricity, or chemistry, to pick out the particular results or processes which were likely to be useful to him afterwards, and leave out the general substratum of knowledge on which those branches depended. On the other hand, those who had to do with theoretical education had a work set before them which was not less important. He thought it quite possible that a great simplification of the theoretical part of scientific studies might be effected, so that the same things might be taught up to a certain point in less time, and more efficiently than they now were. With regard to the notion that the workman who was engaged in mere manual toil lost his taste for intellectual pursuits, he thought that something might be urged on the other side. He had found that in Lancashire and Yorkshire many of the workmen were most eager for intellectual improvement; and in a place near Manchester he was told by the Secretary of the Mechanics' Institute that no fewer than 150 working men gave up their half-holiday on Saturday in order to study geometrical drawing by daylight. Many other instances might be given to show that the amount of mental activity displayed by men working with their hands in the most routine work was very considerable; and two causes might, he thought, be assigned for this, which had not been alluded to in the paper. Where a man was engaged in manual work all day, mental work became a sort of rest, whereas a clerk engaged in book-keeping, writing letters, and things of that kind, which might be said to be head-work, when he got home in the evening did not feel disposed to go to lectures, but wanted something which did not further tax his intellectual powers. Again, where a man was engaged in a factory, producing something, and knew that the world was so much the richer by what he made, he came more directly in contact with the realities and facts of life; whereas in the commercial world the man who had to do with books and accounts might go on from year to year without there being anything permanent to show for it. He could not help thinking the nature of their occupation gave a somewhat different turn of mind to the working population, and that the men employed at weekly wages in towns like Halifax, Leeds, Bradford, and Blackburn were different in their thoughts and feelings from the same class in Liverpool and Manchester, who were commonly commercial.

Mr. Wilson said he did not think that any wise advocate of technical education would wish to put its claims higher than they had been put by the lecturer. It was superfluous at the present day to insist on the necessity for the harmonious cultivation of all the human powers and faculties, physical, intellectual, and moral. In all education this was more or less done, though Greek education was perhaps that in which it was most insisted on. The Greeks could not imagine an educated man whose physical, intellectual, and spiritual powers were not all cultivated according to the highest ideal that then existed. Socrates, in his various capacities of sculptor, philosopher, and soldier, might be said to be an embodiment of the Greek education. But, coming to modern times, it would be quite impossible in London to educate a man as the ancient Greeks were educated, having regard to the intensely specialised character of modern social organisation. In discussions about technical education, there was a great deal of confusion about the training which it was proposed to give in elementary schools by way of preparation for trades, and the training which was given in technical schools proper. In the latter the aim was to make the training a substitute for the old apprenticeship system—to do, in fact, for the young people who went to that school everything that the master to whom the apprentice was bound for seven years did for him. Under the old system the master got a great deal from his apprentice by the time that he parted with him. He began to be useful, perhaps, at the end of six months or a year, so that it was to his interest to teach him the whole craft, and to make him as serviceable a workman as his own knowledge admitted. Now the conditions of industry were entirely changed. All large businesses were conducted under a system of routine, according to which different groups of individuals were set to do very simple operations, and it was in this way that labour was degraded. That individual cultivation which existed in former times was destroyed, and there was, therefore, the greater necessity for boys who were put to a trade learning at technical schools the whole of that particular industry. It was for schoolmasters to decide as to the degree of co-ordination which should exist between mental, physical, and moral training in a school, but the main idea should be to teach the children those things which they were not likely to learn afterwards. Those who had any knowledge at all of mental science must know that the barriers between the physical and mental had been long ago broken down and accurate brain-work was largely dependent on a proper cultivation of the senses.

Mr. Orchard said the lecturer had referred to the way in which mental and physical training went hand in hand in the system of education of the ancient Greeks; that people endeavoured to harmonize the cultivation of the whole nature of man; and as in the temples of their gods they would have every part in due proportion in relation to the whole, so they aimed at the due development of the physical and mental powers of the individual. The plan of teaching workmen something of political economy had advantages which in these days of strikes and trades-unions were tolerably obvious. The idea that there was a natural hostility between the interests of the workman and those of his employer was a fallacy that could not be exploded too soon. He quite agreed with the lecturer in his view of the relation of manual to mental work; the interaction of the one upon the other would both promote the physical health of the workman and improve the quality of his work. It would be well if all boys were taught carpentry and all girls needlework, not only for the subordinate reason just mentioned, but on account of the utility of those arts in after life. The lecturer had alluded to what was called the degradation of labour, understanding by the latter toilsome work. The dignity of labour would certainly be better recognised when it was associated with brain-work, and that would be one of the results of the introduction of technical education. If that were done, the result of mutual co-ordination could not but be beneficial to both. At present there was too little hand-work, and a couple of hours a week was certainly not too much to give to this kind of education.

Mr. Sonnenschein desired to propose a hearty vote of thanks to the lecturer. With the general drift of the paper he as an educationalist heartily agreed, and hoped it would soon be published and accessible to all, so that it might be carefully studied in order that it might form the subject of a fuller discussion at an early date. If this matter was not to remain a mere aspiration, it appeared to him there would be numerous points of detail in which practical difficulties would present themselves, and he should be very glad if these points could be discussed amongst themselves. He should be delighted in his own school to give it a trial if he could see his way to do so.

The Chairman, in seconding the vote of thanks, said the great aim of the paper, as it seemed to him, was that all who were engaged in the work of education might consider how, if hand-work was to be introduced into schools, it might be dealt with so as to become of real educational value. The lecturer had also given a word of warning to the effect that manual training must not be regarded in itself as necessarily educative unless it were combined with head-work, and this was extremely important. Thus, needlework might be practised without any educational value whatever; and in the same way could carpentry or any other kind of hand-work. It was only in overcoming initial difficulties that manual work had in itself any educational value. Therefore any manual work introduced into the school course must be so practised as not to be mechanical. With regard to the term technical instruction, which the lecturer had used as almost synonymous with manual work, he thought it was necessary to make a distinction. Manual training might or might not be educational, whereas technical instruction always ought to be educational. Technical instruction was defined as the knowledge of the sciences underlying the practice of any art, and in that definition was involved the combination of theoretical or head-work with practical or hand-work. Manual training might be technical instruction, but was not necessarily so, whilst technical instruction should involve some amount of manual training. The lecturer had not referred to a very interesting experiment which was now being tried, and to which he would direct the attention of all persons interested in this problem, viz., the introduction of manual training into the public elementary schools of London. Some eighteen months ago a committee was formed, by whom a scheme was very carefully prepared, for introducing manual instruction into such schools, the funds required for the purpose being supplied from external sources. Three centres had been established north of the Thames, and three on the south side, and children, of voluntary and other schools, were permitted at certain times to come to these centres and receive manual instruction for two hours a week. At the present moment there were about 600 children under instruction. At the very outset the Committee were most anxious that this should not degenerate into anything like trade teaching, but that the object should be educational in the true sense of the word. If he were asked the advantages of this manual instruction he would at once say that it must not be restricted altogether to the third of the four heads referred to by the lecturer; that, whilst its object was formative for the development of the faculties of the mind and body, the economic advantage must also be taken into account. The real advantage of manual instruction consisted in its being both economic and educational. It was not the teaching of any one special trade, but the training of the faculties so that the hand should be more capable afterwards of applying itself to any trade. Having started with the general principle that the aim of the instruction should be educational, and not industrial, the importance was at once recognised of making the teaching a development of the Kindergarten system. The consequence was they combined it at all stages with drawing and object lessons. It consisted of three parts, object lessons, drawing, and practical work; the drawing being constructive, involved a large amount of mental effort, and the object lessons included the

nature of the material employed, the growth and structure of wood, the description of the tools in use, and the explanation of the reason why they were of one particular shape rather than another. These object lessons involved a considerable amount of effort and thought on the part of the child, and thus the constructive work was more than anything else the realisation of the theoretic teaching, and consisted of producing in a concrete form the lessons given in the drawing class. There was a difficulty as to the teachers. It was felt that if manual training was to be introduced into the school it must form part of a system of elementary education, and if so, it certainly ought not to be taught by an ordinary inexperienced, untrained craftsman, but should be imparted by trained schoolmasters. That was the principle which underlay the Slöjd system, which was now being introduced into many schools. To give a practical turn to his remarks, he must express his extreme disappointment that no provision was made in the new Code for the introduction of manual work. He believed the opinion was very general on the part of all who had had an opportunity of inspecting the work done in the schools he had referred to, that it would be an advantage, for the reasons so ably given by the lecturer, if manual work, so long as it was educational, became part of the ordinary elementary instruction. One objection to bringing it into the new code was, that manual training was not a part of elementary education, and for that reason could not be introduced; but he need scarcely point out that that was entirely begging the question. What should or should not be considered elementary education depended entirely on the Education Department, and if manual instruction were included in the Code it would at once form part of elementary education. If that slight addition were made to the Code, the opportunity would be at once afforded to School Boards, not only in London but throughout the country, of providing for this manual instruction out of the funds at their disposal, and until that was done they could not expect to see the system very largely extended.

The vote of thanks having been carried by acclamation,

The Lecturer, in acknowledging the vote, said he should like to refer to one observation of Mr. Heppel, who spoke of the great intelligence of a large number of working men especially in the north of England. He had himself lived seven years in Yorkshire, and no one had better reason to know how vigorous, earnest, and intelligent were the working men in that part of the kingdom, and particularly how much they valued any kind of instruction offered to them. But the question was, Why did they do it? Was it their mechanical labour which produced this result, or was it not because other influences had made them conscious that men did not live by bread alone, that they had higher duties and higher aspirations for which their every-day work did not afford scope? Did the mere mechanical labour itself educate them? If you wanted to know that, you must turn to people who were content with that and nothing else, and of them he could only say he did not think the mere manual labour was itself, except so far as it was a discipline in industry and forethought, very educative. The Chairman had pointed out with great clearness that, so long as you were overcoming material difficulties, so long as you were learning, the whole of the process was essentially educative, but the moment you had acquired the proficiency aimed at, so that the work fell into routine and became purely mechanical, it ceased to be of much value as part of the discipline and development of character. That was why, of all the forms of manual exercise, drawing was that which had the most fruitful results. You could not go to any point in the art and say here it stopped or became mechanical; and whoever acquired the art of drawing was tempted to go on, and was thus continually developing his intelligence, inventiveness, and other faculties. His only desire in this paper had been to put forward a few considerations such as might help those who were beginning to think on this subject, and it had given him great pleasure to put them before a gathering of teachers.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A Meeting of the Council was held on Saturday, the 13th ult. Present—The Dean, in the Chair; Mr. Baumann, Mr. Brown, Mr. Chettle, Dr. Cuthbertson, Dr. Dillon, Rev. Dr. Hiron, Miss Jebb, Rev. W. T. Jones, Mr. Kimber, Mr. Maxwell, Rev. G. P. Pearce, Mr. Pinches, Mr. Reynolds, Mr. Robinson, Rev. Dr. Robson, and Rev. J. Twentyman.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the London Chamber of Commerce had decided to modify the requirements for their Junior Certificate, by making only one modern foreign language obligatory, and by including Shorthand and Mechanics in the list of optional subjects. The first Examination would be for Junior Certificates only, and would be held in November, 1889.

The Treasurer submitted the report of the Finance Committee, which was adopted.

The following persons were elected members of the College:—

Mr. T. R. Haddon, M.A. Oxon., 3 Foyle Rd., Westcombe Park, S.E.
Mr. R. P. Scott, M.A., LL.M. Camb., 1 Gore Road, South Hackney.
Mr. J. Lockey, M.A. Lond., 16 Baker Street, King's Cross Rd., W.C.
Miss E. Uridge, 8 Homesdale Road, Bromley, Kent.
Mr. G. C. Barber, Middleton School, Bognor.
Miss A. M. Welten, 3 Gilmore Road, College Park, Lewisham, S.E.
Mr. E. O. Roberts, Grammar School, Knutsford.
Miss E. Bailey, 4 Chesterfield Terrace, Fratton, Portsmouth.
Mr. J. Hepher, Burney House, Greenwich.

The following books have been presented to the Library since the last meeting of the Council:—

Blackie.—Century Readers IV. and V.; Charles Dickens Reader; The Modern Encyclopædia, Vol. I.; Baker's Realistic Elementary Geography; Sexton's Inorganic Chemistry; Zehden's Commercial Geography, trans. by F. Muirhead.

Cassell.—Weir's German Dictionary; New Popular Educator, Vol. I.

Longmans.—Chisholm's New Atlas; Drawing Books, Nos. 14 and 15; McWilliams' Handbook of English Literature, Part II.

Macmillan.—Green's Short History of the English People (Analysis by Tait), Parts I. and II.; Clarke's Geography; Macmillan's Scott's "Rokeby"; Deighton's Shakespeare's "Winter's Tale"; Preston's Exercises in Latin Verse.

Relfe.—School Journal; Combination Exercise Book; The Charterhouse Oxford and Cambridge Atlas; Croft's Concise French Grammar; Fowle's Easy Latin Primer, First Book of Easy Poetry, Geography of the World, Gods and Heroes of Antiquity, and Miscellaneous Papers on English History; Freeth's English History Notes, 1688—1727; Millington's Introduction to Latin Prose Composition, and Selections for Latin Prose Composition; Taylor's First Principles of Modern History, 1815—1888.

Calendar of the Royal University of Ireland.

By Rev. D. Davis.—The Castle Howell School Record.

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

The Examiners elected to fill the vacancies in the examining staff mentioned in our last number are the following:—in Latin, Mr. J. S. Reid, Litt.D., LL.M., M.A., of Caius College, Cambridge; in English, Prof. J. W. Hales, M.A., of King's College, London; in French, M. Jules Leriche, B.A., B.Sc.; in Chemistry, Prof. J. W. Armstrong, Ph.D., F.R.S., of the City and Guilds of London Institute; in Zoology, &c., Mr. Sydney J. Hickson, D.Sc., M.A., Deputy Professor at Oxford; in Geology, Prof. Lapworth, LL.D., F.R.S., of the Mason Science College, Birmingham; in Jurisprudence, Roman Law, &c., Prof. Munro, LL.M., LL.D., of the Owens College; and in Obstetric Medicine, Dr. Galabin, M.A., of Guy's Hospital. These gentlemen enter on their duties with the commencement of the ensuing quarter. Dr. Reid and Prof. Hales have each previously served a term of five years as Examiners, and M. Leriche is at the present time, and Professor Armstrong was formerly, one of the Assistant Examiners.

The "Jubilee" statue of the Queen is about to be set up forthwith inside the University building. To make room for it, the plaster cast of the Westminster Abbey Shakspere is to be removed from its niche halfway up the main staircase; and unfortunately, so far as we know, there is no other so eligible or nearly so eligible a position to which it can be transferred. The "Jubilee" statue is to be unveiled by the Prince of Wales early in May; but it is reported that only the subscribers to the statue fund will be invited to the ceremony.

The next Half-yearly Examination for Matriculation will commence on Monday, the 10th June, 1889. Candidates are particularly requested to notice that the June Examination is, in the present and future years, to be held a week earlier than heretofore.

Edinburgh University, among its honorary degrees, has conferred the well-deserved academic distinction of LL.D. upon Dr. Richard Quain, F.R.S., F.R.C.P. It is now forty-seven years since Dr. Quain took his M.D. degree, with the highest honours, in the University of London, and in the period that has since elapsed he has been a prolific contributor to medical science and literature. Dr. Quain is well known as the chief editor of the two latest editions of the "British Pharmacopœia," besides being the editor of the large and valuable "Dictionary of Medicine," which bears his name, and the circulation of which, in this country and America, is said to be without a precedent for a medical work of its high class.

The annual report of the Council of the Girls' Public Day School Company, Limited, states that the number of schools is now thirty-three, and the number of pupils has increased from 6,185 to 6,618. At the request of numerous friends and shareholders, the Council has agreed to open a preparatory school at Newcastle-on-Tyne, in connection with the Gateshead High School.

The Senates of the Universities of Edinburgh, Glasgow, and St. Andrews, have announced their acceptance, on certain conditions, of the Leaving Certificates of the higher grade in Latin, Greek, and Mathematics, issued by the Scotch Education Department, as equivalent to the preliminary examination for the three years' course.

Cambridge.

At Caius College a Shuttleworth Scholarship for proficiency in Botany and Comparative Anatomy, open to all registered medical students of the University, of not less than eight years' standing, has been awarded to W. B. Hardy, B.A., of Caius.

The Bell University Scholarships for the first year are adjudged to (1) T. Ll. Davies, Scholar of Trinity, and (2) J. C. W. L. Burgess, Minor Scholar of Trinity, and R. J. G. Major, Scholar of King's, equal; for the second year to A. F. Chilver, Minor Scholar of Trinity.

The Abbott University Scholarship is adjudged to R. A. Abbott, of Trinity.

By the generosity of Mrs. J. G. Gibson, an annual prize for undergraduates has been founded at Cavendish, to encourage the study of the Greek Testament.

At the request of the Teachers' Training Syndicate, Prof. S. S. Laurie, of Edinburgh, will deliver a short course of lectures on "Educational Method" during the May term.

By the death of Prof. Kennedy, the canonry at Ely, which was formerly annexed to the Regius Professorship of Greek, now becomes united to a new Professorship, to be called the Ely Professorship of Divinity. The Ely Professor is required at the time of his election to be in priest's orders, and he *ipso facto* vacates the Professorship if he is admitted to a bishopric or deanery or any benefice with cure of souls.

Oxford.

The examiners for the Hall and Hall-Houghton Prizes have made the following awards:—Senior Greek Testament—J. V. Bartlet, B.A., Exeter. Junior Greek Testament—H. W. B. Joseph, New College. Senior Septuagint—H. T. Andrews, B.A., Magdalen, and W. Marsh, B.A., Exeter, equal. Junior Septuagint—R. W. Baker, B.A., Magdalen.

The examiners for the Burdett-Coutts Scholarship recommend for election A. B. Badger, B.A., formerly Exhibitioner of New College.

The Board of Education at Mansfield College has appointed Mr. J. V. Bartlet, B.A., of Exeter, to a Tutorial Fellowship, and Mr. W. B. Selbie, B.A., of Brasenose, to an Assistant Lectureship.

Other Universities, Colleges, and Schools.

Mr. F. H. Colson, formerly Fellow of St. John's College, Cambridge, and Senior Classical Master of Bradford Grammar School, has been appointed Headmaster of Plymouth College.

The total number of candidates who presented themselves for 15 original open scholarships in the Royal College of Music recently, was 460.

The University of Edinburgh has conferred the honorary degree of LL.D. upon Mr. Whitley Stokes, the author of "Anglo-Indian Codes."

The death of Professor Mainwaring Brown has rendered vacant the Chair of English Language and Literature in the University of Otago, Dunedin. The salary is £600 per annum with the class fees, which are £3. 3*s*. per term of six months.

The election to the English Professorship at University College, London, is being looked forward to with unusual interest. It will probably be determined at the meeting of the Senate convened for the 4th of May. The names of candidates are now before a committee of the college professors. These send up a select list in order of merit to the Senate, who seldom reverse the professors' judgment. Though the field is not large, some good names are entered and some strong running is expected. The names include Professor Arber, Mr. H. C. Bowen, and Mr. A. H. Bullen, &c.

The Rev. Walter Clark, Headmaster of the Derby Grammar School, died somewhat suddenly last week. He was a most successful master, and raised the school to a high state of efficiency. When the new buildings of the Derby Grammar School were opened by the Prince of Wales a few years ago, the list of honours, both at the universities and in the local examinations, exceeded those of any school with the same number of pupils.

EDUCATIONAL NOTES AND SUMMARY.

We must again call the attention of teachers to the Bill for the Better Prevention of Cruelty to Children, which was read for a second time on Thursday, April 11th, and which will enter the Committee stage as soon as Parliament meets. It is in many points the same as that introduced a short while ago, and contains many things dangerous both to teachers and schools. We treated the subject so fully at the time that we need not now enter into details beyond saying that clause I. subsection i. still reads: "Any person who wilfully treats a child in a manner likely to cause such child unnecessary suffering, shall be liable to a fine of £100 or to imprisonment, with or without hard labour, for any term not exceeding six months," under which a teacher would certainly be liable—not to a summons—but to *arrest*, and then the magistrate would have to decide whether the punishment complained of had been unnecessary. Clause II. will not, we should think, be allowed to stand. By it a most objectionable power is given to the police to arrest any person who commits an offence under this Act or any other Act for the protection of the lives or health of children. Teachers should lose no time in bringing their influence to bear on the amendment of this Bill. The promoters, we are told, say that it is not their intention that the Bill should touch school-life. If that be the case the Bill itself should plainly and unequivocably state this. At present it does touch school-life, and that in a most undesirable way.

In the April number of *Murray's Magazine*, Mr. Pollard follows up the subject of Governesses' Grievances and supplements the recent paper on the "Salaries of Lady Teachers" with some interesting facts. The position of resident governesses is admitted to have improved since a writer five-and-forty years ago complained that, while a lady then would not give a dress to be made by any but a first-rate dressmaker, she would give her children to be educated by a second or third-rate governess; but parents are declared to be still strangely indifferent on the subject of the relative value of diplomas. The maximum salary of resident governesses has not risen, it is considered, above the £100 it had reached in 1884, and the minimum of £12 then quoted is still sometimes offered and accepted; but the average for properly qualified teachers is now said to be about £60. The average salary of the assistant mistresses in the High Schools of the Public Day School Company is £113. In the case of the non-resident governesses things seem to be far less satisfactory in a pecuniary sense. This is partly accounted for by the fact that while ladies do not, as a rule, accept the post of resident governess in a strange family for any other reason than hard necessity, hundreds of women have no objection to daily teaching as a means of increasing their pocket money; and these, both in schools and in private families, by their competition, drag down the salaries of the women whose earnings have to pay not only for their dress or their amusements, but for their food and lodging as well.

An examination in the theory, history, and practice of teaching will be held by the Teachers' Training Syndicate on Tuesday and Wednesday, June 25 and 26. The examination will be held at the following places: London, the North London Collegiate School for Girls, Sandall Road, Camden Road, N.W.; Cambridge, the Literary Schools, Trinity Street; Cheltenham, the Ladies' College; Edinburgh, the University Examination Hall. Candidates for examination must be over twenty years of age on July 15, 1889. Forms of application for admission should be sent to the secretary, Mr. Oscar Browning, King's College, Cambridge, not later than May 20. A second examination in the theory, history, and practice of teaching will be held at Cambridge on Tuesday and Wednesday, December 3 and 4, 1889, for persons who shall have completed the age of twenty before January 15, 1890. Application for admission must be made on or before November 10. The fee, £2 10s., should be sent at the time of entry.

The annual meeting of the Royal Normal College and Academy of Music for the Blind was held, by permission of the Duke of Westminster, at Grosvenor House. The chair was taken by Sir Lyon Playfair, K.C.B., M.P. The annual report stated that more general progress had been made at the college during the past twelve months than in any previous year, and that considerable improvement had also been made in its financial position. During the first half of the year the number of pupils was 162, but in consequence of the lapsing of some scholarships there had been a slight reduction. During the year considerable progress had been made in obtaining suitable situations for the pupils, chiefly as organists and pianoforte tuners. Mr. Mundella, M.P., moved the adoption of the report, and mentioned that 100 pupils who had already quitted the institution, had last year earned altogether £10,000, and he thought that that was the best claim that could be urged for assistance from the benevolent public. The Royal Normal College was not an ordinary institution for the blind; it aimed at being a model for others similar to it. It was endeavouring, by the best methods, to bring to perfection the very best system for training the blind which was to be found in this or in any other country. Dr. J. G. Fitch seconded the motion, which was adopted.

The twenty-fourth annual meeting of the Governors of the Corporation for Middle-class Education was held at the Mansion House, under the presidency of the Lord Mayor. In their report the Council stated that the school had had its full complement of 1,000 scholars during the year. The remaining portion of the debt had been entirely swept off, so that the school was now free from debt. The outcome of the memorial submitted last year to the Charity Commissioners had been that the Commissioners were framing a scheme, a draft of which had been discussed by the Council, under which it was proposed that the schools should be administered in the future. When this scheme was sufficiently matured, a special meeting of the Governors would be called to consider it. In their memorial the Council had explained to the Charity Commissioners the financial difficulties under which it had laboured, and made a claim on the great charitable trusts lately liberated in the City of London.

The success which attended the "summer gathering" at Oxford last year has suggested to a number of gentlemen, interested in University extension and the diffusion of culture, the idea of holding a similar gathering in Edinburgh this summer. A letter embodying such a proposal was drawn up and signed within two or three days by over four hundred Edinburgh citizens of all classes. It was proposed in the letter that the promoters should form a committee to arrange for a few short courses of four or five lectures each, to be given in the class-rooms of the University, should the consent of the Senatus be obtained, by prominent University teachers, extension lecturers, and others, and for some popular addresses in the evenings by distinguished public men,—these to be supplemented by conversaziones, concerts, and visits to places of interestin the city and neighbourhood.

The late Mr. Richard Hughes Richards, of Newport, Mon., has bequeathed a legacy of £1,000 to the University College of Wales, Aberystwyth, to found a scholarship for natives of Cardiganshire. The scholarship will be called the "Richards Scholarship," and the first award will be made at the beginning of next session.

The following extracts from papers, read at the meeting of the "Department of Superintendence," held at Washington during the month of March, seem to us of particular interest just now. We pick them here and there from the *School Journal* of New York:—

"Sometimes we hear an education of the senses spoken of," said Dr. N. M. Butler, "as if it were something that required no purely mental effort or co-operation. This involves gross psychological error. The training of the eye, the ear, the touch, the taste is mental training. The eye cannot see, it is only an optical instrument. The lens may be perfect, the retina healthy, the optic nerve intact, yet no sight results unless the optic centres of the brain are present, and are in organic connection with the optic apparatus. The same is true, *mutatis mutandis*, of the other senses. The senses are truly the 'windows of the soul,' but they are only windows, and not, as some would seem to regard them, souls. The ways of approach to the mind may be many and various, and the ends for which it is approached widely different in character and importance, but the mind remains the only essential element in the process."

"Manual training," said Prof. Allen, "is thought-expression by other means than gesture or verbal language. Do pupils in our ungraded schools need this training? This question requires that the elements of a good education should be understood. We have no means of receiving knowledge except by the senses, nor have we any means of indicating knowledge excepting by the same avenues. The training of the senses, then, is essential to the getting and giving of information, and this process of getting and giving rapidly and correctly constitutes the first element in good education. In order to enlarge the mind all of the senses must be trained by doing things and by thinking. The true teacher aims to develop the whole child, and this cannot better be commenced than by means of hand, eye, and ear work."

"It seems to strike some persons as very odd," said Supt. E. P. Seaver, "that anything worthy the name of liberal culture should be imparted by a mechanic arts school. The wits treat the idea with ridicule, and the philosophers gravely wag their heads as if doubting the entire sanity of a mind possessed of such a notion. Both illustrate the vigour with which old ways of looking at things survive. Ever since the revival of learning, the habit has been to associate liberal culture with classical studies, and with classical studies alone. The liberally educated man has been taken to be a man well versed in the languages and history of Greece and Rome. No knowledge of physical nature, however profound, no success in discovery or invention, however brilliant, could quite make up for lack of classical learning. Hence great naturalists, physicists, chemists, mechanicians, architects, engineers have been supposed to be a little inferior to what they might have been if only their youth had been spent in the study of Latin and Greek."

"Supt. F. M. Campbell defined the word commonwealth to mean not the common riches or money, but the common well-being, that soundness or health of a community which necessarily is common to all, because every man's well-being in the highest sense is a contribution to an essential condition of the well-being of all. Public virtue, then, and public intelligence constitute the true commonwealth, and these can be attained in but one way, by the attainment in every individual member of the community of personal virtue and personal intelligence. Higher education, he said, means not any particular study or set of studies, nor any particular method, or plan, or grade of instruction, but all education which is wisely adapted to a certain higher end, the end, namely, of the complete development of full intellectual and moral manhood and womanhood. If the true well-being of society consists in the virtue and intelligence of its individual members, and if the true function of the state is to secure these—guarding its very existence from crime in the present generation and from ignorance in the coming generation—it is easy to see what are the true relations of the state and higher education. This education is the thing of all others which the state must at any cost and at all hazard secure and maintain."

The following extract from a headmaster's letter to his governing body, says the *St. James's Gazette*, lets us behind the scenes and shows, what we have already pointed out, the baneful and far-reaching influence of Eton and Winchester scholarships:—

"The competition of the schools for promising pupils has in the last few years reached such a point that it is almost impossible to secure any boys of the kind that will afterwards win good scholarships at the Universities or other high distinctions, unless we can offer them larger inducement than even those which your liberality has as yet provided. The *Schoolmaster's Calendar* is in every anxious parent's hands; and there he finds that some twenty-four of the best schools offer a large number of scholarships, of which the first ninety require, on an average, only £25 per annum to be still paid by the parent. I myself would be content to work on non-competitive principles; but then distinctions cannot be looked for in any abundance."

The headmaster accordingly urges his council to add £70 or £80 a year to each of the annual scholarships. That is to say, a poor school, with poorly paid masters, is driven by Eton and Winchester to go into the market and bid several hundreds a year for youthful prodigies, "because it is for the good of the school, quite apart from any lower motives of vanity, that it should contain a sufficient leaven of ability of a high order." Scholarships at the smaller Cambridge colleges are now unblushingly decided by the haggle of the market, and Mark Pattison's bitter jibe—"I can't let Brown go for less than £80, he's a bit of a genius; but you shall have Jones, a good steady lad, for £50"—would now be pointless. Here is the *précis* of a correspondence that has passed, during the last fortnight, between a headmaster and a college tutor:—"H.M.—You advertise scholarships *maximum* value £70. I am sending in Robinson, but his lowest figure is £60." C.T.—"If Robinson is worth £60 he will get it." The list appears without Robinson's name, and with one scholarship of £50 awarded. The tutor writes—"Robinson was worth £50, but £60 was an exorbitant price for him, and we really could not afford it."

Several friends of the late Dr. F. A. Paley, the eminent classical scholar, have purchased his classical library, and presented it to Cavendish College, Cambridge.

The Home Secretary recently received a deputation at the Home Office from the National Vigilance Association, its object being to urge the desirability of taking immediate steps to carry out the recommendations of the Royal Commission on Elementary Education to apply the principle of the Factory Acts to children employed in theatres, music-halls, and other places of entertainment. Cardinal Manning, in introducing the deputation, said that he knew of cases in which children were taken away from school in order to be trained for the stage, and thus the whole period of their life was absorbed during which education could be given, from three to thirteen years of age, and they had to encounter the dangers of the streets in returning home from the theatres at night. Mr. C. T. Mitchell instanced cases of children doing two performances at a theatre a day, and supposed to go full time to school. The teacher of one child aged seven gave evidence that she had to allow the child to sit at school and do nothing. In one case the attendances at school during rehearsals were only three a week, when they ought to have been ten. The Home Secretary, in reply, said that he should take the information into his most careful consideration. It was a large and difficult subject, in which, of course, legislation would not be easy, and he could not enter into any pledge or undertaking on the subject. It was quite clear, from the point of view of the deputation, that the extension of the Factory Acts would not be sufficient. The deputation contemplated prohibition in this kind of employment up to the age of sixteen. That was a very large measure, and he could only say that their observations should have his most careful consideration.

An important new educational society has just been formed at Berlin, under the name of "Die neue Deutsche Schule." The main objects of the association are:—1. The establishment of an *independent* "Educational Administrative Department," with a greater participation of professional men than has hitherto been the case, and with a more ample consideration of the rights and duties of the parents. 2. The promulgation of a law for instruction and for the restriction of examinations. 3. The introduction of more efficient hygienics in schools. 4. Better professional preparation of teachers in universities. 5. Equalisation of the rights of the Gymnasia with the Realschulen. A

general meeting of the Society is to held shortly, when a detailed programme will be submitted for discussion.

A MEETING of the Arnold Memorial Committee has been held, under the presidency of Archdeacon Farrar, in the Jerusalem Chamber, Westminster. Mr. G. W. Russell, hon. secretary, stated that £6,840 was in hand, including £1,000 from America. Of this sum £1,763 was for the general purposes of the fund, £4,902 for Mrs. Arnold, and £174 for a bust in the Abbey. The committee recommended that 600 guineas should be paid for a bust, and the remainder invested in the names of Mrs. Arnold's trustees under her marriage settlement for her benefit. Lord Justice Coleridge moved that the recommendation should be adopted. A considerable portion of the 600 guineas would, he said, have to be paid to the Abbey in fees for the placing of the memorial. Mr. Robert Browning seconded the motion, which was passed.

BY order of the French Minister of Public Instruction, the International Congress of Elementary Education will be held at Paris, from August 11th to 18th, on the occasion of the Universal Exhibition. The following are the chief questions for discussion —(1) Under what form and to what extent can professional (agricultural, industrial, commercial) instruction be given in the elementary schools of the lower and higher grades and in training colleges? (2) How far women should be employed in elementary education as teachers, heads of schools, and inspectresses. (3) The functions and the organisations of the practising schools attached to training colleges and institutions of a like character.

THE prompt and effectual help of all who are interested in the cause of sound education is needed and urgently requested for the Maria Grey Training College. Though it is now in a healthy condition as regards its functional arrangements, yet, unless faith and work combine to save it, its dissolution is impending. It has succeeded beyond expectations. It is full to overflowing; it carries off each year most of the distinctions in the Cambridge Teachers' Syndicate Examination; its students are in request as mistresses in high schools. And yet, unless some unexpected help comes, the Maria Grey College will before long have to close. There is a debt of nearly £500, and a yearly deficit of over £100. It may be asked why so flourishing an institution is not self-supporting. The answer is simple. The students' fees almost cover the expenses of the college; but for a training college a practising school is a necessity, and a school which satisfies the requisite conditions cannot, at least in the neighbourhood of Fitzroy Square, pay its own way. We should like to know what has become of Mdme. Schwabe's generous offer of £2,000. It was publicly announced at the meeting in the Drapers' Hall in August, 1887, which was graced by the presence of the Empress Frederick, and a vote of thanks to Mdme. Schwabe was carried with acclamations.

THE omission of School Boards from the scheme of local government in Scotland has caused some regret. School Boards are universal in Scotland, and their inclusion would not have been attended with any such difficulties as would have beset the same proposal in England. Moreover, the blemishes on the School Board system in Scotland all arise from the parish, which is the unit of area, being in many cases too small. This leads to the unnecessary multiplication of offices, and therefore to increased expense. It leads also to the intrusion into the boards of petty parochial jealousies, which would have no place in boards chosen from a wider area. The proposal to appropriate Scotland's share of the probate duties for the relief of school fees has given satisfaction. It is doubtful whether free education as a matter of principle, and of Treasury grants, would have been so quietly accepted. The advocates of universal free education object, of course, to the proposal of the Government on the ground that it is half-hearted and does not go far enough. The Government would, no doubt, have been glad to go further if they had had more money at their disposal. They could not have abolished school fees entirely without making a fresh draft on the Treasury for £100,000 at least, and that could not have been proposed without raising a host of troublesome questions, both of principle and of expediency. According to the latest return, the school pence paid by children in all elementary schools in 1888 amounted to £307,294, apart from a further sum of £20,172 paid by parochial boards. Now, if the whole of Scotland's share of the probate duty had been applied in relief of fees it would have fallen short of what would be required to make education universally free by more than £100,000. These objectors ought rather to be grateful to the Government for having settled the question in so easy and acceptable a manner, without raising controversy over principles.

THE Rev. R. Wilde, M.A., one of the senior Inspectors under the Education Department, has been inquiring for some months past into the operation of the Victorian educational system. He reports that in reading, writing, arithmetic, grammar, and geography the upper classes in the colonial schools are quite up to the standard of the best schools in England, but in needlework and discipline the English schools are somewhat superior. He strongly condemns payment by results as practised in Victoria, on account of its tendency to cramming.

THE students of the ancient University of Genoa must be singularly unlike "our young barbarians all at play" on the banks of the Isis and Cam. The Italian students actually desire a competent professor of mathematics, vigorously protest against the fitness of the existing professor, and in general meeting assembled came to the conclusion of demanding by telegraph from the Minister of Education the appointment of a new professor. In our ancient universities, the honour students find it a serious waste of time to attend college lectures, and so they desert the lecture hall for the rooms of their private tutor. The ordinary pass student is also quite indifferent as to the quality of his lectures. He also, like the honour student, seeks the aid of the private "coach" to pull him through his examinations. To think of them in open meeting discussing the proper filling of a professorial Chair is simply impossible. The Genoese students are of very different temper. The Education Minister taking no notice of their singular demand, the whole body of the students joined the mathematical men in a general strike, and declined to attend any lectures. Thus the University is closed until this odd dispute is composed.

A BILL to amend the Elementary Education Acts and to provide Continuation Schools has been introduced in the House of Commons. Amongst the members whose names are on the book of the Bill are Mr. Samuel Smith, Sir Henry Roscoe, Sir John Lubbock, Mr. John Morley, Mr. Bryce, and Mr. J. W. Lowther. The object of the Bill is to provide for continuing the education of children who are wholly or partially exempted from attending the day schools, and are beginning to be employed in manual labour, and thus to secure the full benefit of the national outlay on elementary schools. In these continuation schools it is proposed to provide education of an interesting and practical character, such as will be attractive to children and of service to them in their daily employments. The Bill does not make attendance at continuation schools compulsory, save in the case of children who, not having passed the exemption standard, elect to continue their education in a continuation school instead of a day school. Such children will remain in the continuation school till they have passed the exemption standard or reached the age of fifteen. It will thus allow children who have not passed the exemption standard at thirteen to attend at a continuation school until they either pass that standard or reach the age of fifteen, instead of compelling them to attend a day school until the age of fourteen.

A LETTER from Sir William Hart Dyke, M.P., Vice-President of the Committee of Council on Education, to Sir John Puleston, M.P., in reference to the New Code and Welsh schools, has been published. This letter affords an apt illustration of how little there is in common in an English Vice-President and a foreign Minister of Education. The people of Wales at present and their representatives make much ado about the teaching of the Welsh language, and the Vice-President of the Council must take account of this local feeling. He is at great pains to explain that anything in the New Code that looks as if Welsh was not justly treated cannot rightly be so interpreted.

"The words," he writes, "'at the discretion of the inspector' (note to Schedule 1) refer to the substitution of dictation for composition in the upper standards generally, and the inspectors will certainly be instructed to give every encouragement to the translation of Welsh into English, or the rendering in English of a story read in Welsh. We must not encourage the Welsh language at the expense of English, but rather as a vehicle for the sounder and more rapid acquisition of English, and with that object the use of bilingual reading books, sanctioned in footnote 23, will enable Welsh and English to be acquired *pari passu* in all the standards. It is clearly for the managers to decide upon the expediency of using these books, the concession being granted in the most unqualified terms, and being, indeed, the obvious antecedent of the new regulation as to composition in the upper standards."

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THE EDUCATIONAL TIMES.

LONDON, MAY 1, 1889.

THE Charity Commissioners have shown extraordinary activity of late, and are carrying out a bold and difficult constructive policy as regards the metropolis. With patience, tact, and perseverance, they have been collecting and connecting elements hitherto isolated; and with these they are building up wide and large foundations, and are bringing previously existing institutions into something like a system by means of scholarships leading from one to the other. This policy is exhibited in their recent schemes for new schools, in their attitude towards Polytechnic Institutes, and in the new regulations for the inspection and examination of Endowed Schools.

Their most recent scheme is one for the establishment of Central Foundation Schools for the City. The contributions from Alleyn's Estate at Dulwich to the parishes of St. Luke and St. Botolph, Bishopsgate, the Corporation for Middle Class Education, the Bishopsgate Ward Schools, and the St. Ethelburga's Society, are all absorbed in this scheme, out of which are to appear a new Girls' School in Spital Square, Bishopsgate—the Cowper Street School taking the place of the corresponding Boys' School—and a new Higher Commercial School or Institute, the site for which is not yet fixed. All these are to be under a new governing body consisting of representatives of the City, the Bank of England, the Chamber of Commerce, the University of London, the Corporations, Companies, and Parishes concerned.

The Thirty-sixth Report of the Commissioners contains important information on the other two matters to which we have referred, namely, the "Inspection of Foundations regulated by schemes under the Endowed Schools Acts," and the "Proceedings under the City of London Parochial Charities Act, 1883," which have resulted in the development of Polytechnic Institutes in different districts of London. The system of inspection of Endowed Schools instituted by the Commissioners is, as we have frequently pointed out, a necessary consequence of the reorganisation of foundations which is gradually being carried out under the several Endowed Schools Acts; and the Commissioners are manifestly justified in suggesting that Parliament should consider the expediency of adjusting the operation of the Acts, which are at present limited, both in duration and scope, to the permanent character which the educational work undertaken by the Commissioners has now definitely assumed.

The question of Polytechnic Institutes for London is a large and important one. The origin and history of the Polytechnic Institute in Regent Street and of the People's

Palace at Mile End are well known to everybody. The movement in favour of the establishment of similar Institutes has sprung directly out of the reorganisation of the City Parochial Charities. In considering how the funds at their disposal should be applied, the Commissioners were drawn to the object of providing technical instruction combined with rational recreation for the young of both sexes who have quitted school and have not yet been absorbed in the full duties and responsibilities of active life. They considered the two Institutes above referred to worthy of public support, and they resolved to take them as models for similar institutions in other parts of London. These views were powerfully seconded by public opinion and public effort throughout the metropolis. A committee was formed for South London which undertook the collection of funds, to be met with a corresponding grant from the Commissioners up to the limit of £150,000. This committee, guided chiefly by the energy and public spirit of Mr. Evan Spicer, and aided by the munificence of the Goldsmiths' Company and the City Corporation, has already secured the site and buildings of the Royal Naval School at New Cross for one Institute, and the Training College and School in the Borough Road as the site of another, to which the Victoria Hall will be affiliated; and it hopes to establish a third at or near the Albert Palace, at Battersea.

A committee has also been formed for North London, including Finsbury, St. Pancras, Islington, and Hackney; and for this district four Polytechnics are asked for, the cost of their establishment and maintenance requiring a capital sum of not less than £400,000. The Marquis of Northampton has generously promised that, if arrangements "satisfactory to his lordship can be effected, he will be prepared to give a site in Clerkenwell for the purposes of a Polytechnic Institute." This proposal the Commissioners have accepted, and they intimate that confidential negotiations are now in progress, by which they hope to "procure the establishment of an Institution of the first rank of importance in this very populous centre of some of the most skilled industries of the metropolis." According to the views of the Commissioners, the Institutes "will supplement the practical training of the workshop by such instruction as will make the ordinary workman more skilful and more intelligently interested in his work." Next, "it is highly desirable that such Institutes should, if possible, be brought into intimate connexion with those which provide a higher range of technical instruction;" and then, "if such a hope should be realised, the entire organised system would combine, first, a number of Institutes adapted to the ordinary workman; secondly, a higher grade of instruction suited to the more skilful and more advanced pupils; and thirdly, a provision for instruction in the highest levels of applied science, and for opportunities of pursuing researches and experiments by which the industrial arts may be advanced and perfected."

The whole scheme is so grand, thorough, and comprehensive that it seemed until lately visionary and utopian; now, however, it is so far developed that success seems not merely possible, but almost certain. The Charity Commissioners seem to be emancipated from the petty and finicking methods which have become proverbially associated with English administrative commissions.

The New Code, which is now lying on the table of the House, came to hand as we were going to press last month, and we have been able to see how it is received by the different sections of those who are engaged in the administration or the promotion of elementary education. It is a quarter of a century since Mr. Lowe's famous and much abused Code was first given to the world.

The next remarkable Code was Mr. Mundella's; and in it Lowe's "payment by results" was developed into "payment by percentages of passes." The present Code is more revolutionary than any published since Lowe's; and yet we venture to think that it shows, more than any other Code that was ever issued, a desire on the part of its authors to take account of the wishes of those who have been crying for reform, and to remove as far as possible the conditions which have harassed teachers and scholars in the past.

The following are the most important changes it introduces. The preparation for the work of public instruction is to be conducted in a more systematic manner. Greater care is to be taken in the selection of pupil-teachers, and if those selected do not advance as rapidly as they ought, both in knowledge and ability to teach, they are not to be allowed to go on. Their work is carefully planned, and teachers and managers are compelled, by the prospect of penalties in default, to see that the plan is faithfully carried out.

The present residential training colleges are to be supplemented by day-training colleges, and students are to be permitted, under certain conditions, to extend the time of training from two years to three. Men are not to be allowed to creep into the profession on a lower qualification than that of the ordinary trained teacher. The endorsements on certificates, which have been so much objected to, are to be discontinued. In the schools more space per child is to be secured, and fewer scholars are to be allotted to each teacher, whether pupil-teacher or assistant.

The greatest change of all is that which does away with "payment by percentages of passes." The Grants in future are to be 12*s.*, 14*s.*, or 15*s.* 6*d.*; the decision as to which of the three amounts is to be given depending on the report and recommendation of the Inspector. To small rural schools the Inspector may grant an extra £10 in a lump sum; and there are other changes to be introduced which we need not specify, but which all tend in the same direction. The Managers have the screw turned on them in several ways, it is true, but both teachers and scholars are relieved of many harassing and unhealthy conditions.

All this, as we have said, is a very decided advance on anything we have had before. That it is not perfect is evident enough; and our educational contemporaries, and elementary teachers generally, are busy pointing out errors and suggesting improvements while yet there is time. Still, there is much to be thankful for; and it is especially gratifying to be able to think that, after all, some practical good has been got from the Royal Commission.

By dint of persistently "pegging away," we seem to have at length arrived as far as this—that most people now admit that development is only to be produced by exercise of the person to be developed. Some have been induced to go a

step further, and to become more definite. They will allow that a particular faculty or part of a living thing can only be developed by the exercise of that faculty or part. But there the majority come to a standstill. They refuse to go into such details as the character and mode of the exercise induced. Any exercise, apparently, will do. Set children to work on some foreign or ancient author with a dictionary, or make them learn pages of grammar by heart, or exact from them so many problems worked out on some given model, and, provided that they are kept busily employed, the result is sure to be a "splendid mental training." This is the kind of statement we are accustomed to get from old-fashioned instructors in Latin and Greek. But, as a matter of fact, the idea is much more prevalent than that, and is implicitly involved in a great deal of what is said about the work of other departments of the school. For instance, we constantly hear it said that if we keep girls busy at sewing and cooking, we afford them a splendid manual training—just as if all and every exercise of the hand were equivalent to a training. Here, then, is the next misconception which we must endeavour to correct; and the excellent paper by Dr. Fitch, which we print this month, will help us considerably in our attempt. The exercise which constitutes a training—which produces development—is one based on and directed by definite principles, which are themselves drawn from the nature of the thing exercised and the kind of result required. It has a definite aim and a definite, orderly progress towards that aim, namely, the development of faculty and capacity. The internal guide and incentive to action must be the child's own mind; the external, the teacher's mind; and these two must work together harmoniously. Exercise divorced from mental activity—from *at*tention and *in*tention—and exercise incessantly the same, with no progress in it, do not constitute what we call training. In the latter case it may, and will, produce a narrow kind of special skill. But the narrow skill of a specialist is not that at which a school should aim; and even this skill will itself suffer in many ways from its own limitations. Indeed, as soon as we speak of skill, we turn our attention in a new direction. The actual result of what has been done or made becomes the most prominent thing before our mind, and in *this* we search for the proofs of skill: whereas, when we speak of training, we are thinking chiefly, if not entirely, of the thing or person exercised and of the results produced in it or him by the exercise in question. It is attention of this latter kind—with much greater definiteness in it—that teachers need to exert now-a-days far more than they do. With so many new subjects clamouring for admission into the school curriculum, it becomes absolutely necessary for us to ask ourselves the questions,—What parts of child-nature and child-mind have we hitherto but partially trained? What parts have we neglected altogether? And then, Will this new subject, when properly treated, enable us to do any part of our training better? or to do that which hitherto we have left undone? The answers to these questions, together with the consideration of that well-ordered progress and intimate connectedness of knowledge, of which we spoke last month, would enable us to come to a just, a most valuable, and a very much needed conclusion. And another boon—for which some of us would be grateful—would be sure to follow. It would, before very long, become manifestly futile, if not altogether absurd, for anyone to talk vaguely about any random exercise or mere employment as affording a splendid mental or manual training.

REVIEWS, NOTICES, &c.

Original English, as written by Our Little Ones at School. By Henry J. Barker. (Messrs. Jarrold & Sons.)

We are glad to see that Mr. Barker has collected and enlarged his articles called "Studies in Elementary School Life," which recently appeared in *Longmans' Magazine*, and has published them under the title of "Original English." We very much object to little people being made the laughing-stock of their very wise elders, who in their own ways are often quite as confused, and whose confusion spreads to their pupils. If the matter were not so serious a one, the blunders of teachers would often be far more amusing than those of the little ones under their care. But Mr. Barker, if he laughs at the little writers at all, laughs only in the kindliest manner. His object in publishing the essays which he has collected during his long experience of elementary schools, is rather to give us glimpses of child-mind, of the lives which little London children actually lead, and of life as a whole as it appears to these small folk. He seems to us to have succeeded admirably. What catch our attention in reading the essays are not so much the bad grammar and the bad spelling as the quaint ways of looking at things, the strange limits of ideas and experiences, and the not infrequent but quite unconscious pathos of what is revealed to us. We give two extracts from the essays of a little boy named Tom, which, in various ways, will illustrate what we have just said:—

OUR STREET.

"Our street is a long lane betwixt two big streets. Our street is not so clean as the big streets, coz yer mothers throw the slops and things in the gutter, and chucks bits of *Lloyds* and cabbige leaves in the middle of the road. That's why there's allus a funny smell down our street, speshilly when its hot. I like to sit with some more boys and girls in the dark passige wot is by the side of our house, and tell talls about where you've been. We often sit there waiting while our fathers or mothers cum home from work. I've seed more far-away places than some of them, and the girls are allus a arsking me to tell them wot I nose. The boys sit on one side of the passige with their backs to the wall, and the girls sit on the other side with their arms around one anuther's bodies, and they all listen. I don't no why girls are so fond of cuddlin one another. Then when we hear a man or anybody cumin up the passige, we drawr our legs in and we say, 'Will yer please mind our feet, sir?' and the men nearly allus says, 'All right, littluns; keep sat still, and we'll walk through the middle on yer.' But when a man is drunk we allus stan up, coz drunken men have lost their senses."

A VISIT TO THE ZOO.

"Of all the animals in this world, the Zoological Gardens is the most. You go in by a gate, and when you have got a bit way down, there they are all round yon. Ameriky cant be nothin to it. They cant run about and hurt you, coz there's a kage dropped over them all. They look so vexed coz you can see all they do and can have a good stare all round at them; and they keep lookin in the corners to see if they can't find some bushes and things to hide behint. The lion, which is the king of all the animals wot ever lived, was so little that I shouldn't have noen it was him, only I have seen pieters. Why he isn't quarter as big as a eliphent, and he hasn't got no trunk. I think the eliphent could master him if he liked; but the big silly won't try, coz he's so kind and doesn't want to be king. He looks at yer through the bars like as wot he was saying, 'You think as you can fight, don't yer, little boy, just coz you no I can't get out, all coz of this bloomin kage. If I could only skweez through I'd swallow you and yer mother too.' I said to my mother 'I should like to hear the lion aroaring.' Then she said 'Why that was aroaring just now when the keeper looked in at him.' Then I nearly cried, I was so wild; why, it wasnt like thunder and lightnin at all. It just opened its mouth wide, like as yev seed men sittin at their doors and a gaping on Sunday afternoons, and it yoped no louder than a apple cart man does. The hippopotimus is like a little mashed eliphent with its trunk sawed off. Its skin is so thick that it can stay in its pond all day without the water soakin through. It makes yer shiver when its eyes look up at yer. The fox, wot I thought was as big as carves, isnt worth alooking at acoz of its size. Its not a bit of good it bein sly where it is now, coz ther's no farmers nor huntin men allowed in the kages. It looks as if it wanted to be sly but cant. I like the eliphent more than all the uthers, and my mother let me have a ride. You feel as if you was in a balloon. The eliphent wot I rode on is called Jumbo, and it is the nicetist quadrerped as ever was seed. It looks as if it could not all of it die, it is so big."

John Allen: a Memoir by his Son-in-Law, R. M. Grier, M.A. (*Rivingtons.*)

We are glad that Prebendary Grier overcame his scruples at writing the life of his father-in-law, and thank him for the interesting volume he has compiled. Archdeacon Allen was one of a type of clergymen far too uncommon now-a-days; he was liberal both by tradition and conviction, and a sworn foe to ecclesiastical pretensions and bigotry in every shape and form. On more than one occasion, like William Rogers and Bishop Fraser, he was considered an aider and abettor of heresy, and his friendship with Maurice and Sterling exposed him to severe criticism. His own personal theological views were, however, more nearly akin to those of the High Church party.

Much of his best work was done in the cause of education, and the memoir before us throws a lurid light on the condition of many schools a generation ago. John Allen was selected by Lord Lansdowne in 1839 as a Government inspector of schools. So great was the prejudice on the part of many Churchmen to State supervision, that he only obtained a grudging permission from Bishop Bloomfield to accept the appointment, who finally said, "If we *are* to have school inspectors, it will be better to have good men than bad ones" (p. 88). For seven years Allen had a kind of roving commission of inspection; he threw himself with characteristic ardour into his difficult, but congenial, work. He showed himself a veritable John Bull in his hatred of meanness and trickery, and disturbed many hornets' nests. He visited endowed schools as well as primary schools; he informed the Government that in one town the grammar school "was practically empty by reason of the indiscriminate floggings of the pupils by the headmaster." On another occasion, he commented severely on the meanness of a Dean and Chapter with regard to some national schools. The Dean approached the Archbishop of Canterbury, who wished a portion of the report to be suppressed, but John Allen would not give in; and, failing to move the Archbishop, he intimated plainly to the Duke of Buccleuch, the Lord President of the Council, that he demanded, as an inspector, that his report should appear precisely as he wrote it, and that any tampering with his reports would be of the nature of fraud. The indomitable inspector gained the day, and the report appeared in its entirety (p. 119).

The condition of many of the Welsh schools was peculiarly bad; drunken and incompetent masters and unsuitable buildings conspired to render the teaching miserably inefficient. The clergy, in England as in Wales, treated the schoolmaster with contempt. John Allen wrote (in 1843), "I scarcely recollect an instance out of London—except the Dean of Bangor—of a clergyman's shaking hands with, or even talking familiarly with, the parochial schoolmaster" (p. 114).

Throughout his public life, John Allen was the fearless champion of the oppressed; high and low, rich and poor, layman and ecclesiastic, were impartially rebuked by him if, in his opinion, they were guilty. Dean Hook was severely censured because of his efforts to connect elementary schools inflexibly with churches; John Allen uses the memorable and instructive words, "I do not like to hold out the offer of good instruction, or of any other secular good, to draw children to church" (p. 89).

Perhaps one of the best stories in the volume is that which narrates how the intrepid archdeacon "cornered" a disreputably mean nobleman, who had promised a subscription to a church in a parish where he had property, but who failed to send the money at the proper time, and did not even answer repeated applications for his donation. The archdeacon called on the nobleman. After being kept waiting for some time, he was admitted to an interview and asked for the fulfilment of the promise. The nobleman demurred. "Then," said the archdeacon, "as I hold your promise, I shall put your lordship into the County Court." There could be no doubt that the speaker would be as good as his word; so the nobleman sat down and wrote out the cheque. The archdeacon took it, and, saying that God loved a cheerful giver, and had no regard for offerings extorted from fear, tore it up and threw it into the fire. He then left the room and the house. It is pleasant to be able to add that the nobleman afterwards sent the money with an apology, and that it was then accepted.

But it must not be imagined that John Allen was a severe or harsh man, though he was certainly at times somewhat hasty; he was, in fact, one of the kindest of men, and his relations with his parishioners at Prees, where he laboured for thirty-seven years, were of the happiest character. The picture drawn of his ministrations is idyllic in its simple beauty. No labour was too great for him to undertake for his devoted flock; his presence was a constant inspiration, and he seems to have been equally loved by Churchmen and Dissenters. To the devoted labours of the latter, both in rural district and populous town, he bore frequent and eloquent testimony. His advocacy of Temperance was similarly marked by high principle and great wisdom, and the circular letter he addressed to his parishioners on the subject is worthy of attentive perusal (page 249).

We would again thank Prebendary Grier for his biography of this sturdy Englishman, one of nature's truest gentlemen, and one of the most honoured of the clergymen of the century.

A New Geography on the Comparative Method. By J. D. M. Meiklejohn, M.A. (*London: Simpkin, Marshall, & Co.; St. Andrews, N.B.: A. M. Holden.* 1889.)—Professor Meiklejohn has succeeded in producing a geography which is likely to become rapidly popular. We have examined it carefully, and our admiration has increased with every perusal. Skilful arrangement of facts, the constant reference of the unknown to the known, numerous simple and illustrative diagrams, the use of distinctive type to mark the varying importance of the statements, are features which combine to make the task of learning geography light and pleasant. No opportunity seems to be lost of giving pointed and easily-remembered quotations from authorities on any of the topics discussed. In every paragraph we have evidence that the author is emphatically a *teacher*, and is a master of the art of education. From beginning to end, the principle of comparison is utilised and the pupil is taught to connect every fresh fact with those already learned. Not a word seems wasted, and the amount of information condensed into the volume is very great; at the same time, there are many eloquent paragraphs, such as those which describe the characteristics of London, Rome, Venice, and other cities; the danger is that the author may be sometimes too anxious to make his contrasts marked and conspicuous. As an example of both the strength and weakness of the writer's style, we may quote the sentences with which the chapter on Spain commences:—

"Spain is a land of contrasts. Once the most powerful state in the world, it is now one of the weakest. A land of heavy rainfalls and of districts that are deserts from drought, of great river-valleys and small rivers, of temperate and of tropical fruits, a land which contains the hardest-working and also the laziest among mankind, where the smuggler is an honester man than the official who arrests him, where even the lowest classes are eloquent and noble-mannered—such is, and has long been, the country we call Spain."

As an illustration of Prof. Meiklejohn's gift of explanation, we may refer readers to his account of the physical features of South America (p. 420). Numerous useful tables are appended to the volume, and the price is exceedingly low.

The Epistle to the Philippians. With Introduction and Notes. By the Rev. H. G. C. Moule, M.A. (*Cambridge Bible for Schools.*)—This volume is an admirable addition to the now well-known series, which we have frequently referred to in commendatory terms. The notes are, perhaps, more extended than most young people in schools will need or appreciate; but it is certain that this volume will be warmly welcomed by older persons in search of a trustworthy and compendious guide to portions of the Bible. We have been struck by the expository power shown in the annotations on several passages, as, *e.g.*, the note on "the palace" (i. 14), "conversation" (i. 27), and on the difficult section referring to the humiliation of Christ (ii. 7). The editor's indebtedness to Bishop Lightfoot's standard commentary is obvious, and is fully acknowledged; indeed, Mr. Moule takes numerous opportunities of indicating where additional information can be obtained on the various topics discussed. The introduction is full of condensed information, and deals thoroughly with various questions connected with the date, authorship, and authenticity of the Epistle. Its usefulness is enhanced by a translation of Polycarp's letter to the Church at Philippi. A number of appendices close the volume. Most of these are well written, though we note on pp. 130, 131, a strange contradiction. Mr. Moule admits that up to the fifth century the bishop was the *first of his order, primus inter pares;* but on the next page asserts, without any attempt at proof, that from the Apostles' times the *orders* of bishops and priests were distinct.

The Epistle to the Hebrews. With Notes and Introduction. By the Ven. F. W. Farrar, D.D., F.R.S. (*Cambridge Greek Testament for Schools and Colleges.*)—Like previous volumes of the series, the notes in this Greek text edition of the Epistle are substantially the same as in the earlier issue of the English text in the Cambridge Bible for Schools; the introduction is practically identical with that prefixed to the former volume; of course, all

peculiarities of construction are explained with direct reference to the original language, and facilities are supplied for criticism of the text. The notes and comments conspicuously illustrate Archdeacon Farrar's great skill as an expositor, to which we have often called attention. No better handbook for the study of the Epistle can be obtained at a small cost. We could wish that the volumes of the Cambridge Greek Testament followed the corresponding ones of the English text at a much shorter interval than has hitherto been the case; indeed, we can see no reason why the convenience of students should not be served by their simultaneous publication.

OUR LIBRARY TABLE.

A School, Physical, and Descriptive Geography. By Keith Johnston, F.R.G.S. Revised by E. G. Ravenstein, F.R.G.S. (*Edward Stanford.* 1889.)—This is the fifth edition of an accredited and useful school geography. It is distinguished by the very careful explanations of all physical phenomena and by the number of maps illustrating such features. The book includes all the usual matter of a geography, but the political and commercial sections are somewhat less full than the physical. A vast amount of well-arranged information is condensed into this volume.

A Short Geography of Africa. By the late Keith Johnston, F.R.G.S. (*Ed. Stanford.*)—The letterpress in this small handbook is reprinted from the preceding; it has an exceptional interest and authority on account of the author's work as the leader of the Royal Geographical Society's East African Expedition. A large coloured map (not included in the volume) is supplied; on this the results of the most recent discoveries are marked, making it one of the best maps available for the Dark Continent. No better handbook for schools can be desired.

Livy. Book XXII. By Marcus S. Dimsdale, M.A. (*Cambridge University Press.*)—This is a valuable addition to the Pitt Press Series. The notes and appendices are very full, and the text is augmented by a synopsis of the events recorded in each chapter. A map to illustrate the battle of Thrasymene is also given.

The Hippolytus of Euripides. By W. S. Hadley, M.A. (*Cambridge University Press.*)—This also forms one of the Pitt Press Series. The introduction is excellent, and the notes are useful without being too copious.

The England of Shakespeare. By Edwin Goadby. (*Cassell & Co.*)—This is not a history but a description, with numerous illustrations, of the England in which our great poet lived, wrote, and died. The author discusses the appearance of the country, trade and commerce, maritime development, the army and navy, religion and education, science and superstition, the court, the London of Shakespeare, the drama, and the literature of the period.

Form Discipline. A Lecture delivered for the Teachers' Training Syndicate, at Cambridge, February, 1886, by A. Sidgwick, M.A. (*Rivingtons.*)—A third edition of this admirable Lecture is now before us. The author has corrected a few misprints and one or two defects of expression. Why does not Mr. Sidgwick collect all his educational lectures into one volume?

Xenophon's Hellenica, Book II. By the Rev. L. D. Dowdall, LL.B., B.D. (*Deighton, Bell, & Co.*)—The notes on the text of this edition are very complete, and especially adapted for junior students. There is also a useful analysis of the events recorded.

Handbook of English Literature. By R. M'William, B.A. (*Longmans & Co.*)—Part II. of this work is now published following the lines laid down for Part. I. It contains an account of the literature of our country from the time of Chaucer to that of Shakspere. We are glad to notice that particular care has been taken in the spelling of all the illustrative extracts.

Cosmic Evolution: being Speculations on the Origin of our Environment. By E. A. Ridsdale. (*H. K. Lewis.*)—The author deals with his subject under three aspects, viz., the Chemical, the Organic, and the General.

The Teacher's Handbook to the Code Examinations, Standard IV. (*John Heywood.*)—This little work, by the author of "How to Pass Ninety per Cent. and Earn 'Excellent,'" consists of examinations and selected questions in grammar, geography, and mental arithmetic, given by H. M. Inspectors.

Travel, Adventure, and Sport. From "Blackwood's Magazine." (*Wm. Blackwood & Sons.*)—A third series of Tales from "Blackwood" are now being issued in alternate months, in parts. The series cannot fail to be popular, as the stories are suited to all varieties of tastes. No. I. contains "The Discovery of the Victoria Nyanza," by Capt. Speke; "My Home in Palestine," by Laurence Oliphant; "A Sketch in the Tropics," and "How I caught my First Salmon."

Exercises in Latin Verse. By Rev. G. Preston, M.A. (*Macmillan & Co.*)—This book contains notes on elegiac, heroic, and lyric verse, with short exercises. A Key to the exercises is also published separate from the work.

First Book of Easy Poetry; Geography Manuals: Part IV., England and Wales; Our Saviour's Miracles and Parables, in Parallel Columns; Latin Selections in Prose and Poetry; Miscellaneous Papers on English History; Gods and Heroes of Antiquity. By the Rev. Edmund Fowle. (*Relfe Brothers.*)—All these small volumes will tend to enhance Mr. Fowle's reputation as the writer of easy, simple, and useful school books.

School Songs. By Thomas Young. (*Thomas Laurie.*)—The songs are harmonised for soprano, contralto, and a bass that may be used or omitted *ad libitum*. They are arranged in the Tonic Sol-fa notation.

A Dictionary of Photography for the Amateur and Professional Photographer. By E. J. Wall. (*Hazell, Watson, & Viney.*)—The number of amateur photographers who of late years have sprung into existence, leads to the expectation that there is good scope for such a work as the above. In his preface the author remarks that many of the books published on photography are not intelligible, except to persons well versed in chemistry and optics. To meet this difficulty he now issues in a collected form certain articles and notes which have already appeared in the *Amateur Photographer*. The information given has been brought up to date and is generally accurate, but in a few comparatively unimportant matters there are inaccuracies. In calling nitric acid "extremely poisonous" the author might have added in its undiluted state. The method of preparing oxalic acid given, viz., by action of sugar or sawdust on nitric acid, is obsolete. The table of poisons and antidotes is not altogether reliable; for instance, in the case of lead acetate poisoning, magnesium or sodium sulphate would be quite safe, but zinc sulphate is not by any means advisable, for, if it should not at once act as an emetic, zinc acetate would be formed, and would prove a worse enemy than lead acetate.

Literature and the Pension List. By William Morris Colles. (*Mr. Henry Glaisher.*)—This is a compilation framed on the results of an investigation conducted for the Committee of the Incorporated Society of Authors, and deals with the history and administration of the "Pension List" in its relation to literature, from the Act of Parliament which created it to the present day. The official lists of pensions are reprinted verbatim, together with the reasons assigned for each appointment, and the amount. The book (100 pages crown 8vo) is simply a book of reference, but it is excellently put together, well printed, and neatly bound. The cost is, we believe, about two shillings.

The School; an Essay towards Humane Education. By W. H. Herford, B.A. (*Wm. Isbister.*)—The essay takes up one quarter of the book, the remainder being devoted to an Appendix of Method, in which the author expounds his views on the A B C of English, History, Geometry, Latin, and Humanity.

Civil Service Arithmetic. By John Keefe. (*Simpkin, Marshall, & Co.*)—This is a compilation of papers set at recent examinations for men, boy, and female clerkships, customs, excise, &c., together with answers, and an appendix explaining scales of notation, the theory of numbers, duodecimals, and other portions of advanced arithmetic.

Politics as a Duty and as a Career. By Moorfield Storey. (*The Knickerbocker Press.*)—This forms No. lviii. of the pamphlets on "Questions of the Day."

The Royal England Readers: Stories of England for Standard III., Our Kings and Queens for Standard IV., England from Roman times to the Establishment of the United Kingdom for Standard V. (*Nelson & Sons.*)—This new series of school histories has been prepared to meet the requirements of the Education Code as class readers, and also to form a complete course of history. The books are well bound, clearly printed, and well illustrated with maps, notes and meanings, summaries, and genealogical tables.

The Teacher's Companion to Macmillan's First Course of French Composition. By G. Eugène Fasnacht. (*Macmillan & Co.*)—This book will not only be of use to the teacher as a key, but also on account of the valuable and full grammatical notes and references which are appended to the rendering of each extract.

Nos Enfants et leurs Amis. Par Suzanne Cornaz. Edited by Edith Harvey. (*Macmillan & Co.*)—An easy reading book in French, forming one of a primary series of French and German reading books edited by G. Eugène Fasnacht. It contains notes and a vocabulary, and is printed in clear, readable type.

Un Voyage à Paris. By F. Julien. (*Hachette & Co.*)—In this we have a collection of sentences containing matter for the formation of conversation likely to be needed in visiting different places, shopping, travelling, etc.

Commercial French. By C. Brown. Elements of French Commercial Correspondence. By G. Korts. Baume's General French Correspondence. (*Hachette & Co.*)—In each of these three courses particular attention is paid to all matters relating to business, commercial letters, advertisements, circulars, moneys, weights and measures, etc.

Tourist's and Student's Manual of Languages. By Captain Charles Slack. (*Simpkin, Marshall, & Co.*)—A handbook supplying the traveller with a ready reference to the languages spoken throughout Europe and the East cannot fail to be a boon to travellers of all nationalities. Words of every-day use for the most part are included in the vocabularies, with money, exchange, and weights and measures tables.

A Class-Book of Geography. By C. B. Clarke, F.R.S. (*Macmillan & Co.*)—A new and revised edition of this book is now published. The principal alterations are (1) the putting in of newer numbers for the population of towns; (2) the bringing up to date the political geography of Egypt, Turkey, etc.; (3) the mention of a few places, as Baku, which have lately become of importance; (4) the addition of an appendix, intended to indicate what is meant by astronomical geography and chartography.

The Caravan, and the Sheik of Alexandria. Literally translated from the

German of W. Hauff by S. Mendel. (*George Bell & Sons.*)—This volume forms one of Bohn's Select Library of Standard Works. It is well printed, and on good paper.

Answers to Questions set at the Science and Art Examinations, May, 1888. (*Simpkin, Marshall, & Co.*)—The papers set in each subject have been answered in excellent style by competent persons. The fact that each subject is published separately will increase their value to both teacher and student.

The National Atlas (*John Heywood*) contains thirty-two coloured maps and an Index. The maps are distinctly printed, and the names are not overcrowded. A cheaper edition is also published containing the same number of maps, but without the Index, and with the maps printed on each side of the paper.

Longmans' Drawing Books. (*Longmans & Co.*)—These drawing-books in plane and solid geometry are compiled in accordance with the illustrated syllabus of the Science and Art Department. We can highly recommend them. The one on plane geometry contains about eighty worked problems, numerous exercises, and applications of geometry; while the other, on solid geometry, contains (1) about sixty worked figures on circular and rectangular solids, and eighteen examination tests, (2) a chapter on "Changing Planes of Projection," with thirteen worked figures, (3) a chapter on the "Projection of Oblique Surfaces," with eight worked figures. Blank drawing-books are also sold in which the examples are to be worked.

Practical Organic Chemistry. By Samuel Rideal, D.Sc. (*H. K. Lewis.*)—This volume contains a collection of the more important tests and reactions of the common organic compounds. The principal sources and modes of origin of the compounds are first given, and then the methods by which these compounds can be identified. No tables or schemes of analysis are given, but the student is left to construct for himself the methods of procedure. The book is admirably suited to those who are reading for the London University Examinations—B.Sc. and Inter. M.B.

The Argument for Manual Training. By N. M. Butler, M.A., Ph.D. Reports of the Special Committees on Manual Training and Educational Statistics in the State of New Jersey. (*New York and Chicago: E. L. Kellogg & Co.*)—The "Argument for Manual Training" is a paper read at a meeting of the American Institute of Instruction. An interesting course of study in manual training employed in the Jamestown, N.Y., public schools is given in the appendix. Dr. Murray Butler's efforts in behalf of manual training are well known. He is, moreover, a psycologist.

Examination and Education: the American Supplement to the Nineteenth Century for March, 1889. (*New York: Leonard Scott Publication Company.*)—The papers on Examination and Education are now issued in pamphlet form. The series includes papers by representative educators from all parts of America, and forms an instructive and valuable comment on an important phase of the educational question.

Mental Arithmetic for the Standards. (*Moffatt & Paige.*)—This is published in two parts—Part I. for Standards I., II., and III.; Part II. for Standards IV., V., VI., and VII.

The Educational Vocalist. By Alexander Adamson. (*J. Curwen & Sons.*)—A selection of original exercises and school songs to suit all the divisions in singing under the New Code.

The Auxiliary Music Cards. By Alexander Adamson. (*J. Curwen & Sons.*)—There are twenty-six cards in this packet, arranged for vocal drill in public elementary schools.

The Century Readers Home Lesson Book, No. V. (*Blackie & Son.*)—This is in no way inferior to any of the numbers I.—IV. which we have already noticed. It contains numerous exercises on spelling, grammar, etc., with poetry for repetition.

Selections from Lucretius. By T. J. Dymes, B.A. (*Rivingtons.*)—The finest passages of the great poem, "De Rerum Natura," are here presented. Many of the extracts are tolerably easy, and might, as a whole, very well take the place of Vergil as a class subject for a term.

General Knowledge Examination Papers. By A. M. M. Stedman, M.A. (*George Bell & Sons.*)—The papers have been compiled to furnish practice for those who are preparing for scholarships at the public schools and at the universities. They are seventy-five in number. Great pains have been taken in the choice of subjects, and in distinguishing what is technical from what is general.

An Elementary Text-book of Applied Mechanics. By D. A. Low. (*Blackie & Son.*)—This is a very suitable text-book for students who are preparing for the examinations of the Science and Art Department in applied mechanics. Carefully-arranged exercises follow each chapter. The diagrams are clear and intelligible.

English History Notes, 1689—1727. *By F. Freeth, M.A.* (*Relfe Brothers*).—These notes, which are mainly based upon J. F. Bright's "History of England," have been specially prepared for the use of Army candidates. The left-hand pages have been devoted to headings only, so that the student may find out what he wants easily, as well as have space for additional notes and observations of his own. There are fifty test questions at the end of the book.

Subjects of Social Welfare. By the Right Hon. Sir Lyon Playfair. (*Cassell & Co.*)—The selected articles in this volume are arranged under three headings—I. Public Health; II. Industrial Wealth; III. National Education. With but one exception—in which the causes of sleep are explained—they are all confined to subjects of social welfare. Under the heading of National Education, we have four articles on Primary Education, Technical Education, Teaching Universities, and Examining Boards, and Universities and Professional Education respectively.

Intermediate Mathematics. By the Principal of University Correspondence College. (*W. B. Clive & Co.*)—A second edition of this guide to the Mathematics of the Intermediate Examinations in Arts and Science of the University of London is now published. It contains weekly schemes of study, test papers, miscellaneous questions, and solutions of examination papers.

Havelok the Dane. Done into Modern English by A. J. Wyatt, M.A. (*W. B. Clive & Co.*)—This is a translation of one of the set subjects in Early English for the B.A. Examination of the University of London, 1889.

Matriculation Mechanics. (*W. B. Clive & Co.*)—This book contains the last twenty-five papers set at the Matriculation Examination of the University of London, with solutions to June 1888 and January 1889.

Short Stories for Composition. (*Wm. Blackwood & Sons.*)—There are more than 200 short stories in this book, with lessons on vocabulary.

Oral Teaching in Infant Schools. By James Bailey. (*Joseph Hughes.*)—Suggestions are here given on (i.) the Arrangement of Schemes of Lessons; (ii.) the Construction of Notes of Lessons, viz., Outline Notes, for purposes of examination, etc.; Full Notes; and Notes of Lessons of Revision; (iii.) Practical Hints on the Delivery of Lessons; (iv.) Examples of Notes of Lessons, in several kinds and series, and of Black-board Lesson Sketches.

The Pupils' Concise French Grammar and Useful Reader. By S. Croft. (*Relfe Brothers.*)—This grammar has been compiled for a pupil's home-lesson book, and presupposes that the teacher will enlarge upon each lesson, and give copious black-board examples.

Graduated Exercises in Addition. By William S. Beard, F.R.G.S. (*George Bell & Sons.*)—This book contains 552 sums in long and cross totals, both simple and compound, graduated and arranged in 52 exercises, each of which must be done in a given time. They are modelled after those given in various examinations, and will be invaluable to students preparing for public appointments, bank clerkships, &c.

Hand-and-Eye Training. Book I., for Boys and Girls; Book II., for Boys. By George Ricks, B.Sc. (*Cassell & Co.*)—Book I. deals with occupations which can be carried on in the ordinary school-room. The occupations embraced in Book II. necessitate the use of a separate work-room. In each volume there are 16 coloured plates produced in excellent style. The title "Hand-and-Eye Training" is adopted by the author instead of that of "Manual Training." The books are of uniform and convenient size, and the type is large and distinct.

Vere Foster's Copy-Books. (*Blackie & Son.*)—A new "bold-writing" series of copy-books, in sixteen parts, is now published, based on the principle of current writing. The series differs from the original series of Vere Foster's copy-books in several respects: the style is more bold, round, and upright; the loops are shorter, and the distance between the letters is greater.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending April 30th, 1889.

Angelsächsische Homilien, hrsg. v. B. Assmann, 10m.
Babbage's (C.) Table of Logarithms, 7s. 6d. cl.
Böhtlingk (O.): Sanskrit-Wörterbuch, Section 7, Part 2, 7m. 20.
Brass (A.): Die Zelle, das Element der Organischen Welt, 6m.
Cæsar's Commentaries on the Gallic War, complete, Literal Interlinear Translation by T. J. Arnold, 18mo, 5s. swd.
Casey's (J.) Treatise on Spherical Trigonometry, cr. 8vo, 5s.
Church's (A. J.) Selections from Lucretius, cr. 8vo, 2s. 6d. cl.
Couat (A.): Aristophane et l'Ancienne Comédie Attique, 3fr. 50.
Freeth's (F.) English History Notes, 1688—1727, 12mo, 2s. 6d. cl.
Greaves's (J.) Statics for Beginners, 12mo, 3s. 6d. cl.
Hendricks's (D. L.) London Charterhouse. its Monks and Martyrs, with Illustrations, &c., 15s. cl.
Hinman's (R.) Eclectic Physical Geography, cr. 8vo, 5s. cl.
Holmes's (T. R. E.) Four Famous Soldiers, cr. 8vo, 6s. cl.
Jezierski (A. S.): P. Ovidii Nasonis Epistolæ, 3m.
Jodl (F): Geschichte der Ethik in der Neueren Philosophie, Vol. 2, 10m.
Keeling's (A. E.) Nine Famous Crusades of the Middle Ages, 12mo, 2s. 6d. cl.
Knight's (F. A.) By Leafy Ways, Brief Studies from the Book of Nature, illustrated, cr. 8vo, 5s. cl.
Laverty's (W. H.) Laws of Motion, an Elementary Treatise on Dynamics, cr. 8vo, 5s. cl.
Lawrence (Lord), by Sir R. Temple, cr. 8vo, 2s. 6d. cl. (English Men of Action.)
Low's (D. A.) Elementary Text-Book of Applied Mechanics, 12mo, 2s. cl.
McCrie's (T.) Life of John Knox, cr. 8vo, 2s. cl.
Montgomery's (D. H.) Leading Facts of French History, cr. 8vo, 4s. 6d. cl.
Pansies, Precious Thoughts of Holy Scripture, a Bible Birthday Book, 32mo, 2s. 6d. cl.
Parker's (J.) People's Bible, Vol. 10, 8s. cl.
Ricks's (G.) Hand and Eye Training, Development of the Kindergarten: Book, 1, for Boys and Girls; Book 2, for Boys, cr. 4to, 6s. each, cl.
Robinson's (B.) Kindergarten Practice for the Use of Teachers, 3s. 6d. bds.
Sarrazin (G.): La Renaissance de la Poésie Anglaise (1795—1888), 3fr. 50.
Starche's (C. N.) Primitive Family in its Origin and Development, cr. 8vo, 5s. cl. (International Scientific Series.)
Stedman's (A. M. M.) General Knowledge Examination Papers, cr. 8vo, 2s. 6d. cl.
Wiesner (J.): Elemente der Wissenschaftlichen Botanik, Vol. 3, 8m.
Xenophon's Hellenica, Book 2, with Analysis and Notes by Rev. L. D. Dowdall, 12mo, 2s. cl.

MATHEMATICS.

10025. (Professor SYLVESTER, F.R.S.)—P is a point on an ellipse, the circle of curvature of which cuts the ellipse in Q; another circle touching the conic at P, cuts the conic in two points R, S; another circle through QRS cuts the conic in a given point A. Show that there are five positions of P which satisfy this condition, and that they are the apices of a pentagon of maximum area that can be inscribed in the ellipse.

Solution by J. D. H. DICKSON, M.A.; Professor SCHOUTE, *and others.*

The tangent at P must obviously be parallel to QA, and PQ and RS are parallel. Hence a circle passing through P, A, Q touches the conic at Q. Let α, ϖ, κ be the eccentric angles of A, P, Q; then

$$\varpi + 2\kappa + \alpha = 6\pi \quad \ldots\ldots\ldots\ldots \quad (1).$$

Also the equations of the tangent at P, and AQ, are

$$\frac{x}{a}\cos\varpi + \frac{y}{b}\sin\varpi = 1,$$

$$\frac{x}{a}\cos\frac{\kappa+\alpha}{2} + \frac{y}{b}\sin\frac{\kappa+\alpha}{2} = \cos\frac{\kappa-\alpha}{2};$$

whence, for parallelism, $\quad -2\varpi + \kappa + \alpha = 4\pi \quad \ldots\ldots\ldots\ldots \quad (2).$

From (1) and (2), $\varpi = \frac{1}{5}(2\pi + \alpha)$, or, noting that 2π may be replaced by $2n\pi$, where $n = 1, 2, 3, 4, 5$, we get the five values of ϖ required. The rest follows obviously.

1916. (Sir R. BALL, LL.D., F.R.S.)—Show that the equation of squares of differences of the biquadratic $(a, b, c, d, e)(x, 1)^4 = 0$ has for its discriminant (H being $= b^2 - ac$, &c., as in Quest. 1876)

$$(27J^2 - I^3)^2(4H^3 - a^2IH - a^3J)^2(55296H^3J + 2304aH^2I^2 - 16632a^2HIJ - 625a^3I^3 - 9261a^2J^2)^2.$$

Solution by Professor SEBASTIAN SIRCOM.

The required discriminant expressed in terms of the roots of the original quartic will be $L^2M^2N^2$, where L is the product of six terms of the form $(\alpha - \beta)^2$ and is the discriminant of the quartic, M the product of three terms of the form $\alpha - \beta + \gamma - \delta$, so that $M = G = 4H^3 - a^2IH - a^3J$, and N is the product of twelve terms of the form $\alpha + \beta - 2\gamma$, and is of the ninth order at most in any one. Then, H, I, J being of the orders 2, 4, 6, in the roots, we may put

$$N = AI^3 + BJ^2 + CHIJ + DH^2I^2 + EH^3J \ldots\ldots\ldots\ldots \quad (1),$$

H^6 of the twelfth order in any root being omitted.

[The rest in volume.]

9995. (C. L. DODGSON, M.A.)—A certain school contains not less than 90 boys nor more than 130. Latin, Greek, and French are taught, but no other languages. For every boy learning Latin, at least two learn Greek, but not French; for every three learning Greek, at least one learns French, but not Latin; and, for every two learning French, at least three learn Latin, but not Greek. Exactly half the school learn no languages. Find how many boys are learning each language.

Solution by J. C. ST. CLAIR, L. WIENER, *and others.*

Let f, g, l represent the number of boys learning French, Greek, and Latin respectively. From the data it follows that

$$2l,\ g,\ 3f \text{ not} > \text{an unknown portion of } g,\ 3f,\ 2l;$$

adding, $\quad 2l + g + 3f$ is not $>$ a portion of $(2l + g + 3f)$,

therefore the unknown portion is the whole, no boy learns two languages, and $g = 2l = 3f$. Now $N = 2(g + l + f) = 11f$, and is even. Therefore N is divisible by 22 and $= 110$; hence $f = 10$, $g = 30$, $l = 15$.

10026. (Professor MANNHEIM.)—On donne une sphère et un point fixe S. On coupe la sphère par un plan P, et l'on prend le petit cercle d'intersection, ainsi obtenu, comme directrice d'un cône qui a S pour sommet. Ce cône coupe de nouveau la sphère suivant un petit cercle dont le plan est Q. Démontrer que, si l'on fait varier le plan P, de façon qu'il passe par un point fixe, le plan Q passe aussi toujours par un même point.

Solution by Professor GENESE, M.A.; F. R. J. HERVEY; *and others.*

The planes P, Q meet in a straight line UV on the polar plane R of S. Also the planes SUV, P, R, Q are harmonic. Let F be the fixed point in P, and SF meet R in T and Q in X. Then $\{\dot{S}X\dot{T}F\}$ is harmonic. Therefore X is a fixed point.

7790. (R. KNOWLES, B.A.)—In Question 7593, if PQ meet the axis in a fixed point F, and a circle CDF cuts the parabola again in G, H; prove (1) that the envelope of the chord GH is a parabola; (2) if F be the focus, the envelope becomes the original parabola.

Solution by G. G. STORR, M.A.; REV. T. GALLIERS, M.A.; *and others.*

In the solution to Question 7593 (Vol. XLI., page 78) it is shown that the equation to CD is $ky + 2ax + 2a(2a - h) = 0$. The equations to GH and the circle CDF will, if $\lambda = -(k^2 + 4a^2)^{-1}$, be

$$ky - 2ax + l = 0,\ y^2 - 4ax + \lambda\{ky + 2ax + 2a(2a - h)\}(ky - 2ax + l) = 0 \ (1),$$

[The rest in volume.]

10059. (R. W. D. CHRISTIE.) — Prove that every perfect number except the first two is the sum of an even number of odd cubes.

Solution by J. D. H. DICKSON, M.A.; Prof. RADAKRISHNAN; *and others.*

Let $2^{2n+1} - 1$ be a prime number, then $2^{2n}(2^{2n+1} - 1)$ is a perfect number. Also, the sum of the first 2^n odd cubes is

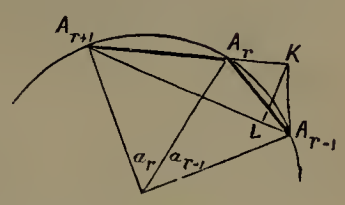
$$1^3 + 3^3 + 5^3 + \ldots + (2 \cdot 2^n - 1)^3 = 2^{2n}(2 \cdot 2^{2n} - 1) = 2^{2n}(2^{2n+1} - 1).$$

The first perfect number is 6, for which $n = \frac{1}{2}$. In this case the theorem fails, but it is true for all other perfect numbers, because, since $2^{2n+1} - 1$ is a prime number, therefore $2n + 1$ cannot be even, and therefore n has in every other case except that of 6 an integral value.

9913, 9970, 10001. (A. RUSSELL, M.A.)—If a polygon be inscribed in a circle of radius R, prove that (9913) $\Sigma(a_{r-1}^2 - a_r^2)\cot A_r = 0$; where a_{r-1}, a_r are two consecutive sides, and A_r the included angle; (9970) its area is $R^2\,\Sigma\dfrac{a_{r-1}a_r\sin A_r - \frac{1}{2}a_{r-1}^2\sin 2A_r}{a_{r-1}^2 + a_r^2 - 2a_{r-1}a_r\cos A_r}$; (10001) if the polygon have an even number of sides, and θ have any value

$$R^2 = \frac{\Sigma(-1)^r a_{r-1}a_r\sin(A_r + \theta)}{\Sigma(-1)^r\sin(2A_r + \theta)}.$$

Solution by J. D. HAMILTON DICKSON, M.A.



(9913) Let the side a_r subtend an angle α_r at the centre of the circum-circle; then $2A_r = 2\pi - \alpha_{r-1} - \alpha_r$; hence

$$(a_{r-1}^2 - a_r^2)\cot A$$
$$= -4R^2[\sin^2\tfrac{1}{2}\alpha_{r-1} - \sin^2\tfrac{1}{2}\alpha^r]\cot\tfrac{1}{2}(\alpha_{r-1} + \alpha_r)$$
$$= -2R^2(\sin\alpha_{r-1} - \sin\alpha_r);$$

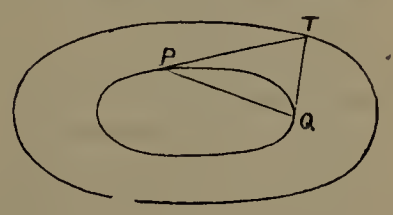
$$\therefore\ \Sigma(a_{r-1}^2 - a_r^2)\cot A_r = -2R^2 \cdot \Sigma(\sin\alpha_{r-1} - \sin\alpha_r) = 0.$$

[For PROPOSER's Solution, see Vol. LI., page 60.]

[The rest in volume.]

10011. (G. G. STORR, M.A.) — From a point T on the ellipse $b^2x^2 + a^2y^2 = 4a^2b^2$, tangents TP, TQ are drawn to the ellipse $b^2x^2 + a^2y^2 = a^2b^2$; prove that $\Delta TPQ = \frac{3}{4}\sqrt{3} \cdot ab$.

Solution by W. J. GREENSTREET, M.A.; R. KNOWLES, B.A.; *and others.*



By SMITH's *Conics*, Problem 43, C. VI., if T be (h, k),

$$\Delta TPQ = (b^2h^2 + a^2k^2 - a^2b^2)^{\frac{1}{2}}$$
$$\times\{1 - a^2b^2/(b^2h^2 + a^2k^2)\};$$

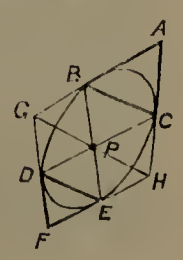
but, since T lies on the first curve,

$$b^2h^2 + a^2k^2 = 4a^2b^2,$$

therefore $\Delta TPQ = \frac{3}{4}\sqrt{3}\,ab$.

10003. (E. LEMOINE.)—Appelons, avec M. Neuberg, triangle *semi-conjugué* ou *semi-autopolaire* par rapport à une conique, le triangle aAa', où a et a' sont les intersections de la polaire de A avec cette conique; on a le théorème: *Deux triangles semi-conjugués par rapport à une conique sont inscriptibles à une autre conique et circonscriptibles à une troisième.*

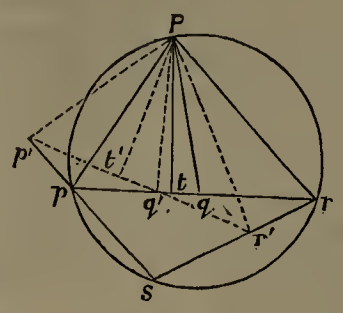
Solution by Professor SCHOUTE; J. J. BARNEVILLE; *and others.*



As the quadrilateral BCDE is inscribed in the given conic, the points P, G, H are collinear (see the diagram); for P is common to a pair of opposite sides, and G and H are the points common to tangents in opposite vertices. Therefore, after BRIANCHON's theorem, the hexagon BCHEDGB is circumscribed to a new conic. And then the poles of the six sides, *i.e.*, the points A, B, C, D, E, F, lie on still another conic, the reciprocal polar of the former with reference to the given one.

10030. (Professor STEGGALL.)—Prove that, if from a fixed point on the circumscribing circle of a triangle, lines be drawn to cut the sides in order at the same angle, the points of intersection lie on a line which envelopes a parabola.

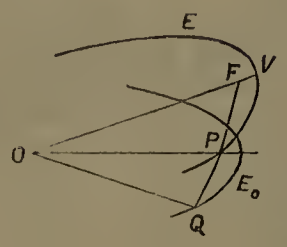
Solution by F. R. J. Hervey; Professor Schoute; *and others.*



From P on circumcircle of triangle prs draw Pq, making $\angle Pqp = Prs = Ppp'$, and Pt perpendicular to pr; and suppose p, q, r to move along sp, rp, rs, respectively. If Pp, Pq, Pr turn in the same sense through the same angle, their lengths will change in the same ratio. Hence, p, q, r will remain collinear, the resulting *dotted* figure $Pp't'q'r'$ being always similar to $Pptqr$. Hence, also, t will describe a straight line tt' (making with Pt the same angle as qp with Pq, &c.), which is therefore tangent at vertex to a parabola, with focus P, enveloped by $p'q'r'$.

10012. (W. J. Greenstreet, M.A.)—Find the loci of the vertices and foci of concentric and similar ellipses passing through a fixed point.

Solution by Professors Schoute, Matz, *and others.*



In the affixed diagram, O is the common centre, P the given fixed point, E_0 the ellipse concentric and similar to the given series of which P is a focus, E an ellipse of the given series, F one of its foci, and Q the point of E_0 that corresponds to the point P of E. The similar triangles POQ and FOP give the relations $\angle POF = \angle QOP$, $OF \,.\, OQ = OP^2$.

[The rest in Volume.]

10037. (Professor Ignacio Beyens.)—Si (P_1), (P_2), (P_3) sont les pieds des perpendiculaires abaissées du point de Lemoine d'un triangle sur les côtés BC, AC, AB, on aura la relation

$$(BP_1/a) + (CP_2/b) + (AP_3/c) = (CP_1/a) + (AP_2/b) + (BP_3/c) = \tfrac{3}{2}.$$

Solution by R. Tucker, M.A.; R. Knowles, B.A.; *and others.*

$$BP_1/a = (c^2 + ac\cos B)/k, \quad CP_1/a = (b^2 + ab\cos C)/k,$$

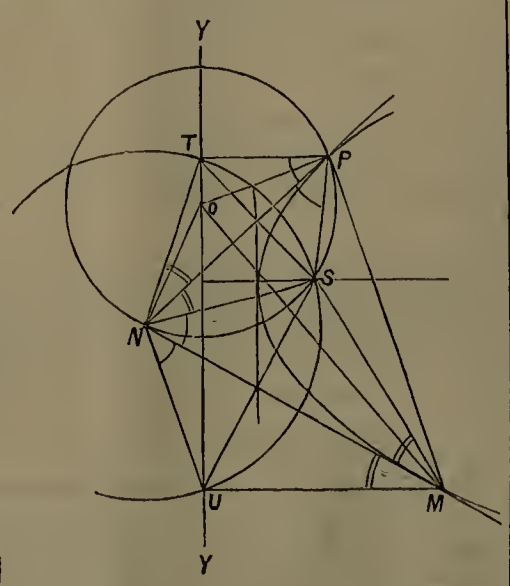
(see "Triplicate Ratio" Circle, *Quarterly Journal of Mathematics*, Vol. xix., No. 76, p. 345), therefore sinister side of Question

$$= (c^2 + ac\cos B + a^2 + ab\cos C + b^2 + bc\cos A)/k$$
$$= (k + \tfrac{1}{2}k)/k = \tfrac{3}{2} = \text{dexter side.}$$

[The rest in Volume.]

10016. (A. E. Jolliffe.)—O is a point on the directrix of a parabola and S the focus. A circle with centre O passes through S, and cuts the parabola in P and Q. The tangents at P to the circle and parabola meet the parabola and circle respectively in M and N. Show by pure geometry that MN is a common tangent to both curves.

Solution by Professor Schoute; G. E. Crawford; *and others.*



Let, in the diagram, YY represent the directrix, and NM be considered as the second tangent to the parabola passing through N, M being its point of contact. Then it is to be proved that NM and PM touch the circle (O) in N and P. This can be derived from the generally known facts, that, PT and MU being perpendicular to the directrix, NS, NT, NU are equal, and this is also the case with the angles denoted in the figure by a single arc, and with those denoted by a double arc.

The equality of the angles MNS and NPS proves that the circle (O) is touched in N by NM. [The rest in Volume.]

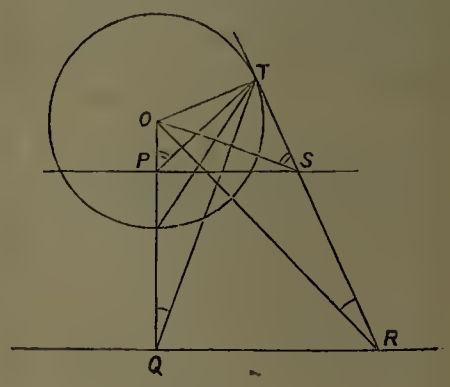
10013. (E. M. Langley, M.A.)—Prove, geometrically, that the symmedian point of a triangle is the centroid of its projections on the sides.

Solution by Professor Schoute; J. J. Barneville; *and others.*

When K is the point of Lemoine, and K_a, K_b, K_c are its projections on the sides, KK_a, KK_b, KK_c are proportional to a, b, c (definition of K); therefore the triangles K_bKK_c, K_cKK_a, K_aKK_b are equal, $bc\sin A$, $ca\sin B$, $ab\sin C$ being equal. This proves K to be the centroid of the triangle $K_aK_bK_c$, etc.

10024. (J. Cirilli.)—Etant donnés un cercle et une droite, déterminer une seconde droite parallèle à la première de façon qu'une tangente quelconque au cercle coupe les deux droites en deux points dont le rapport des distances au centre du cercle soit constant.

Solution by J. C. St. Clair; G. E. Crawford, B.A.; *and others.*



The line through P, the pole of the given line, is the line required.

Let O be the centre, and let OP meet the given line in Q. Let the tangent at any point T cut the given line in R, and the parallel in S. Since OQRT, OPST are concyclic, it is easily shown that PTQ, SOR are similar triangles,

$\therefore \quad TP : TQ = OS : OR.$

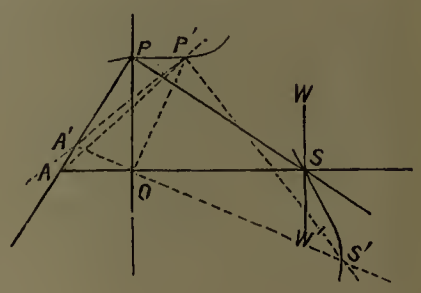
Again, since P, Q are inverse points, $OP : OT = OT : OQ$, therefore OPT, OTQ are similar triangles, and

$$TP : TQ = OP : OT = OT : OQ;$$

therefore $\quad OS : OR = OT : OQ$, constant.

9894. (Professor De Wachter.)—A system of two rectangular rods AOS and IOP moves about O as a pivot. The distance OA being constant, A is kept on the rod AP of a right angle APS whose vertex P ranges along OP. A disc WW′ (radius = OA) moves under OS with its axis parallel to it. If P traces out any curve PP′ in the plane, OP describes the area POP′. The disc in S, rolling on the plane, revolves in the meantime through a circular sector whose area = POP′ (Polar planimeter).

Solution by the Proposer; Professor Sarkar; *and others.*



Putting $OA = a$, $OS = r$, and $POP' = \omega$, the element of area described by OP is $= \frac{1}{2}\rho^2 \,.\, d\omega$. At the same time, the elementary sector rolled over by the wheel in S, is $\frac{1}{2}a \,.\, r\, d\omega$. Now, as the figure shows, $\rho^2 = ar$. Hence the proposition. The same property, by means of a different mechanical contrivance, has been applied by the Proposer to the construction of a polar integrator.

10014. (Capitaine de Rocquigny.)—On forme le tableau suivant:

1, 2, 3, 4, 3, 4, 5, 6, 7	. Démontrer que la somme des termes d'une horizontale est un carré impair.

Solution by Thomas S. Fiske, A.M., Ph.D.; R. W. D. Christie; *and others.*

In the nth horizontal the first term is n, the number of terms is $2n-1$, the last term is $3n-2$. Consequently the sum of the terms will be $(2n-1)\,\frac{1}{2}\,(4n-2)$ or $(2n-1)^2$.

9981. (Professor Genese, M.A.)—TP, TQ, T′P′, T′Q′ are tangents to a conic, (centre C, foci S, S′). Prove that T, P, Q, T′, P′, Q′ will lie on a circle if (1) CT, CT′ be on opposite sides of SS′ and equally inclined to it, and (2) $CT \,.\, CT' = CS^2$.

Solution by R. H. W. Whapham, B.A.; G. G. Storr, M.A.; *and others.*

Let the conic be $ax^2 + by^2 - 1 = 0$; T, $x'y'$; T′, $x''y''$; then PQ is

$$axx' + byy' - 1 = 0; \quad P'Q' \text{ is } axx'' + byy'' - 1 = 0;$$

therefore any conic through P, Q, P′, Q′ is

$$\lambda\,(ax^2 + by^2 - 1) - (axx' + byy' - 1)(axx'' + byy'' - 1) = 0.$$

This will pass through T if $\lambda = ax'x'' + by'y'' - 1$,

and the symmetry of this result shows that it will pass through T′ also. The conic is a circle, if

$$x'y'' + x''y' = 0, \text{ and } x'x'' - y'y'' = a^{-1} - b^{-1} \;\ldots\ldots\ldots\; (1, 2),$$

From (1) and (2) we see that CT and CT′ must be on opposite sides of SS′ and equally inclined to it. Again, squaring and adding (1) and (2), we get $\quad (x'^2 + y'^2)\,(x''^2 + y''^2) = (b^{-1} - a^{-1})^2$, or $CT \,.\, CT' = CS^2$.

9949. (H. W. Segar.)—PN is an ordinate of a parabola. NQ, NR are two lines drawn from N so that QNP, RNP are equal angles; show that $SQ \,.\, SR - AS \,.\, (SQ + SR)$ is constant for all values of the angles.

Solution by R. F. Davis, M.A.; R. Knowles, B.A.; *and others.*

QN passes through a point R′ symmetrically situated on the opposite side of the opposite side of the axis to R. Hence the product of the abscissæ of Q, R is $= AN^2 =$ constant; or $(SQ-AS)(SR-AS) =$ constant, &c.

QUESTIONS FOR SOLUTION.

10103. (Professor Sylvester, F.R.S.)—A figure composed of two circular plates of equal diameter in contact is thrown upon a ruled sheet of paper; twice the diameter of either circle being supposed less than the distance between contiguous lines, find the chance of the figure falling in such a position that it will be intersected in four points by one of the ruled lines.

—104. (Professor Schoute.)—The vertices A, B, C of a triangle ABC move with constant velocities along three given complanar right lines; find the loci and envelopes of the remarkable points and lines connected with the variable triangle ABC.

—105. (Professor Mathews, M.A.)—Prove that (1) if $i^2 = -1$,

$$(7+2i)^{\frac{1}{2}} = 3 + \frac{1}{(-1-2i)} + \frac{1}{(-1-i)} + \frac{1}{2i} + \frac{1}{(1-2i)} + \frac{1}{(1-i)} + \frac{1}{5} + \ldots,$$

where all the quotients except the first recur; and (2)

$$(17-63i)^2-(7+2i)(3-24i)^2 = 1.$$

—106. (Professor Syamadas Mukhopâdhyây, B.A.)—P, Q, R are three points on a parabola, PR being parallel to the tangent at Q; r is the radius of a circle touching the tangents at P, Q, R, and r' is the radius of a corresponding circle touching the normals at P, Q, R. Prove (1) that $\tan\delta = r'/3r$, where δ is the angle between the normal and diameter at Q; and hence (2) deduce for any curve Transon's formula $\tan\delta = \rho'/3\rho$, where δ is the angle of aberrancy at a point (A) of the curve, and ρ, ρ' the radii of curvature of the curve at the point (A), and of the evolute at the point corresponding to (A).

—107. (Professor Hudson, M.A.)—Prove, if R be the circum-radius, that the distance between the in-centre and the orthocentre of a triangle is

$$2R\left\{\text{vers A vers B vers C} - \cos A \cos B \cos C\right\}^{\frac{1}{2}}.$$

—108. (Professor De Longchamps.)—Par le centre d'une ellipse E, on fait passer une circonférence Δ. Soient A, B, C trois des points communs aux courbes E, Δ; on suppose que les normales en ces points concourent en P. Trouver (1) le lieu decrit par le centre de Δ; (2) le lieu décrit par le point P. Ces lieux sont des ellipses.

—109. (Professor Mannheim.)—Une droite se déplace de façon que trois de ses points restent sur trois plans parallèles à une même droite. Démontrer qu'un point de la droite mobile se déplace sur un plan.

—110. (Professor Bordage.)—Find the value of $\int dS/P$ for all the points of the surface of the ellipsoid represented by the equation

$$x^2/a^2 + y^2/b^2 + z^2/c^2 = 1.$$

—111. (Professor Wolstenholme, Sc.D.)—If a, b, c, A, B, C denote the sides and angles respectively of a triangle, and n be any positive integer; prove that

$$b^n \cos nC + nb^{n-1}c\cos[(n-1)C-B] + \tfrac{1}{2}(n.n-1)\,b^{n-2}c^2\cos[(n-2)C-2B]$$
$$+\ldots+n\,bc^{n-1}\cos[C-(n-1)B] + c^n\cos nB = a^n,$$
$$b^n \sin nC + nb^{n-1}c\sin[(n-1)C-B] + \tfrac{1}{2}(n.n-1)\,b^{n-2}c^2\sin[(n-2)C-2B]$$
$$+\ldots+n\,bc^{n-1}\sin[C-(n-1)B] + c^n\sin(-nB) = 0.$$

—112. (Professor Morel.)—On considère deux cercles concentriques O. On trace un troisième cercle variable C, tangent en un point fixe A du plus petit des cercles O et coupant le plus grand aux points M, N; on joint M et N au point B diamétralement opposé à A dans le cercle C. Démontrer que les droites BM et BN enveloppent un cercle fixe.

—113. (Professor Gob.)—Lorsque la base BC d'un triangle ABC est fixe et que l'angle de Brocard est constant, les centres des cercles de Neuberg (M_b), (N_c) décrivent une circonférence; le cercle (N_b) a pour enveloppe un limaçon de Pascal; la droite de Lemoine de ABC enveloppe une conique ayant pour foyers les points B, C.

—114. (Professor Déprez.)—On considère toutes les coniques inscrites au triangle ABC et dont les axes ont des directions données. (1) Les foyers et les sommets décrivent des cubiques; (2) le lieu d'un point situé sur un axe de l'une des coniques à une distance constante du centre est une conique.

—115. (Professor Neuberg.)—Soient ABC, A′B′C′ deux triangles égaux situés dans un même plan et semblablement orientés. Démontrer qu'il existe un troisième triangle A″B″C″ égal à ABC et A′B′C′, et tel que ses côtés rencontrent les côtés homologues de ABC et A′B′C′ en six points d'une même circonférence.

—116. (Professor Emmerich, Ph.D.)—P, Q being the foci of an in-conic of the triangle ABC, D its point of contact with BC, prove the proportion BD : CD = b.BP.BQ : c.CP.CQ.

10117. (Professor Catalan.)—Dans tout quadrilatère convexe, dont les angles sont A, B, C, D, démontrer que

$$\cos\tfrac{1}{2}A\cos\tfrac{1}{2}B + \cos\tfrac{1}{2}C\cos\tfrac{1}{2}D = \sin\tfrac{1}{2}(B+C)\sin\tfrac{1}{2}(C+A);$$
$$\sin\tfrac{1}{2}A\sin\tfrac{1}{2}B + \sin\tfrac{1}{2}C\sin\tfrac{1}{2}D = \sin\tfrac{1}{2}(B+C)\sin\tfrac{1}{2}(C+A);$$
$$\sin\tfrac{1}{2}(A+B)\left[\sin\tfrac{1}{2}A\sin\tfrac{1}{2}B + \sin\tfrac{1}{2}C\sin\tfrac{1}{2}D\right]$$
$$= \sin\tfrac{1}{2}(B+C)\left[\sin\tfrac{1}{2}B\sin\tfrac{1}{2}C + \sin\tfrac{1}{2}D\sin\tfrac{1}{2}A\right];$$
$$\sin\tfrac{1}{2}(A+B)\left[\cos\tfrac{1}{2}A\cos\tfrac{1}{2}B + \cos\tfrac{1}{2}C\cos\tfrac{1}{2}D\right]$$
$$= \sin\tfrac{1}{2}(B+C)\left[\cos\tfrac{1}{2}B\cos\tfrac{1}{2}C + \cos\tfrac{1}{2}D\cos\tfrac{1}{2}A\right];$$
$$2\cos\tfrac{1}{2}A\cos\tfrac{1}{2}(B+C)\sin\tfrac{1}{2}(C+D) = -\sin\tfrac{1}{2}A\sin\left\{C+\tfrac{1}{2}(B+D)\right\}$$
$$+\sin\tfrac{1}{2}B\sin\tfrac{1}{2}(B+C) + \sin\tfrac{1}{2}D\sin\tfrac{1}{2}(C+D).$$

—118. (The Editor.)—If from the foci E, F of an ellipse whose centre is O, parallel radii EA, FB be drawn, and tangents AP, BP; prove that (1) OP is parallel to EA; (2) the angles FPA, EPB are right angles; (3) the angle EPF is an arithmetic mean between EAF and EBF; (4) PA . PE : PB . PF = AE : BF; (5) the sum of the reciprocals of EA, FB is constant; (6) the locus of the intersection (M) of the diagonals of the trapezoid AEBF is an ellipse confocal with the given one, and normal at each position to PM; (7) $MP^2 = ME.MF$; (8) PE, PF bisect the angles AEB, AFB; (9) PE . PF = PM (major axis); (10) the sum of the squares of the reciprocals of the distances of E, F from the corresponding tangent is constant; also (11) find the locus of the point P.

—119. (Hugh MacColl, B.A.)—

To put a question somewhat queer, Suppose the earth an *airless sphere*,
Through which is bored, from pole to pole, A bottomless cylindric hole;
Right o'er the centre let there fall A smooth and polished marble ball.
Dear Reader, may I ask you *when* That marble would come back again?

[See the Proposer's amusing story, *Mr. Stranger's Sealed Packet.*]

—120. (Maurice d'Ocagne.)—Soient p et q la podaire et l'antipodaire inclinées d'angle α de la courbe m par rapport au point O, et M, P, et Q trois points correspondants de ces courbes. La droite MO est symédiane du triangle MPQ.

—121. (E. Lemoine.)—On circonscrit à toutes les ellipses homofocales de foyers F et F′ des rectangles dont la direction des côtés est donnée; démontrer que tous les points de contact appartiennent à une même hyperbole equilatère qui passe par F et F′ et a pour asymptotes les parallèles menées par le centre des ellipses aux côtés des rectangles.

—122. (F. R. J. Hervey.)—Supposing the nine-point circle of a triangle to vary so that its radius retains a constant ratio to the distances of its centre from circumcentre and orthocentre, show that it will always meet the lines of the triangle at the vertices of two triangles similar to the given and pedal triangles respectively.

—123. (J. Griffiths, M.A.)—If

$$I_3(x, y) = a_0x^3 + 3a_1x^2y + 3a_2xy^2 + a_3y^3, \quad I_2(x, y) = a_0x^2 + 2a_1xy + a_2y^2,$$

prove that $x = a_1a_2 - a_0a_3$ and $y = 2(a_0a_2 - a_1^2)$ will invariantise both I_3 and I_2, and that these quantics will have a common factor, viz., the discriminant of I_3.

—124. (D. Biddle.)—A cubical die, of side a, lies at the bottom of a cylindrical dice-box, of radius r. The dots or pips being symmetrically arranged on their several sides and each of radius ρ, find the probability that one of those on the uppermost side of the cube is placed vertically over the centre of the box.

—125. (Ch. Hermite.)—Démontrer que, lorsque m est un multiple de n, $\{m(m-1)(m-2)\ldots(m-n+2)\}/n!$ est un nombre entier.

—126. (H. W. Segar.)—The straight lines ABC, DEF cut three others which meet in a point O in the points A, B, C, D, E, F; prove that

$$AD.BC/OD + BE.CA/OE + CF.AB/OF = 0.$$

—127. (J. C. St. Clair.)—If n points be taken on a circle, prove that (1) the mean centres of the n systems of $n-1$ points, formed by omitting each point in succession, lie on a circle S_n; (2) if another point be taken on the original circle, the centres of the $n+1$ circles S_n, obtained by omitting each point in succession, lie on an equal circle, and so on *ad infinitum;* and (3) hence deduce a proof of Quest. 9997.

—128. (Capitaine de Rocquigny.)—Les n premiers nombres sont dans une urne. On en tire au hasard trois. Quelle est la probabilité que l'un des nombres extraits est égal à la somme des deux autres ou égal à leur demi-somme?

—129. (W. J. C. Sharp, M.A.)—Prove that any quadric, described through the six points in which the edges of a tetrahedron are each met by the plane through the opposite edge and a fixed point, will intersect the edges again in their six points of intersection with a system of planes through the opposite edges and another fixed point.

—130. (W. J. Greenstreet, M.A.)—Sum to n terms the series

$$1^2\cos x + 2^2\cos 2x + 3^2\cos 3x + \ldots$$

—131. (H. L. Orchard, M.A., B.Sc.)—Find the value of q, in terms of p, in order that the cubic $x^3 + px^2 + qx + p = 0$, may be solvable by a simple quadratic method.

—132. (W. W. Poole Hughes, B.A.)—OP and OQ are tangents to

an ellipse, whose foci are S and S′. SQ and S′P intersect in R. The normal at P intersects OR produced in T; TS meets the tangent at P in W. Prove that TP, OS, and RW are concurrent.

10133. (F. Morley.)—In two confocal circular cubics the point where either is cut by its asymptote is the double focus of the other.

—134. (E. M. Langley, M.A.)—Deduce the existence of the Brocard-points from that of the symmedian point.

—135. (R. W. D. Christie.)—Prove that

$$\sqrt{n} = 2^{\frac{1}{2}(n-1)} \cos a \cos 3a \cos 5a \ldots \cos \tfrac{1}{2}(n-1) \,.\, a,$$

when n is odd, and $a = \pi/2n$.

—136. (C. A. Swift.)—Prove that the expansion of tan tan tan ... tan x, the tangent being taken n times, is

$$x + 2n\frac{x^3}{3!} + 4n(5n-1)\frac{x^5}{5!} + \frac{8n}{3}(175n^2 - 84n + 11)\frac{x^7}{7!} + \ldots$$

—137. (R. Knowles, B.A.)—In Question 9833, prove that the lines from ABC through the mid-points of B′C′, A′C′, A′B′, respectively, intersect in K.

—138. (John J. Barneville.)—Sum to n terms the series

$$3 + 8 + 16 + 28 + 46 + \&c.$$

—139. (R. Tucker, M.A.)—DEF, D′E′F′ are the "T. R." triangles of ABC; prove that (1) their Brocard circles are

$$k^2(\alpha\beta\gamma + \ldots + \ldots) = (p\alpha + q\beta + r\gamma)(a\alpha + \ldots + \ldots),$$

where p, q, r are respectively proportional to $bc(2b^2 + c^2)$, ..., ..., $bc(b^2 + 2c^2)$, ..., ... ; (2) the join of their S. points touches the B. circle of ABC at its S. point; (3) mid-point of join of their centroids lies on S. point axis of ABC; (4) if AA′, BB′, CC′ are diameters of the circle ABC, the B. circle of the diametral triangle has p, q, r in (1) above proportional to $-2b^2c^2 \cos A$, ..., ... ; (5) the equation to the circle through the four B. points of the two triangles is

$$\lambda^2(\alpha\beta\gamma + \ldots + \ldots) = abc(a\alpha + \ldots + \ldots)^2, \text{ where } \lambda^2 = a^2b^2 + \ldots + \ldots;$$

(6) if B′C′ cuts AC, AB in M, N respectively, then BM, CN cointersect on the median through A, with similar results for the other angular points of the two triangles; (7) obtain the equation of the *diametral* B. ellipse.

NOTICE TO CORRESPONDENTS.

Correspondents should be careful (*a*) to write each Question and each Solution on a *separate* paper (otherwise, when used for printing, the Editor has the labour of entirely *re-writing* such articles); (*b*) to make their Solutions as short as possible; (*c*) to send all Questions *early in the month*, but not to send Solutions till their Questions have been published; (*d*) to write their names at the *top* of *each* paper; (*e*) to *prepay* the postage in *full*; and (*f*) to send all communications to

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LONDON MATHEMATICAL SOCIETY.

Thursday, April 11th.—Mr. J. J. Walker, F.R.S., President, in the Chair. Mr. C. E. Hasclfoot, B.A., was admitted into the Society. The Secretary read the following papers, or abstracts of them:—"On the Free Vibrations of an Infinite Plate of Homogeneous Isotropic Elastic Matter," Lord Rayleigh, F.R.S.; "On the Constant Factors of the Theta Series in the general case $p = 3$," Prof. F. Klein; "On the Generalised Equations of Elasticity, and their application to the Theory of Light," Prof. K. Pearson, M.A.; "On the Reduction of a Complex Quadratic Surd to a Periodic Continued Fraction," Prof. G. B. Mathews, M.A.; "Construction du centre de courbure de la développée de la courbe de contour apparent d'une surface que l'on projette orthogonalement sur un plan," Prof. Mannheim. Mr. A. B. Kempe, F.R.S., and the President made short communications.

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15881. A Jun. Gov. Mutual terms. Eng. subj., elem. Lat., Euc., Alg. Will receive lessons in Mus., Paint., Fr. and Ger.
15883. (i.) A Gov. Good Eng., Fr. and Mus. 25*l.*
(ii.) Gov. Pupil.
15888. Jun. Master. Lat., Euc., Bkkp., Alg., Arith., Eng. 40*l.* non-res.
15889. Gov. Thoro. Eng., good Fr., Arith., Mus., Class Sing., Ndlwk. 25*l.*
15892. A Jun. non-res. Master. Gen. subjects.
15895. Classics. Non-res. Gov. for High School.
15896. Master. Eng. subj., elem. Lat., Fr. and Math. Sing., Shorthd., or Draw. a recommendation. 30*l.* to 35*l.*
15897. A Gov. Ger., thoro. Mus., including Theory and Harmony, also Class Sing.
15898. German, as Second Master.
15903. Gov. Pupil. Mutual terms. Res.
15904. Non-res. Master, temporary, for next term. Eng., Lat., Fr., Inorg. Chem., mod. Draw. 25*l.*
15905. A Gov. Piano, Theory, Har., Class Sing., Able to prepare for the R.A.M. Sen. Local. 30*l.* to 35*l.* res.
15907. Jun. Master. Eng. subj., some German if possible. 10*l.* res.
15908. Jun. Gov., to assist with jun. Violin, &c., in return for board, res., and lessons in Fr., &c.
15909. Jun. Gov. Mus., Sing., Eng. subj., Arith. 15*l.* to 25*l.* res.
15910. Jun. Gov. Good Fr., Eng. subj. Light duties. 12*l.* to 20*l.* res.
15912. A Master holding D cert. for Draw., also Mag., Elec., Piano. 35*l.* res.
15913. A Gov., age about 25. Good Mus., Arith., Lat., some Fr. and Ger. 35*l.* res.
15914. A Gov., for three girls ages 9 to 15. Thoro. Eng., Ger., Fr., good Mus., Draw. 40*l.* to 45*l.* res.
15915. A Master. Ger., Piano, Shorthd., Fr., Eng. 25*l.*
15917. A Gov. Eng., Alg., Arith., elem. Mus., elem. Fr. or Ger. 30*l.* to 35*l.*
15919. Foreign Master. Ger., Fr., elem. Lat., good Piano. 60*l.* res.
15920. A Master (for Sept.). Young Grad. preferred. For general form work. 40*l.* to 80*l.* res.
15922. Jun. Master. Gen. Jun. Grammar School work, with some Draw. Res. Mutual terms. If with Sing., 10*l.*
15923. A Gov. Thoro. Eng. and Arith., Draw., Theory of Mus. 25*l.* to 30*l.*
15924. Head Gov. for Kindergarten., with good Mus. 35*l.* to 40*l.* res.
15925. A Gov. Good Fr., Ger., Mus., elem. Eng. 20*l.* res. Very light work.
15927. A Gov. Mus., Class Sing., Fr., elem. Lat. or Ger. 20*l.* to 25*l.* res.
15930. A Gov. Kindergarten subj., and either good Fr. or Eng. 35*l.* to 40*l.* res.
15931. A Master. Fr., Ger., good Draw. 40*l.* res.
15932. Music Master. Piano, Violin, Sing., elem. Ger. About 45*l.* res.
15933. A Gov. Eng., Math., Lat., Piano, Theory, Paint. 30*l.* to 35*l.* res.
15934. Jun. Master. Eng. subj., Alg., Lat., Shthd. 40*l.* non-res. (W. Lond.)
15937. A Gov. Good Eng., Fr., Ger., Mus. From 25*l.*
15938. A Master, to teach Fr. and Ger. Duties very light. Res. Mutual terms.
15940. Jun. Master, for general elem. subj. Res. Mutual terms. Duties very light.
15941. Assistant Master in Day School in N. London. Good gen. subj. 35*l.* res. Age 23 to 26.
15943. French Protestant Gov., with Ger. or Mus. 30*l.*
15944. Good Jun. Master. Res. in London.
15945. A Gov. Good Mus., Sing., Draw. 25*l.* res.
15946. A Master. A B.A. Camb. 60*l.* res. No duty.
15947. A Master. Lat., Fr., Eng. subj., Sports. 30*l.* res.
15952. A Gov., who has passed the London Matric. Lat., Alg., Euc., Eng., Ger. 30*l.* res.
15953. Jun. Gov. Gen. subj. Daily, about 22*l.* (W. Lond.)
15954. A Gov. Eng. subj., with some Math., Lat., and Draw. 25*l.* to 30*l.*
15955. Jun. Eng. Gov., with good Draw. and Paint. Small School. Res. 20*l.*
15956. (i.) A Gov. Good Eng. and Arith., Math., Bkkp., Lat. 25*l.* to 30*l.* res.
(ii.) Jun. French Gov. Res. Mutual terms at first, with lessons in Eng. and Mus.
15957. Eng. Master, to teach good Fr. and Ger., with Eng. subj. Work light. Res. from 40*l.*
15958. Jun. Foreign Gov., to teach Fr. with some Ger. and Mus. About 20*l.* res.
15959. Gov. Pupil, to assist for two hours daily. Would be prepared for exam., and receive good lessons in Mus., &c. Premium 20*l.*
15960. A Master. Eng. subj., Alg., Euc., Lat. Age about 25. 25*l.* to 30*l.* res.
15963. A Gov. General Eng. subj., some Sci. and Fr., good Mus. Mornings, 40*l.* N. London.
15964. Jun. Gov. Eng., Mus., Ndlwk. 15*l.* res.
15965. A Master. Good Eng. subj., elem. Lat. and Fr. 30*l.* to 50*l.* res. London.
15966. Jun. Master. Eng. subj., elem. Lat., Fr. and Math., Draw. if possible. About 20*l.*
15967. Gov. Student in Day School in W. of Eng. Res. Mutual terms.
15968. A Gov. for four girls, ages 5 to 14. Eng., Mus., Sing., Fr., Draw. 25*l.* to 30*l.* res.
15970. For. Gov. Adv. Fr. (for Local Exams.), Ger., Mus. 40*l.* res.
15971. A Young Lady as Articled Pupil. Res. S. London.
15972. Jun. Gov. Jun. Eng. subj., Ger. and Draw. Small salary, or mutual with good advantages.
15973. Jun. Master. Eng. subj., Lat., elem. Math., Fr., Draw. About 20*l.* res.
15974. Jun. Master. Lat., Fr., Draw., Shthand., or Drill. 25*l.* res.
15975. Jun. Master. Gen. subj. for 2nd Cl. C.P. Mod. salary to commence. Res.
15976. A Master. Gen. elem. subj. Small school. Light duties. 50*l.* (about) non-res. Lancs.
15979. A Gov., to give three hours daily with Mus. and Fr. in return for board, res., &c. Day school. S. London.
15980. Jun. Gov. Eng. subj., Fr., Mus. practice. Res. Small salary.
15981. Jun. Eng. Gov. About three hours' teaching daily in Eng., Mus., Arith., in return for board and res.
15982. A Master. Age about 25. Eng. and Fr. About 60*l.* non-res. London.
15984. Jun. Master. Gen. elem. subj. 10*l.* res.
15985. A Master. Gen. subj. Res.

II.—ASSISTANTS.

No. in Register. MASTERS.

21233. Eng. subj., Chem., Shorthd. Age 46. C.M. and S.K. Certs. Non-res. or visiting.
21234. Eng. subj., Math., Bkkp., Mens., elem. Fr. and Lat. Age 25. 1st Cl. C.P. Res. 35*l.*; non-res. 80*l.*
21237. Eng., Lat., Greek, Fr., Math., Jun. Draw. Age 22. Undergrad. Camb. Res. 35*l.* to 50*l.*
21238. Eng., Lat., Greek, elem. Fr., Math. Age 20. Res. 15*l.* to 30*l.*
21240. Eng. sub., Math., Lat., Grk., Draw. Age 38. Res. 60*l.*; non-res. 110*l.*
21241. Fr. and Ger. (thoro.), elem. Ital., Span., and Lat. Res. or non-res.
21242. Lat., Fr., Eng., Math., Sci., Mech., Shthd., Draw. Age 22. 30*l.* to 50*l.* Undergrad. T.C.D.
21243. Lat., Grk., Math., Mech., Chem., Fr., Eng. subj. Age 25. B.A. Lond. Res. 40*l.*; non-res. 90*l.*
21245. Chem., Physics, Math. Age 26. Ph.D. Gov. Exam. Vienna. Res. or non-res.
21246. Eng. subj., elem. Fr., Lat., and Grk., Math., Draw., adv. Chem., Mag. and Elec., Physiog., Phys., Mech., Sing. Age 26. Trained C. M. Non-res. 80*l.* to 100*l.*
21247. Lat., elem. Grk., Eng. subj., Math., Fr. (convers.), Bk., Shthand., Drill. Age 19. Jun. Camb. Res. 25*l.* to 30*l.*; non-res. 65*l.*
21249. Ger., Fr., Lat., Grk., Draw., jun. Piano. Age 26. Res. 50*l.* to 60*l.* or non-res. A Swiss.
21253. Math. (adv.), Lat., Grk., Fr. (adv.), thoro. Eng., elem. Ger., Chem., Nat. Phil. Age 30. B.A. Lond., 1st Div. Hon. Fr. Non-res. 150*l.*
21255. Eng. subj., elem. Lat. and Fr., Bk., Shthand. Age 21. Res. 9*l.* to 15*l.* Requires time for study.
21258. Lat. and Fr. (thoro.), Eng. subj., Shthand., Bk., Math. (high), elem. Science. Age 41. 1st Cl. C. M. Non-res. 120*l.*
21259. Fr., Ger. (acq. in Ger.), Lat., Grk., Math. (high), Piano, Ital. Age 30. B.-ès-let. From 100*l.*
21260. Eng. subj., Lat., Fr., Draw., Shthand. Age 22. Oxf. Loc. Certs. Res. 27*l.*; non-res. 60*l.*
21261. Gen. subj., elem. Fr., Lat., Grk., Draw. (Dr. Cert. S.K.), Math. Sen. Camb. and Oxf., Inter. B.A. Lond. Age 20. Res. 40*l.*; non-res. 70*l.*
21263. Ger. and Fr. (thoro.). Age 34. Res. 60*l.* non-res. 120*l.*
21265. Lat., Grk., Math. (conics, &c.), Mech., Chem. Eng. subj., good Fr. Age 29. Inter. B.A. Lond. Res. 90*l.*
21270. Ger., Fr., Gymnas. Age 28. Leipsig Univ. 40*l.*
21271. Eng. subj., elem. Math., Lat. and Fr., Drilling, and Swimming. Age 35. Res. or non-res.
21272. Eng. subj., Math., Fr., Lat., Shthand, Mus., and Sing. 60*l.* res.; 110*l.* non-res.
21273. Eng. subj., elem. Lat., Fr., and Math., Shthand. Age 23. Res. 30*l.*
21274. Fr., Lat., Draw., Math. Age 24. B.-ès-Sc. Res. or non-res.
21275. Eng., Lat., Grk., Math., Fr., Chem., Nat. Phil., Mens. Age 40. A. C. P., Lond. Matric. Res. about 50*l.*
21276. Eng. subj., Lat., Arith. Age 20. Res. 15*l.*
21277. Eng., good Math., Classics, Bk., Draw., Shthand., Science. Age 25. Lond. Matric. Non-res. from 60*l.*

21279. Eng., Classics, Ger., jun. Math. Age 19. Temporary till Sept. Res. or non-res.
21280. Eng., Fr., Lat., Grk., Math., Mech., Chem., Shthand., Piano, Organ. Age 18. Jun. Camb. Res. 15*l.* to 25*l.*
21281. Eng. sub., good Math. and Lat., Grk., elem. Chem., Heat, Bk., Draw., Shthand. Age 27. Undergrad. Camb. Non-res. about 80*l.*
21282. Fr. (thoro.), Piano, Organ, Math., Lat., Grk. Age 20. B.-ès-let. 40*l.* res.
21284. Classics (high, prose and verse comp.), Fr. (thoro., Paris), Eng. subj., Math., elem. Ger. Age 38. B.A. Oxf. Non-res. 100*l.*
21286. Eng. subj., Math., elem. Lat. and Grk., Draw., Sing., Fr. Age 26. Trained C.M. Non-res. about 70*l.*; res. 30*l.*
21287. Eng., Fr., Math., Lat., Draw. Age 19. 2nd Cl. C.P., Sen. Camb. 20*l.* to 30*l.*
21288. Eng., Lat. and Fr. (thoro.), Math., Bk., Chem., Mag. and Elec., Acous., Draw., elem. Grk. and Span., Drill. Sen. Camb. Age 30. Non-res. 75*l.*; res. 50*l.*
21289. Lat. and Grk., elem. Math., Eng. subj. Age 19. Res. 40*l* (about).
21290. Eng. subj., Lat., elem. Grk., Fr., Math., Mech., Chem., Nat. Phil., elem. Shthand. Age 19. Lond. Matric. (Hon.), 1st Cl. C.P., 2nd Prize Gen. Prof. Res. 30*l.*; non-res. 75*l.*
21291. Eng., elem. Lat. and Grk., Arith., Alg., some Science. Age 36. Res. 20*l.* to 30*l.*; non-res. 50*l.* to 60*l.*
21292. Eng. subj., Bk., Shthand. Age 24. Res. 40*l.*; non-res. 80*l.*
21293. Eng., elem. Grk., Lat., Math., Fr. Age 27. Lond. Matric. Res. 30*l.* to 40*l.*; non-res. 75*l.*
21294. Lat., Grk., Ger. (native), Fr., elem. Ital. and Piano, Eng. Age 30. B.A. Oxf. Res. about 100*l.*, or non-res.
21295. Fr., Ger., Draw. (all styles), Eng. subj. Age 42. Non-res. 100*l.* to 150*l.*; res. 60*l.*
21296. Lat., Grk., Fr., Eng. subj., Math., Mech., Light, Heat, Sound, and Elec. Age 22. St. Andrews Univ. Temporary till Oct. Non-res. or res.
21297. Classics, Math., &c. As Headmaster, or to take charge of School. M.A. Res. or non-res.
21298. Eng. subj., Math. (conics, &c.), Mech., Lat., Grk., Fr., Draw., Bk., Shthand. Age 24. M.A. Glasgow. Non-res. 80*l.* to 120*l.*; res. 50*l.* to 80*l.*
21299. Fr., Ger., Eng, Lat., Math. Age 24. Res. 45*l.*, or non-res.
21300. Lat., Grk., Fr., Math, Mech., Chem., Eng. Age 30. Lond. Matric. Non-res. or res.
21301. Eng. subj., elem. Lat., Fr., elem. Math. and Bk., Draw., Shthand., Sports. 2nd Cl. C.P. Res. 30*l.*
21302. Eng. sub., Fr. (convers.), Lat., Math., Draw. Age 23. Res. about 30*l.*
21303. Eng., Math., Lat., jun. Fr., Draw. Age 38. Res. 50*l*; non-res. 100*l.*
21304. Lat., Grk., Eng., Math., Music. Age 20. St. Andrews Univ. Res. 40*l.*; non-res. 70*l.*
21305. Math. (all), Eng., Lat., Nat. Phil., Chem., Elec., Lt., Acous., Biol. Age 21. Lond. Matric. Res. 50*l.*; non-res. 100*l.*
21306. Lat., Fr., Draw., thoro. Eng., Shthand., Writing and Commercial subj. Age 39. Non-res. 80*l.*; res. 50*l.*
21307. Ger., Fr., Eng. subj., Bk., Math., mod. Lat. and Draw. Age 36. Res. 40*l.*; non-res. 120*l.*
21308. Fr., Ger., Draw. Age 26. Res. about 50*l.*; non-res. 100*l.*
21309. Eng. (thoro.), Lat., Grk., Math., Mech., Shthand. Age 31. Trin. Coll., Dub. Res. 50*l.*
21310. Eng. subj., Math., Fr., Lat. Age 18. 1st Cl. C.P., Jun. Camb. (Hon.). Res. 20*l.*
21311. Eng. subj., elem. Lat. and Math., Writing, Shthand., Sports. Age 20. Res. 15*l.* to 20*l.*
21312. Fr. (thoro.), elem. Math., &c. Age 45. Diplômé Paris. Res. 90*l.*; non-res. 140*l.*
21313. Eng. subj., Fr., Lat., Draw., Paint. Age 42. As Headmaster or Manager. Non-res. or res.
21314. Fr., Ger., Span., Eng., Draw. B.-ès let. Paris. Res.
21315. Eng. subj. (thoro.), Math., Bk., Draw. (D. Cert. S.K.), Chem., Physics, Sing. Age 51. 1st Cl. C.M. Non-res. 80*l.*; res. 40*l.*
21316. Fr. Diplômé. Age 32. Visiting or res.
21317. Classics, Math., Eng. subj. Age 23. B.A. Lampeter (Hon. Class.). Res. 60*l.*; non-res. 100*l.*
21318. Classics (adv.), Eng. subj., Math., Fr. Age 26. B.A. R.U. Ireland. Res. 50*l.*; non-res. 85*l.*
21319. Eng., Fr., Lat., Math., Bk., elem. Grk. and Ger., Draw., elem. Shthand. Age 38. Undergrad. Lond. Res. or non-res.
21320. Eng., Fr., Lat., Grk., Math. Age 44. Undergrad. Lond. Non-res. or visiting.

No. in Register. GOVERNESSES.

8785. Eng. subj. (lit., &c.). Fr., Math., Mus., elem. Draw. and Lat. Age 21. Higher Camb. Non-res. 60*l.* to 70*l.*; res. 30*l.* to 40*l.*
8788. Eng. subj.. Fr., Mus., Draw., elem. Lat., Alg. and Phys. Age 18. 1st Cl. C. P., Sen. Camb. 30*l.*
8789. Eng., Arith., Fr. (convers.), Ger., Mus. (thoro.), Sing., Draw., Paint. Age 32. Res. 60*l.*, or non-res.
8790. Eng. subj. Age 17. 2nd Cl. C.P. Gov. Pupil. Mutual terms.
8791. Eng., Mus., Fr., Draw., Ndlwk. Age 27. Res. 20*l.*; non-res. 60*l.*
8792. Eng., Fr., elem. Ger., Piano, Violin, Sing. Age 21. Edin. Univ. Cert. Res. 30*l.*; non-res. 60*l.*
8793. Eng. subj., Arith., Alg., Bot., Fr., Ger., Mus., Draw. Age 25. Sen. Camb., 1st Cl. C.P. 30*l.* to 35*l.*
8795. Eng. (thoro.), Mus., Fr., Draw. Age 33. Daily, 30*l.* to 35*l.*
8796. Eng., Arith., Alg., Fr., Draw., Nat. Hist., Mus. Age 20. 1st Cl. C.P. Res. 25*l.*
8797. Eng. (thoro.), Mus., Fr., elem. Ger., Draw. Age 22. Afternoons, 20*l.* to 25*l.*
8798. Eng., Fr., Ger. and Lat. (adv.), Greek, Math., Bot., Chem., Draw. Age 24. B.A. Lond., Camb. Teacher's Cert. Res. 50*l.*; non-res. 90*l.* to 100*l.*
8799. Piano, Har., Sing. (solo and class). Age 25. Student R.A.M. Non-res. or Visiting.
8800. Piano, Har., Counterpt., Sing. Age 31. 1st Mus. Bac. Lond., Assoc. Trin. Coll. Non-res. 80*l.* to 100*l.*
8803. Fr., Eng., Mus., Draw., Ndlwk. Age 28. 40*l.* Diplômée.
8804. Piano, Theory, Har., Sing., elem. Violin and Fr. Age 20. Student R.A.M. About 40*l.* res., or non-res.
8805. Eng. subj., Fr., elem. Lat. and Mus., Violin. Age 22. 2nd Cl. C.P. 30*l.* res.
8806. Eng., elem. Fr., Mus., Draw. Age 15. As Gov. Student. Mutual terms.
8807. Eng. subj., Arith., Bkkp., elem. Mus. and Alg., Fr., Draw., some Sc. Age 23. 1st Cl. C.P. Res. 25*l.*; daily, 40*l.*
8808. Eng. (lit., &c.), Arith., Mus., Fr., elem. Ger., Lat., Draw. Age 32. Higher Camb. (part). Res. about 60*l.*
8809. Eng., Fr., elem. Lat., Arith., Mus., Sing., Draw. Age 22. Res. 30*l.*
8810. Eng. (good), Fr., Ger., Piano, Sing., Draw., elem. Lat. and Violin. Age 23. Res. 30*l.*
8811. Eng. subj., Fr. (convers.), Mus., Arith., elem. Lat. and Draw. Age 19. 1st Cl. C.P., Sen. Oxf. About 20*l.*
8812. Eng., Arith., Mus. Age 18. 16*l.* to 20*l.*
8813. Eng. (thoro.), good Mus., Lat., Fr., elem. Ger., Draw. Age 26. 1st Cl. C.P. (Hon.). Family. Res. 35*l.* to 45*l.*
8815. Eng. (thoro.), Fr., Ger., Mus., Draw. Age 19. 2nd Cl. C.P. Family. 20*l.* to 25*l.*
8816. Ger. (Hanover), Eng., elem. Fr., Mus., Draw., Ndlwk., Kindergarten. Age 26. Non-res. 70*l.*, or Visiting.
8817. Music (L.A.M. Certs.), Fr. (convers.), Eng. Age 32. Res. 20*l.* to 30*l.*
8818. Eng. subj., Arith., Fr., Mus., Draw. Age 19. Sen. Camb., 2nd Cl. C.P. Res. 20*l.*
8819. Eng., Fr., Ger., Math., Draw., Mus. Age 17. Sen. Oxf., 2nd Cl. C.P. About 20*l.* res.
8820. Eng., Arith., Fr. (good, Mus., Draw., Paint.). Age 20. 2nd Cl. C.P., Sen. Trin. Coll. Family. 15*l.* to 20*l.*
8821. Eng. subj., Math., Fr., elem. Lat., Mus. (prac. and theor.). Age 20. 2nd Cl. C.P., Sen. Camb., Sen. R.A.M. Res. 30*l.*
8822. Eng. subj., Math., Lat., Fr., Ger., Mus., Draw. Age 20. Lond. Matric. 1st Div., Sen. R.A.M. Res. 30*l.* to 35*l.*
8823. Eng., Jun. Fr., Mus. (prac. and theor.), Draw. Age 20. Res. 20*l.*
8824. Eng., Fr., Mus., Draw. Age 24. Trin. Coll. 2nd Cl. Hon. Res. 25*l.* to 30*l.*
8825. Eng. and Arith. (good), Alg., Bot., Fr., elem. Lat., Draw. Age 24. 1st Cl. C.P. Res. 25*l.* to 30*l.*
8827. Piano, Har., Fr. and Ger. (convers., acq. abr.). Age 21. R.A.M. Bronze Medal, Leipzig Conserv. Visiting.
8828. Eng., Arith., Fr. (acq. abroad), Draw., elem. Mus. and Lat. Age 25. Res. 30*l.*, or non-res.
8829. Eng., Fr.(convers.), elem. Ger., Piano, Theory, elem. Violin. Age 20. Sen. R.A.M. Family. 30*l.*
8830. Eng. subj., Fr., Ger., adv. Arith. Age 19. Sen. Trin. Coll. Res. 15*l.*
8831. Eng. subj., Arith., Mus., Fr., Draw. Age 18. Res. 15*l.*, or mutual if with lessons.
8832. Eng., Fr., Draw., Mus. (theor. and prac.), elem. Alg. Age 21. 2nd Cl. C.P. Res. 18*l.* to 20*l.*
8833. Eng. (good), Math., Fr., Draw., Jun. Mus. and Ger. Age 20. 1st Cl. C.P., Jun. Camb. From 20*l.*
8836. Lat., Greek, and Arith. (special), Eng. (lang., lit., &c.), Math., Bot., Phys., Fr., Ger. Age 22. B.A. Lond., Hon. Eng. Non-res. 100*l.*
8837. Kindergarten, Piano, Draw. (freeh., mod., geom., pers.). Age 20. Sen. Camb., Trin. Coll. Mus. Non-res. from 45*l.*; res. from 30*l.*
8838. Eng. subj., Mus., elem. Fr., Ndlwk. Age 21. Res. 20*l.*
8839. Eng., Fr., Ger., Lat., good Mus., elem. Draw., Alg., and Euc. Age 21. Camb. Local and Teacher's Cert. Family. Res. 40*l.*; non-res. 60*l.* to 70*l.*
8840. Eng. subj., Math., Fr., Lat., elem. Mus., Bk. Age 21. 1st Cl. C.P., Lond. Matric 1st Div. Non-res. 60*l.* to 70*l*, or visiting.
8841. Eng. (thoro., lit., &c.), Arith., Bot., Fr. (convers.), elem. Ger. and Lat., Mus., Sing., Draw. Age 32. L.A.M. Cert. Family. Res. 65*l.*; non-res. 90*l.*
8845. Eng. (good), Fr., Ger., Mus., Draw., Kindergarten. Age 19. 2nd Cl. C.P. Mornings, 20*l.* to 25*l.*
8846. Eng. subj., Math., Ger. and Fr. (acq. abroad), Lat., Physics, Draw. Age 32. Lond. Matric. 1st Div. Non-res. 100*l.* to 120*l.*
8847. Eng. (thoro.), Arith., Fr., Draw., Mus. Age 18. Jun. Camb. Daily, 25*l.*; res. 10*l.* to 15*l.*
8848. Eng. and Fr. (thoro.), Mus., elem. Ger., Arith. Age 31. Boys' school preferred. Res. 50*l.*
8849. Fr. and Ger. (all branches), elem. Draw. and Mus., good Ndlwk. Age 28. 25*l.* to 30*l.*
8850. Eng., Fr., Ger., Bot., Phys., Arith., Alg., elem. Lat. and Mus. Age 20. Sen. Aberdeen. Res. 20*l.*; non-res. 40*l.*
8851. Eng. (lit., &c.), Nat. Sci.. Fr. (acq. abroad), elem. Ger., Draw., Mus., elem. Ital. and Lat. Age 33. Daily, 60*l.*; res. 40*l.* to 50*l.*
8852. Eng. subj. (lit., &c.), Arith., elem. Alg, Fr., and Lat., Mus. Age 30. Glasgow Univ. Cert. Daily from 30*l.*
8853. Eng. subj., good Mus., Har., Draw., Fr., elem. Alg. Age 19. Sen. Camb., 1st Cl. C.P., Trin. Coll. Hon. and Medal. Res. 40*l.*
8854. Eng. subj., Mus., Draw., Fr., Har., elem. Lat. Age 18. 1st Cl. C.P., Trin. Coll. 1st Cl. Hon. 30*l.*
8855. Eng. subj., Arith., Fr., Draw., Lat., Piano. Age 34. Higher Camb. (part). Mornings, 50*l.*
8856. Kindergarten (1st Cl. Cert. Home and Col. Coll.), Eng., Mus., Draw., Fr., elem, Lat. Age 28. Non-res. 35*l.* to 40*l.*
8857. Eng. subj., Arith., Fr., Ger., Draw., Piano, Violin, and Harp. Age 23. Trin. Coll. (Hon.). About 40*l.*
8861. Eng. (thoro.), Arith. (adv.), Jun. Fr. and Mus., Ndlwk. Age 27. Res. 35*l.* to 40*l.*
8862. Eng. subj., good Arith., Phys., elem. Lat. and Alg., Draw., Fr. (fluent), good Mus., elem. Ger. Age 20. A.C.P., Sen. Oxf. Res. 40*l.* to 50*l.*; non-res. 50*l.* to 60*l.*
8863. Eng. and Arith. (adv.), good Mus. and Draw., fluent Fr., good Ger., elem. Lat. and Paint. Age 21. 1st Cl. C.P., Sen. Camb. Res. 40*l.*; non-res. 60*l.*
8864. Eng., Fr., Mus., elem. Draw., Lat., and Ger. Age 19. 1st Cl. C.P., Sen. Camb. 15*l.*
8865. Eng. subj., Arith., Fr., Draw. Age 18. 1st Cl. C.P., Sen. Camb. 20*l.*
8866. Eng., Fr., Mus. Age 17. Jun. Camb. Res. Mutual terms.
8867. Music (thoro.), Ger., Fr. Age 28. Res. from 50*l.*
8868. Eng. (thoro., lit., hist.), Fr., elem. Ger. and Mus., Eloc. Age 24. Higher Camb. (part). Non-res. 50*l.*
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SYLLABUS.

Lecture I.

Language as the Supreme Instrument in Education.

Individual experiences, and of these experiences the national life is the most important influence in the education of the young. The national life is the chief instrument of education in the school also. The national life is the national language and literature, religion, history, and art. By means of these the good man and good citizen will best be formed. Here we confine ourselves to language in its largest sense, the most potent of all agencies. And this, because it gives the best and most universal discipline both of intelligence and of the moral nature. As a concrete study it gives the substance of thought on all things which chiefly concern man. The formal study of language as grammar and analysis is a discipline, but has been allowed to overshadow the concrete. Language, as pure literature, again, is the best ethical agency in dealing with boys and girls because it is indirect. The æsthetic or art element in literature is an ethical influence because it presents *ideal* forms. The claim of language, then, to educate is threefold: it disciplines as a formal and abstract study; it gives the substance of thought and the materials of wisdom as a real or concrete study; and it promotes the ethical life as a literary or art study—the study of ideal forms. When I speak of language I mean the vernacular. To the education given through this, all other languages can at best only contribute either as formal, real, or art agencies.

Lecture II.

Language as a Means of Training and Discipline.

The formal or abstract specially disciplines the intelligence. Hence the value of grammar. But, even without grammar, language *trains* the intelligence. Distinction between training and discipline. Why grammar as an abstract is not above the capacity of boys and girls. Contrast of discipline and training through language. The study of language as a concrete study, though it may not discipline, trains the mind as well as feeds it. This justifies the position that language as a concrete or real study is more educative than language simply as grammar.

Lecture III.

Method in Teaching Language as a Real or Concrete Study. (1) *Infant Stage.* Rules of Procedure. (2) *Primary and Upper Primary School Stage* (age 7 to 14).

Rules as applied to the daily reading-lesson. Examination on a sentence. Paraphrasing as opposed to Dialysis. Word-history and word-building. Archbishop Trench. This is not verbalism which has to do with forms and the *formal* alone. Verbalism too much with us in school. Reproduction or composition.

Lecture IV.

Language as a Formal or Abstract Study.

The Grammar of the vernacular. Scope and purpose of Grammar teaching.

Method. Let us consider here the rules of method generally as applicable to all subjects whatsoever.

I.—The general curriculum of instruction is to be regulated by the order of mental growth, and the nature and extent of it by practical considerations.

II.—Every subject of instruction must be graded so as to accord with the fact of the slow growth of mind. *Coroll.* (1) The teaching of the subject must be step by step. (2) Little by little, *i.e.*, a *short* step at a time. Education is a slow process. Without rest, but without haste.

Note. This rule requires that the teacher should mark out carefully how much of a subject he means to teach in a year, a month, a week, and a day; and that he—generally—restrict himself by his own limitations.

III.—Every subject should be taught in accordance with the *way* or *process* of the growth of mind—

1. Mind grows by raising vague sensations into clear and distinct percepts and concepts. The teacher accordingly must aim at making the contents of the pupil's mind clear and distinct.

2. The mind advances to new knowledge on the basis of what it already knows. Knowledge is an organic growth, not a mechanical one.

Therefore, All knowledge, as it is acquired, must be exact, if it is to afford a sound basis for further progress. *Coroll.* Dwell long over the elements of a subject.

3. The way in which the mind truly grows is first through percepts; then, through concepts; then, through generalizations; and then, through reasonings, inductive and deductive.

Therefore, Teach percepts as percepts, concepts as concepts, generalizations as generalizations, and reasonings as reasonings. Carry the mind through these various steps in the acquisition of a subject in so far as the subject admits of this being done.

Note. The process is, generally speaking, the analytico-synthetic or inductive process. (Heuristic.)

4. The mind grows in knowledge of a subject by apprehending the salient or prominent features first, and then proceeding to detail.

Therefore, In all subjects confine your teaching to the leading outlines in the first instance. Proceed from the simple to the more complex.

IV.—The mind acquires knowledge not by *receiving* it, but by *taking* it through an act of will.

Therefore, The pupil should be so taught as to *instruct himself*—the master being only the guide, co-operator, and remover of obstructions.

Note. This mode of procedure gives a sense of power and self-achieved progress to the pupil which is stimulating in the highest degree.

V.—The mind is dependent on the outer and inner sense for the ultimate material of its knowledge.

Therefore, Appeal to every sense, wherever practicable, in the teaching of every subject.

VI.—Memory is a condition of the growth of knowledge and of mind.

Therefore, Revise and re-revise lessons, and exercise the memory in repetition of things worth remembering.

VII.—The mind grows by associating one thing with another.

Therefore, Support and enrich the teaching of a subject with as many natural and *relevant* associations as possible.

Note. This aids memory and gives breadth and elasticity of mind.

VIII.—The purpose of all knowledge is the regulation of life, *i.e.*, Conduct (Action).

Therefore, Turn everything as it is taught to *use* in one way or another.

Coroll. Teach nothing that is useless.

Application of these Rules of Method to the teaching of Language or Grammar.

Lecture V.

Language as Literature.

Method applied to the teaching of Language as Literature.—Before the age of fifteen, the beautiful in literature not to be *consciously* taught. After this age, we ought to teach it; but we must be careful not to overdo it. Passages to be such as the pupil can, with not too great an effort, comprehend. Reading to be cursive, pausing only to *understand*. Grammar and all lesson-giving to be abjured. The pupil and master to read together as fellow-students. Present results of education as regards literature. Rhetoric, *i.e.*, the principles of expression and style, formally treated. Method here—as in Grammar—the "real" method.

Lecture VI.

Foreign Languages.

Method as applied to the teaching of foreign languages. The same as that of teaching the English language. There is a unity in all method; it is the same in all subjects, *mutatis mutandis*. Latin as type of foreign languages. Reasons for teaching Latin. Reasons for teaching a subject yield methods in addition to the rules of general application.

Method of teaching Latin. The method—as in the case of English—will be found to be in accord with the best practice, or rather a combination of the best practices. Rules in detail. Greek and modern foreign languages.

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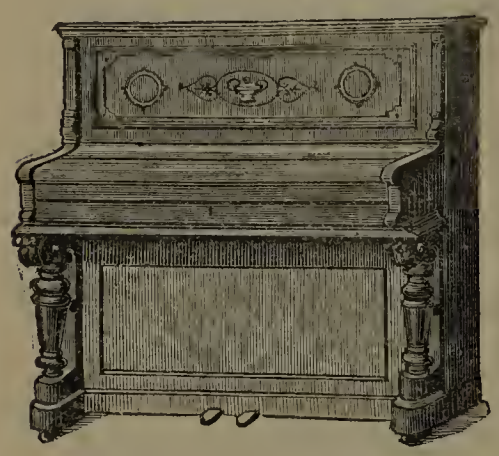

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AND

Journal of the College of Preceptors.

Vol. XLII.] New Series, No. 338. JUNE 1, 1889. {Registered for Transmission Abroad} *Price to Non-Members, 6d By Post, 7d.*

COLLEGE OF PRECEPTORS.—EXAMINATIONS FOR 1889.

1. DIPLOMAS.—The Midsummer Examination of Teachers for the Diplomas of the College will commence on the 2nd of July, 1889.

2. CERTIFICATE EXAMINATIONS.—The Midsummer Examination of Pupils in Schools, or under private tuition, will commence on the 4th of June, and the Christmas Examination on the 3rd of December.

N.B.—The Higher Certificates of the College are recognised by Her Majesty's Judges, and by the General Medical Council, as guarantees of good general education; and consequently the holders of them, who may be intended for the Legal and Medical Professions, are exempted from the necessity of submitting to the Preliminary Literary Examinations held by the Incorporated Law Society, and by the various Medical Corporations of the United Kingdom. The Lords of the Committee of Council on Education admit the holders of the same Certificates, without further examination, to the Competition for allowances granted to Students of the Junior Training Class of the National Art Training School. All the College Certificates above the Third Class, the holders of which have passed an Examination in Latin, are also recognised by the Pharmaceutical Society and the Royal Veterinary College.

3. EXAMINATIONS FOR CERTIFICATES OF PROFICIENCY IN MERCANTILE SUBJECTS.—These Examinations will take place on the 3rd of June and the 2nd of December.

4. PROFESSIONAL PRELIMINARY EXAMINATIONS.—These Examinations are held in March and September. The next Examination will commence on the 3rd of September, 1889.

5. INSPECTION OF SCHOOLS.—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

PRIZES.

Diploma Examination.—The following Prizes will be competed for: Theory and Practice of Education, £10; Classics (Greek and Latin), £5; Mathematics, £5; Physical Science, £5.

Certificate Examination.—The "Isbister Prize" will be awarded to the Candidate who stands First, and the "Pinches Memorial Prize" to the Candidate who stands Second in General Proficiency. Prizes of Books will also be awarded to the Third and Fourth in General Proficiency, and to the First and Second in the following subjects:—Classics, Mathematics, Modern Languages, Natural Science, English Subjects. The "Taylor Jones Memorial Prize" will be awarded to the best Candidate in Scripture History.

The Regulations of the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—(Bloomsbury Square, W.C.)

The next Monthly Evening Meeting of the Members will take place on Wednesday, the 12th of June, when the Rev. Canon DANIEL, M.A., will read a Paper on "Common Faults in Teaching, regarded in the Light of Mental Science."

The Chair will be taken at 7.30 p.m., and a discussion will follow the reading of the Paper.

Members have the privilege of introducing their friends. C. R. HODGSON, B.A., *Secretary.*

PRELIMINARY EXAMINATION of MEDICAL STUDENTS.—The COLLEGE of PRECEPTORS will hold an Examination for Certificates recognised by the General Medical Council as qualifying for Registration as a Medical Student, on the 3rd, 4th, and 5th of September.

The Examination will take place in London, and at the following Local Centres:—Birmingham, Bristol, Leeds, Liverpool.

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COLLEGE OF PRECEPTORS.—SCHOLARSHIPS FOR INTENDING TEACHERS.

With the view of encouraging the systematic training of teachers for their profession, the Council have established four Scholarships (two for male and two for female candidates), which will be offered for competition at the Certificate Examination in June, 1889.

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(*b*) At any school of established reputation, approved by the Council, which is prepared to offer such facilities for training as may be satisfactory to the Council; it being open to the Council to require the attendance of the scholar at such lectures on the Theory and Practice of Education, and to require him or her to pass such examinations in the Science and Art of Teaching, as the Council may determine.

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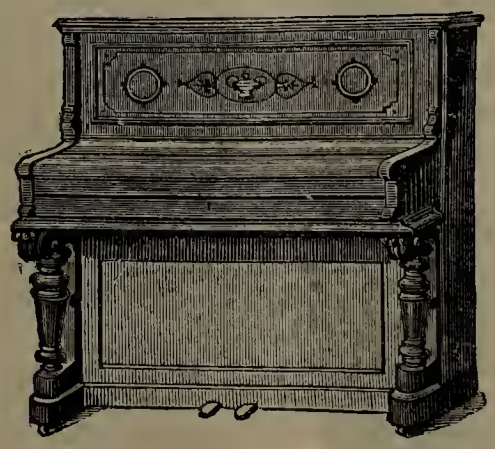

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EVENING MEETING, APRIL 17TH, 1889.

THE Chair having been taken by Rev. R. H. Quick, M.A., Mr. H. COURTHOPE BOWEN, M.A., delivered the following Lecture:—

CHARACTER, CONDUCT, AND RELIGION, OR FROEBEL'S VIEWS ON MORAL TRAINING.*

In a memorable interview between Diesterweg and Froebel, described in her *Reminiscences*, the Baroness von Marenholtz-Bülow reports the latter, amongst other things, to have said, "The firmament leads us to recognize the connectedness of all that exists, and leads us up to unity—God." The night was clear, bright, and starry, as they drove home from Inselsberg to Liebenstein, and the beauty of the heavens had set them talking. "No one of the heavenly bodies is isolated; every planet has its centre in the sun of its system. All the solar systems are in relation and continual interaction with one another. This is the condition of all life. Everywhere mutual relation of parts. As there above in great things unbroken connection and harmony rule, so also here below, even in the smallest thing; everywhere there are the same order and harmony, because the same law rules everywhere, the one law of God, which expresses itself in thousandfold many-sidedness, but in the last analysis is one, for God is Himself the law." "That is what people call Pantheism," remarked Diesterweg. "And very unjustly," rejoined Froebel; "I do not say, like the Pantheists, that the world is God's body, that God dwells in it as in a house, but that the spirit of God dwells and lives in nature, produces, fosters, and unfolds everything, as the *common life principle*. As the spirit of the artist is found again in his masterpieces, so must we find God's spirit (*Geist*) in His works." To the hasty enquirer, the difference would not perhaps be readily apparent—especially on occasions when Froebel allowed his mystical tendencies to intrude themselves—and so, more than one adversary called him pantheist and anti-christian. Nevertheless, Froebel is quite right in denying the justice of the charge. He is not a pantheist, and in no sense is he anti-christian, though perhaps his views may not be acceptable to every denomination. The question is not one which can be left undecided as a minor matter; it is one of vital importance, for upon it the whole system of his ethics is based and built up. There is hardly a page of the *Education of Man* in which this view of the universe does not appear explicitly or implicitly; while almost the whole of one section (§ 63) is devoted to its exposition. He is speaking of what mankind can learn of the nature of God from the "book of creation," apart from any direct revelation—in which revelation he constantly shows his belief—and, using once more the simile of the artist, he says, "As no material part of the human spirit, of the artist, is in the work of art, and yet the work of art bears within it the whole spirit of its artist, so that he lives in it, expresses himself by it; and as the work breathes forth again his spirit even to others, is awakened, developed, improved, and formed by his spirit; as thus the man's spirit is related to the work produced by him, as the man, as a spirit, is related to that which he has produced, so is the spirit of God related to nature, and to all created things. The spirit of God rests, lives, and works in nature, expresses itself by nature, imparts itself through nature, continues to shape itself (to give itself visible form) in and by nature; but nature is not the body of God." The whole section is of great value for a clear understanding of this view, but is too long for quotation here. It may be added, however, that both from what he here says, and from the rest of his writings, it is quite evident that Froebel does not pretend to give a *complete* account of the Deity, but only of what a limited human being can learn from the universe of the Deity in His character of Creator of man and of the world man lives in.

But let us go back a step or two, so that we may see more distinctly the important bearing of this theory. From early boyhood Froebel had delighted in the sights and sounds of nature. In especial, he himself tells us, the world of plants and flowers had been the object of his observation and reflection. Both then, and still more when in later life he took up the study of physical science in good earnest, he seems to have been most struck by the fact that in every division of organic nature, both animate and inanimate, as each in succession came under his notice, life appeared to be a progressive development from lower to higher grades of being; that development in the *individuals* of a class was regular, and followed the same general order, which order remarkably resembled that which *the class as a whole* had gone through, as far as its history was known; and that exercise of function produced development, while loss of exercise checked or destroyed it. Examining more closely what seemed the laws of development in the different classes of organisms, he was convinced of their similarity to one another—of their "unity," as he put it—and that this unity of law indicated a unity of the origin or source of law. He had only one other step to take, to assume that what was true in the cases examined was universally true of all organic nature, and of the spiritual nature of man. The leap from the physical to the spiritual life was, no doubt, a bold one, but had been led up to by his study of animals (including human beings), and has, in the main, been justified both by Froebel himself and by later psychologists. If we admit, then, that the ultimate origin of all life is one and the same, and accept the axiom—as old almost as the human race—that the fundamental natures of cause and effect are the same, we shall be in a position to understand the principles on which Froebel based his ethical teaching.

He opens the "Education of Man" to the following effect*: "In everything there rules and operates an eternal law, which always finds its expression with equal clearness, outwardly in physical nature and inwardly in the spirit, and also in the life (which is the result of the union of physical nature and spirit). Beneath this all-pervading, all-powerful law lies a single omnipotent cause—God. This all-pervading law is like its cause, like God, *Godlike*. The condition upon which the existence and development of things depend is their fundamental harmony with the laws of their being—*i.e.*, therefore their *Godlikeness*. The Godlike principle rests in, rules, and operates in all things; all things live and develop through the Godlike principle which works in them; and the Godlike principle working in everything is the essence of the life of that thing. Therefore, the destination and vocation of everything is to develop and fitly exhibit the essential principle of its being, its Godlikeness; to manifest and reveal God outwardly by development in the transitory visible world of things. The particular destination, the particular vocation of every perceiving and rational human being is to develop his individuality, his essence—to become himself; to grow fully conscious of, to win a vigorous and clear insight into his Godlikeness, so as to develop it in practice in his own life of his own free will and desire; to make it effectual in every direction which his inner capacity admits of. To awaken a human being to a

* The edition of the "Education of Man" referred to in this essay is Miss Jarvis's translation. (Lovell & Co., New York, U.S.)

* I paraphrase and condense slightly here.

full sense of this; to treat man as a thinking, intelligent being, who is becoming conscious of himself; to incite him to the pure, inviolate, conscious practice and fulfilment of the inner divine law of his being; and to provide him (in unbroken continuity) with the ways and means for this, is to educate man." (*E. of M.*, §§ 1, 2.)

It is easy to see whither this will lead us. Science ceases to be antagonistic to religion: it becomes a part—a vital part—of religion itself. Knowledge of the law of life, of all that bears on life, becomes the one thing needful; a man's highest duty is to *live out* that law here on earth by unceasing outward and upward activity; to develop and promote the realisation of God's idea in humanity. "But this is anti-Christian!" exclaim the objectors. "By no means," answers Froebel, "it is the teaching of Jesus himself—whose meat it was to do the will of Him that sent Him; who was ever about His Father's business. He it was who taught us to call upon His Father as our Father, and to pray that God's kingdom may come, and His will be done here on earth, even as it is in heaven. (*E. of M.*, § 61, *passim.*) And you will find that Holy Writ in no way contradicts me." (*E. of M.*, § 88.) The kingdom of God upon earth is the complete development of humanity and of all created things. This development has not yet been reached. It is not a stationary completed thing, which has only to be repeated in greater universality, but a growth yet to be produced, and only to be produced by the living way of individual, free, active development and cultivation. This insistance on the necessity of development brought another set of adversaries into the field, who accused Froebel of despising knowledge, and thinking only of training. These we may leave Bacon to answer in his *Advancement of Learning* (especially in Book I., v. 11), merely pointing out that Froebel did, indeed, look upon knowledge as "a rich storehouse for the glory of the Creator and the relief of man's estate." He did not value it for its own sake, but only as it bore on complete living. In that respect, no one has valued it more highly than he.

But it is time to have done with objectors, and to turn to the consideration of the ethical bearing on the child, the boy, the man, and society in general, of Froebel's theory; for so far we have only hinted at it.

The infant child lies at first involved in a chaos of sensations, and of feelings of comfort and discomfort, acceptableness and offensiveness. Within these there is somewhere the germ of a soul or spirit. How does it rise out of the confusion, separate itself from it, and become conscious of itself—"give birth to itself as I," as Fichte would say? Somehow, by its own nature, and own inner power—helped or hindered by the impressions of outer things. Something, therefore, may be done to help or hinder the youngest infant—something through the senses and feelings, and first infant activities; in aid of discrimination. Froebel begins at this earliest period. Nor does he find it too soon for a germ of ethics. While aiding the child to make clear to itself its elementary sensations and feelings, he would, as he said in a conversation with Varnhagen (*Reminiscences*, p. 10), "awaken the senses as the organs of the mind, and not as the organs of mere sensuous pleasure, or of mere desires, as in animals." There should be no pampering in food or dress, not too much aimless cosseting; but, while enticing the child to use its perceptive faculties by drawing its attention to simple, single, striking objects, we should endeavour from the very beginning to create such impressions upon the child's mind, through material or concrete things, as, according to the analogy between thought and its embodiment, are the prototypes of ideas and conceptions." (*Rem.* p. 212.) As to how he would do this for the infant, Froebel has been explicit enough in his ball games, and the games and songs of his "Mutter und Kose Lieder," by which he seeks not only to exercise the infant perceptions, and the little limbs and muscles, but also to utilize the loving union between mother and child, so as to draw them both into intelligent and delightful relations with the objects and simple life around them. But I must refrain from quotations, for here we have to deal with principles, not practice. "Everything," he says (*E. of M.*, § 35), "which enters the child's small range of vision, which widens his as yet narrow world, is dear to him. The smallest thing is to him a new discovery. But it must not come dead into the little world; it must not remain dead in it; else the small range of vision will be darkened, the young world crushed." In a previous section (*E. of M.*, §33) Froebel shows admirably how a mother may call out a child's consciousness of self by infant play with its little limbs and body, beginning with what it can see (hands, feet, &c.), and going to what it cannot see (ears, eyes, &c.), and from the parts themselves to their activities—and how this play may be linked with speech. The advent of speech marks the beginning of another period—that of boyhood or girlhood.

Now, according to Froebel, from its earliest infancy, and with ever increasing frequency and effect, the child comes under the influence of three powers: Nature, animate and inanimate; Humanity; and the Power which pervades and directs these—rising to its highest temporal manifestation in the latter—the Power we call God. The child's body connects it with organic and inorganic, animate and inanimate nature; its heart and mind connect it with and make it part of the great whole—humanity, past, present, and future; and its entire being and soul depend on and are energized by God. If this be so, the child, he thinks, should grow up under the influences of nature. There it should gradually, but in unbroken continuity, learn that laws underlie all organic formation, and that conformity with those laws is the fundamental unvarying condition for all true every-sided development towards perfection; should catch glimpses of laws applying to itself; should come to see gradually that all these laws (of nature and of itself) are in reality but various modes and manifestations of one law, and thus link together or reconcile by a wider conception what seems separate or opposed; should, through the loving care it bestows on animals and plants, enlarge its heart and sympathies, and prepare itself for the loving care it is to bestow on human beings; should, in studying and imitating the conformity of His works, find and love the great Master, as the Creator of nature, and as its own Creator; should breathe in the peace which rules in nature, and in occupations connected with nature, before the noise of the world and sin enter its being.*

Froebel does not suppose that all this can be done in boyhood—it may not even be accomplished in manhood—but he thinks it should be the guiding principle and aim of every educator at all times. The end will not be reached by book-learning, listening, or passive contemplation, but only by action; for it is only by action that man learns to understand himself and others, only by studying the effects that he gains a knowledge of the cause. Gardening is one of the occupations Froebel would have us most carefully foster. By it the child gains his first glimpses of the wonders and beauties of nature; in it he watches the working of an unseen power; through it he learns to love labour, to use labour for the pleasure and good of others, and gains for himself a first touch of a sense of duty and responsibility. A child's activities should never, if possible, be left vague and purposeless. Just as the senses are to the organs of the mind, so the activities are to the expressions of the mind—of the mind of the actor, the child. In gardening, therefore, and in every other occupation, children should be encouraged and led by every possible means to make use of the results of their infant efforts by giving pleasure and help to others. Work, which is also the fulfilment of duty, Froebel saw to be the only true basis of moral culture. But it is necessary that such work should not only delight the worker, but should also satisfy his instinct of love. It should, therefore, have an object. And to give pleasure and help to others should be that object. This would exercise the inborn social impulses of children; would link them to their fellows and to humanity; and from love of their fellows would be developed the love of God. If, besides individual work, children are given work—such as gardening—to do *in common*, a sense of mutual responsibility and fellowship in duty will still further be exercised. It is evident how valuable in this connection will be the child's being allowed to take part in domestic household work. To help father, mother, or nurse is always a privilege as well as a pleasure; and the aim and utility of the work are both always clearly manifest. (*E. of M.*, §§ 40 and 49.) There is no more beautiful sight in this world of ours than a little child working for love and honour's sake. But by far the most important of the spontaneous activities of the young is that of *play*. It is the freest active manifestation of the child's inner self, and springs from the need of that inner living consciousness to realize itself outwardly. The child literally *lives* in his play, and sees himself living in his playmates, just as he sees himself acting and doing in the stories he loves so well. All that we can do here is to seek to prevent the activity from becoming vague, erratic, meaningless.† It should be the expression of some idea in

* See Marenholtz-Bülow, *Child and Child Nature*, vi., *passim*.

† Children often half-consciously confess this by asking some sympathetic adult to join in their play. Many a time has a little fellow said to me, "Oh, do come and play with us, and then the game is sure to be jolly." The self-directing powers, in games as in all else, are slow in growth.

the child, and, undoubtedly, those ideas will be best which lead him into intelligent, loving harmony with his fellows and with nature (*E. of M.*, § 30), and which keep him in touch with his own life all through. (*M. und K. Lieder*, vii.) It should be as little as possible merely imitative; as much as possible creative, *i.e.*, the child's own endeavour to realize the idea which he possesses. In any case, the idea and the action should never be divorced. After what has already been said as to Froebel's view of development, there will be no need to insist further on the absolute necessity of *creativeness* in every department of a child's education, according to his method. As soon as this is left out, the plan ceases to be Froebel's. We need not, therefore, touch upon the other activities and occupations. The same spirit and purpose runs through them all—the desire to develop the child's own innate powers, and to give him clear perceptions of truth, and of his relations to nature, humanity, and God—and to keep life and all that surrounds him full of beauty, suggestiveness, and peace.

"Religion," says Froebel (*E. of M.*, § 60), "is the effort to raise to clear consciousness the anticipation that the individual spiritual self, which man perceives (the spirit of man) was originally one with God, and is to be in union with God, a union founded on this consciousness, and to continue to live in this union with God in every position and every relation of life, untroubled and unweakened. Religion is not a fixture, but a constantly advancing effort, and just on that account has a constant existence." * Religious instruction consists in making this clear to the individual; in leading him to perceive and understand the laws of his being as an animal, as a man, as part of humanity, as a child of God; and in accustoming him to look for these laws in the natural world around him, in himself, in the life of humanity and the history of its development, and in the sacred books which have applied these laws to life, and especially to the individual life of each person. "Even in boyhood there may be most unequivocal proofs and convictions that God, to speak humanly (as we can in general speak in no other way of the Divine, or at least in no other comprehensible effective way), still uninterruptedly guides humanity in and towards its development, improvement, and outer manifestation, by His fatherly guardianship and care, and constantly also accompanies each individual—each as an essential part of the whole—in all the occurrences of his life with fatherly loving protection and help." (*E. of M.*, § 88.) Elsewhere he says (*E. of M.*, § 23), "Religion without work runs the risk of becoming empty dreaming, passing enthusiasm, and an evanescent phantom, as work without religion makes man a beast of burden or a machine." In this, as in every other department, development is produced by exercise, in *doing*, in *creating*. Morality is produced by moral practices. Froebel holds that the first germ of religious feeling lies in the feeling of community (*E. of M.*, § 21); and that this feeling first comes into active consciousness in the family life. The family life, therefore, is the basis and medium of religious development; as is also the school-life if based and modelled on that of the family. Moral practices, "the expressions of the kind heart, and the thoughtful pure mind," are what he urges both for home and school; linking these on to what has been said above of the child's perception and feeling of God's fatherhood, and taking the life of Jesus as the model life. "The boy's life," he says, "should be an expression in *action* and *production* of the prayer of Jesus" (*E. of M.*, § 88). Here, as everywhere else, he objects to dogmatic teaching. "If a man is to understand many truths, especially religious truths, he must be made to experience much, *i.e.*, to become conscious of the events (perhaps small in themselves) of his own religious life,"—his own first, and then that of others. He must rise *gradually* to a knowledge of the truths of Christianity. He objects also to the inculcating, in early life, of all such precepts as "If you are good you will be happy." The child can only take them as referring mainly or wholly to the *outer* life; and of that life they are not true. Indeed, Froebel protests strongly against holding out bribes to virtue, either for this world or the next, (*E. of M.*, § 88). Outward incentives are degrading to humanity. What we should do, as far as possible, is "to make the boy observe and realise the reflex action of his conduct, not on his outer more or less agreeable position, but on his inner spontaneous or fettered, clear or clouded, satisfied or dissatisfied, condition of spirit and mind," and this only gradually and by the way of experience. The child has to have some intuition of, and insight into, his destiny, and how it is to be accomplished, before he can understand such a consequence as arising from such a cause. Froebel does not desire to produce a being learned and fixed in religious dogma; but to realise in the individual God's idea in humanity. The chief instrument he would use, especially in earlier life, is love, which conquers self-seeking—love in action, in the family, in the school, in the community; and from love of his fellows whom he has seen should be developed the love of God, whom he has not seen with his outer eye, but is learning to see with his inner mind and heart.*

General morality, as we have seen, is held by Froebel to depend largely on having the *ideal* side of the human being awakened and gratified from the very beginning of life, in order to afford a counterpoise to sensual desires, and to delay or prevent as far as possible the awakening of the lower appetites. The development of the sense of beauty, while the reflective powers are still slumbering in the child's soul, offers the best means for this. Therefore, from the earliest infancy onward, the eyes of the child are to be opened to forms, colours, &c., and its ear to music; and the weak childish powers are to be prepared and used in the formation and creation of beautiful objects. Here again *creativeness* is to render the soul susceptible of the ideal. While, moreover, the principles which underlie the formation of beauty, will, in this way, be brought home to the worker, and will be another experience in the beneficent results of law and harmony.†

Froebel would not have the child *suspected* of evil. In this way, by suspicion, the child is robbed of its innocence, and is rendered powerless to act; and it is only by action that he can develop the good.‡ He by no means ignores the presence of evil, both inherited and newly acquired; but he would overcome it by (so to speak) *starving* it, and developing what is good. To do this we must not be in a hurry to pronounce actions as evil, but must look into their springs and motives. Often enough a good meaning and endeavour lie behind what is evil in appearance, or evil *in reality*, but due to ignorance and misdirected exuberance of young life and growing powers, to exercise which is instinctive and delightful (*E. of M.*, §§ 51-53). If evil is not wholly extirpated in this way, its proportion is, at any rate, constantly lessened, and its power continually reduced; while the power of will is not paralysed, but only diverted in its action. Punishment is not abolished, but the necessity for it almost disappears, and the spirit of it is entirely changed. No longer does virtue need to be avenged, or wicked nature to be rebuked and put down. It is rather ignorance that needs enlightenment, weakness that needs strengthening, strength that needs a right direction, contamination that must not be allowed to spread, And if the outer life suffers constraint and penalty, the inner life is not left unappealed to or uncounselled.

"The development and cultivation of man to attain his destiny, to fulfil his vocation, is a perpetual, uninterruptedly continuous, unseparated whole, always rising from one stage to another" (*E. of M.*, § 46). "By his own observation, and his own discovering, by his own notice of the living coherence of nature, by direct view of nature itself (not by explanations in words and ideas, for which the boy has no intuition) there will dawn upon him early—and however dimly at the beginning, yet more and more distinctly—the great thought of the inner, continual, living connection of all things and phenomena in nature" (*E. of M.*, § 98). "No new subject of instruction should come to the scholar, of which he does not at least conjecture that it is grounded in the preceding subject, and how it is so grounded (as shown by its application), and concerning which he does not, however dimly, feel it to be a need of the human

* What Froebel means by "union with God" has already been made sufficiently clear. It is actively *living out* the idea and purpose of God consciously, and of one's own free will and desire.

* "All work, all exercises which awaken the active powers," writes Bertha von Marenholtz-Bülow, "which form the capacity for rendering loving services to fellow-creatures, will help to lay the groundwork of religion in the child. The awakening of love goes before that of faith; he who does not love cannot believe, for it is love that discovers to us the object or the being worthy of our faith. Loving self-surrender to what is higher than ourselves, to the highest of all, is the beginning of faith. But love must show itself in deeds, and this will be impossible unless there be the ability to do. A child can no more be educated to a life of religion and faith without the exercise of personal activity, than heroic deeds can be accomplished by words only."—*Child and Child Nature*, xi.

† See *Reminiscences*, chapter viii.

‡ The child thus reduced to inaction—often mistaken for goodness—he compares to the butterfly or beetle, which, from much handling, is feeble, "and indeed also footless," and which the little boy pronounces to be "quite tame now."—*E. of M.*, § 53.

spirit" (*E. of M.*, § 99). A boy is a boy, not because he has reached a certain age, but because he has lived through his infancy faithfully to the requirements of soul, mind, and body; a youth is a youth, because, with the same efficient faithfulness, he has lived through his infancy and boyhood; and just so a man is a man, not because he has reached the age of manhood, but only because the requirements of his infancy, his boyhood, and his youth, have all been faithfully fulfilled by him. These so-called stages are in no sense separate, but together form one continuous, unbroken, harmonious development, every part of which vitally depends on all that has gone before it. However sad it may be, no after effort can ever wholly remove the consequences of earlier neglect (*E. of M.*, § 22). Here and there something may be retrieved; but, in general, things can never be the same as if there had been no neglect. The activity that *should* have been called out would have produced *some* result, and *that* result, at least, must be lost. Such are the more important thoughts which constantly run in and out amongst Froebel's ethical theories. They form, indeed, the skeleton which unites and supports the whole body of these theories. And further—in a very special sense they constitute the ethics of his *practice* of teaching.

We might carry our enquiry further, and consider the application of Froebel's views to the training of youth as well as boyhood. But, if what has already been said is sufficiently clear and connected, the repetition of principles and methods would be too little varied to avoid wearisomeness—of which sin, I fear, I am already guilty. Let us rather, in conclusion, glance at the results in manhood which Froebel claims to produce by his system of education.

True freedom, according to Froebel, rests on perfect development; and development is but another name for progress according to law. True freedom is, therefore, an active fulfilment of the purpose of our existence in conscious and willing submission to law—the law of our life as individuals, and as members of society: not a narrow, specialized law, but a broad, human, natural law. The large amount of political liberty which is common at the present day can only be beneficial to the nation and to individuals—can only be safe—on condition that the individual is intelligent and law-abiding, and capable of self-direction for the good of himself and his fellows. He must be in some measure conscious of his own vocation, and that of humanity; and must have learnt the necessity and advantage of submission to, and fulfilment of, law. The misuse of political liberty—which has grown somewhat frequent of late—arises from ignorance of all this, from ill-proportioned development, and ill-directed powers. Between the strict, and often mechanical—indeed, necessarily mechanical—discipline of our large schools, and the unchartered liberty outside them, there is no mean. Children have no education in true freedom. They seldom learn even the wisdom and the necessity of submission to natural law—and no mere "Citizen" readers or primers of biology are of any great avail. Citizenship—the flower and fruit of manhood—is a growth produced by exercise, not something learnt in a book, or presented in a gilt casket. Of all this Froebel shows an ever present consciousness, from the earliest stages of his method; and experience has shown that this method is, on the whole, well-fitted to produce the result aimed at. In bygone times, passive obedience to authority was sufficient for the then stage of the development of society. But this is no longer sufficient. What is now required is active, intelligent self-direction; and this is what Froebel aims at producing throughout. Education, in his eyes, is emancipation—emancipation of the inner self from the tyranny of lawlessness and confusion. It demands freedom for development; it uses work for development; and its guiding spirit should be unity and harmony of development.* On the perfection of the individual depends the perfection of the State; and he cultivates and fosters individuality and originality most wisely and well. Happiness is the condition most favourable to the growth of morality and brotherly kindness. Nothing is so fruitful and frequent a cause of *un*happiness as ignorance of, and futile opposition to, the laws of nature and of life. Froebel trains the child from the first to a recognition and appreciation of these laws. Moreover, he holds—and rightly holds—that, not only in childhood, but all through life, a free, healthy exercise of faculties and feelings in a manner which accords with their nature and their strength, is a never failing source of true delight and moral (and political) purity and growth. And this activity he provides for and promotes. He gives to common human work its true dignity, by showing it to be, and *using it as*, the means for spiritual and physical progress. It is no longer limited to mere bread-getting and material ease; but becomes, as the instrument of development, as the outward and visible product of human love, a necessary and important part of the holy fulfilment of man's divinely-ordered destiny. Work, consecutive and productive, it will be remembered, is the very foundation of Froebel's system; and the chief aim of the *Mutter- und Kose-Lieder* is to show the value, the necessity, and, if we may so speak, the *divine* nature of work—which is not man's curse, but his blessing and privilege. Moreover, by his spiritualizing of nature and natural processes—which reminds us continually of Wordsworth's teaching—he seeks to correct and change the view that worldly gain and prosperity are the highest aims for man. And if such a change is ever to be effected, if but greater honesty and more straightforwardness are ever to be infused into trade and business, it can only be done by, in some way or other, spiritualizing and ennobling all necessary human work, and by showing that the ordinary everyday processes of human occupation are capable, if rightly directed, of producing that continuous development which it is man's highest duty to promote and to fulfil. And this Froebel claims to have shown, and to be able to do. Religion, in his teaching—in which he follows the pure, simple view of the Gospels—is brotherly-kindness, growing up into love of God—living, moving, and having its being in the practice of love. It is a growing into union with humanity and with God, by a willing, conscious endeavour to *live out* on earth God's grand purpose in humanity—a purpose which more than once has been made to seem narrow and unattractive, but which, as Froebel expounds it, is again worthy of man and of man's Creator. This growth, too, Froebel's plan is well fitted to produce. And if it be—as, indeed, it seems to be—the destiny of nations to grow more and more into unity and homogeneousness within themselves, and of mankind, as a whole, to become one, even as its divine cause is one—there is no better method to prepare for and to promote that end than the method employed by Froebel. And, while fostering and cultivating a wide feeling of human fellowship, does he not continually by it, and for it, teach us the truest wisdom—intelligent submission to the true conditions of life; and that best human virtue—cheerfully to do without what we may be justified in wishing for, and cheerfully to bear what is unpleasant, for the sake of others; and this in no indolent or merely Stoic spirit, but as the honourable duty of a vigorous and ever-striving manhood?

But enough has been said. True freedom; firmly-built happiness; dignity of work; the reconciliation of science and religion, together with a sound application of Christ's teaching to modern life; a vigorous, law-abiding, self-directing manhood—what more is there which an educator of man could wish to claim as the result of his system?

The CHAIRMAN, in inviting discussion on the Paper, said the lecturer had brought out the side of Froebel's teaching which, in these days, was of the very highest value. In one respect, there was a similarity in the teaching of science and religion. Both led us to seek for essential unity underlying diversity of phenomena. But the unity at which religion arrived ultimately was in a Creator who loved what He had created. So religion went beyond science, and Froebel, devoted as he was to science, went beyond science, and founded his system on religion. Froebel's writings were very difficult; and the lecturer had done them all a great service by putting so clearly some fundamental principles of Froebel's teaching, and had shown that Froebel resembled the author of the *De Imitatione*, who said that, before man could be at peace in God, he must see all things in One, and refer all things to that Unity.

Mr. WILSON confessed his inability to find in Froebel's views of moral training all that the lecturer and the Chairman found there. English writers on education, from Ascham and Locke to Spencer and Bain, he could with due effort understand; he could bring his own experience as a teacher to the test of their doctrines, and enter with interest into points of agreement or disagreement of one with the other, but of what was most characteristic of Froebel he could make nothing or next to nothing. His favourite precepts, when subjected to analysis, as it seemed to him, turned out, when intelligible at all, to be the merest truisms—the common possession of civilised man—or unverifiable dogmas, having, in fact, no other authority than that derived from a remarkable individual experience, as interpreted by a dreamy mystical student of nature and life. He regretted that the lecturer had not seen fit to define "character," "conduct," and "religion," or to differentiate the one from the other, as preliminaries to showing how exercise to develop character, to form conduct, to implant religion suitable to child life and on Froebel's principles, could be framed and used. He imagined there was a good deal of unreality in the usual talk about

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* See *Child and Child Nature*, vi.

these weighty matters in reference to children of kindergarten age, say from 3 to 7. He could understand how habits of obedience, healthy dispositions and sympathies, could be cultivated and their opposites checked, during tender years, by a due apportionment of praise and blame; and this is the method that parents and teachers have almost universally used. Whilst fully recognising the necessity of moral training, he could see no advantage in ignoring its difficulties, nor did he believe that the teacher of either sex would find much that was helpful, under the stress of every day work, in the teachings of Froebel.

Mr. Orchard considered that Froebel's chief claims to the gratitude of posterity were, that he was an earnest and patient investigator, a sympathetic spirit looking out upon education, and, seeing many things wrong, endeavouring to remedy them; a reformer, who did service in protesting, in action as well as in words, against that mechanical theory of child-culture, which, in his day, was in many quarters sadly prevalent. He would treat the child, not as a puppet, but as a person possessing will and affection. He deserved praise for aiming to lead through nature up to nature's God, and for emphasising Plato's sublime thought of The One in the Many and the Many in the One. But Froebel's reputation would, he considered, not be enhanced by his ethical system, which exhibited him as an illogical dreamer, and not as a sober lover of truth. He appeared to think of God as being little more than the personification of natural law; and he talked of morality as being "produced by moral practices," as if there could be a moral action possible without morality in the agent. Froebel was said by the lecturer to have been a Christian, and to have believed in the divine authority of the Bible; but we should hardly have inferred this from his teaching that the love of God is something to be "developed" out of a child's love for his associates. The source of much of Froebel's error appeared to have been due to an illogical habit of mind, through which he confused mere analogy with identity.

Mr. Hamilton remarked, that when Froebel, as had been stated, laid stress on encouraging activity in the child, this recalled Aristotle's definition of happiness, as an activity of the mind in accordance with the highest excellence in a life not prematurely cut short. Again, the maxim of Froebel, that we must do good actions in order to become good, to which the previous speaker had taken exception, was all but a literal translation from the 3rd chapter of Book ii. of the Nicomachean Ethics: "Men must do just actions in order to become just, and temperate actions in order to become temperate."

Miss Lord said that all students of Froebel must feel grateful to the lecturer for the admirable way in which he had explained Froebel's views on the important matters which formed the subject of the Paper. It was not at all necessary to introduce religious dogma in the kindergarten; doing was infinitely better than talking, for the true purposes of religious teaching. She was surprised at the remarks of the first speaker in particular, and thought he could not have taken any serious trouble to make himself acquainted with the principles of the system which Froebel had worked out. Only one who had attentively watched a real kindergarten at work from day to day, and from hour to hour, was in a position to appreciate the power of the reformer's ideas in developing the mental and moral nature of the child. The manual exercises, which were one of the conspicuous features of kindergarten work, were not the most important part of the teaching; and there was some danger of giving undue prominence to these, to the neglect of the spiritual influences, which the lecturer had thrown into relief.

Mr. Bowen having replied briefly to the remarks of the various speakers, a vote of thanks to the lecturer concluded the proceedings.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A Meeting of the Council took place on Wednesday the 15th ult. Present—Dr. Wormell, Vice-President, in the Chair; Rev. J. O. Bevan, Rev. A. W. Boulden, Mr. Brown, Mrs. Bryant, Dr. Buchheim, Rev. Dr. Conder, Rev. Dr. Frost, Rev. Dr. Hiron, Dr. Knightley, Sir Philip Magnus, Mr. Mason, Rev. G. P. Pearce, Mr. Pinches, Mr. Reynolds, Rev. Dr. Scott, Mr. Stièvenard, and Dr. White.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the first of a course of Six Lectures on "Language and Linguistic Method in the School," by Professor Laurie, of the University of Edinburgh, was delivered at the College on the 3rd of May. The lectures would be published from time to time in the *Educational Times*, commencing with the June Number.

He reported that the number of candidates entered for the forthcoming Pupils' Examination was about 5,300.

The Diploma of Associate was granted to Miss C. J. Weightman, who had passed the required examination.

The following persons were elected members of the College:—

Mr. G. J. H. Cumming, Castle Green, Sandgate.
Mr. G. Leprévost 48 Chisholm Road, Stoke Newington, N.
Miss E. E. Thorne, 75 St. John's Street, Bridgwater.

The following books have been presented to the Library since the last meeting:—

Macmillans.—Wood's Third Poetry Book.
Ginn & Co. (Boston, U.S.A.)—Montgomery's Leading Facts of French History.

THE SHEFFIELD CONFERENCE.

The Second General Conference of the Teachers' Guild was held in Montgomery Hall at Sheffield, on April 30th and May 1st and 2nd. The first two days were devoted to discussion, and the third to visits to manufactories of various kinds—including Sir John Browne's great armour-plate works—and to excursions in the neighbourhood. On the evening of May 1st, there was a conversazione in the Mappin Art Gallery, which was brilliantly lighted for the occasion and attracted a large gathering of about 1,000 persons, including most of the leading residents of the town. Indeed, the whole of Sheffield, headed by the Mayor, Archdeacon Blakeney, Sir Henry Stephenson, and the Master Cutler, united in offering the members of the Conference every hospitality; and about 125 visitors were entertained during the three days as private guests by the members of the Sheffield branch of the Guild. Through the exertions of Mr. Widgery and Mr. J. J. Findlay (of Sheffield) and the kind co-operation of several of the leading publishers, a very interesting exhibition of educational apparatus and books was held in the smaller rooms of Montgomery Hall, and was visited by a large number of people. Throughout the Conference, though there was a good deal of coming and going, there were seldom less than 200 present at the discussions, which were both earnest and lively, and were listened to with great interest.

On the first day the chair was occupied by Dr. Percival, the head master of Rugby, and chairman of the Guild. After a cordial welcome had been offered to the Conference by the Mayor, Sir Henry Stephenson, and Archdeacon Blackeney, Dr. Percival opened the proceedings with a retrospect of educational work during the last 40 years—the growth of public elementary education, the spread of middle-class schools, the rapid advance in the education of women and schools for girls, the reforms in grammar schools, the great Public Schools, and the Universities. Glancing then at the work of such bodies as the College of Preceptors, the Headmasters' Conference, the National Union of Teachers, &c., he passed on to consider what the Guild had done and what it had now to do. He referred to the strong branches established not only in Sheffield, but also in Glasgow, Manchester, Bristol, and many other important centres; and after speaking in high terms of the aims of the Guild and the work it had already accomplished, he closed his very interesting address by calling on his fellow members of the Guild to unite in inspiring into all classes of teachers the feeling that they belong to a great profession, endowed with great responsibilities, carrying with it great influence, and charged with duties on the right performance of which must depend most important results for the future of the country. Mr. Wild (President of the N. U. T.) followed, expressing the sympathy which teachers in elementary schools felt with the work of the Guild, and touching forcibly on a few of the points which needed attention and which affected every grade of our national education. Mr. Senior (Sheffield Grammar School) and Mr. H. C. Bowen also spoke.

The next subject, the "Registration of Teachers," was ably and clearly treated by Mr. Storr and Mr. J. J. Findlay (Wesley College, Sheffield) on lines already known to our readers; and the unanimity and enthusiasm of the meeting gave striking proof of how rapidly this important question is ripening. A resolution was passed with acclamation urging the Central Guild and the Branch Guilds to agitate for an effective Registration Act. Miss Soames (of Brighton) took part in the discussion.

In the afternoon Professor Laurie (University of Edinburgh) and Mr. W. H. Widgery dealt with the question of a "Teachers' Tripos;" and the keen sallies of the latter drew forth much laughter and applause. Professor Laurie dwelt chiefly on the great importance of professional training and knowledge to the teacher, and urged vigorously that the Universities of Oxford and Cambridge should recognise education as a professorial subject. Mr. Widgery's main theme was the subjects of study for teachers and the grades and general character of the examinations in connection with them; and he argued that, as the nation compelled everyone to go to school, it was bound to see that teachers were competent, and that the Universities especially ought to give their utmost help in the matter. A very animated discussion ensued, in which Mrs. Sandford (Chester) and several others took part. The feeling expressed in favour of a training for teachers, in which theoretical and practical work should be properly blended, was very strong.

Later on Mr. F. A. Laing (Glasgow) and Mr. J. H. Yoxall (headmaster of the Sharrow Lane Board Schools, Sheffield) dealt with "The Relations of the Guild to Teachers in Elementary

Schools." Mr. Laing spoke with keen interest and sympathy, and made many useful suggestions. Mr. Yoxall, after pleading that the term "Elementary Teachers" should be decently interred, pointed out that in some Branches of the Guild teachers in elementary schools already formed a considerable portion of the members—at Sheffield they amounted to at least one quarter—and he hoped that this would continue and increase. After a brief discussion, the Conference adjourned till the following morning.

On Wednesday, May 1st, Sir George Young took the chair, and proceedings were opened by Mr. H. C. Bowen and Mr. H. B. Garrod (Secretary of the Guild) whose subject was, "How can the Guild strengthen and extend its influence?" Mr. Bowen said that the Guild was formed to create public spirit in teachers; to lead them to feel that they were directly interested in the whole work of education in the country—that nothing educational was alien to them. If teachers wished the public to come to them for information and advice on educational matters, they must first persuade the public that teachers themselves took an interest in such matters, and were fitted to deal with them. In this, as in other things, we must learn to do by doing—by taking an interest in, by studying, and by working for things educational, both local and national. Interest and knowledge would grow by what they fed upon, until at last there would be generated such a spirit of loyalty and service to their great calling as would prevent teachers from quietly and ignobly taking their ease while educational questions were being discussed. Mr. Bowen then went into details as to what he thought members of the Guild might do. Mr. Garrod followed with a well-considered scheme of organization, and urged the Guild to seek to classify and embody professional opinion, and to press on vigorously with the questions of registration and training. In the course of his remarks, he mentioned that a body of teachers in Natal had just applied for affiliation to the Guild. Considerable discussion ensued, in which Mr. Findlay, Miss Buss, Mr. R. Ewing (Oxford), Mr. Newbold (Manchester), Mr. Olley (Scarborough), Mr. Stopford (Halifax), and Mr. Vie (Stockton), took part. The last named gentleman pointed out that as lawyers, doctors, &c., had erected barriers round their professions, it followed naturally, by the law of least resistance, that the unprotected ranks of teachers must become overfilled. The next subject, "Latin in Girls' Schools," was admirably treated by Mrs. Woodhouse (Sheffield) and Miss Eaton (Preston). While conceding the advantages to be derived from the proper teaching of Latin, both speakers forcibly pointed out that lack of time made it impossible in girls' schools to treat Latin adequately as a class subject, and pleaded that it would be better to recognize this openly and fully, and to throw their strength into modern languages, literature, and the other subjects which were urgently necessary for girls. This opinion was in general acquiesced in by the numerous speakers who took part in the discussion, amongst whom we may mention:—Mr. Storr, Miss Buss, Mr. Widgery, Mr. Ewing, and Mrs. Armitage. The last mentioned lady vigorously defended Latin as the true basis of intellectual development, but had not time to prove this point. The whole discussion was excellently summed up by Sir George Young.

In the afternoon, Mr. M. G. Glazebrook (Headmaster of Manchester Grammar School) dealt with the question, "At what age ought Specialisation to begin?" with admirable force and point; and a paper on the same subject, from Mr. F. Bond (Hull), was read by Mr. F. C. Turner. Mr. Glazebrook pointed out both the advantages and disadvantages of specialisation, which, like Mr. Bond, he thought should never be attempted before the age of 16. "Our task is not to make classical scholars and scientific specialists," he said, "but to train *men;* and that is just where the narrow training in one subject fails." On the other hand, special study of one subject, based on a sound general education, was of great value. Many of the evils complained of were due to the practice of using scholarships, both at schools and at the Universities, not as aids to poor and deserving students, but as the means for buying up what talent there was in the market, to be used hereafter in rivalry and advertisement. The Chairman, Mr. Senior, Mr. Bowen, Miss Findlay (Stockton), Miss Cooper (Edgbaston), and others, took up the discussion with spirit, and, approaching the subject from various standpoints, concurred, in the main, with Mr. Glazebrook's views.

The last subject was, "The Teaching of Drawing and Designing in Schools." The openers were Mr. Stopford (Halifax) and Mr. J. T. Cook (Sheffield), and the latter, especially, treated the matter in an interesting and suggestive way. The main plea was for greater consideration for the subject, and for sounder and less showy methods of treatment. Mr. Bowen gave it as his conviction that there could be no liberal and generous education without drawing, and referred to Froebel's work in the Kindergarten for methods and suggestions. Mr. Newbold (Manchester) and others followed, all pleading for more attention to drawing. And then, with short speeches from Sir George Young and Sir Henry Stephenson, and very special thanks to Miss Denton, one of the local secretaries, for her indefatigable and valuable services, the Conference, which could not have been more pleasant, and could hardly have been more successful, came to a close. In the evening, dinner parties were numerous. The next day (May 2nd) was devoted to sight-seeing and excursions.

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

The Month of May has been somewhat unusually prolific of events in this University.

First in order of time came the unveiling, by the Prince of Wales, of the "Jubilee" statue of the Queen. This little ceremony, which occupied barely a quarter of an hour, took place at four o'clock on the 8th day of the month. Only the subscribers to the statue-fund were invited, and of these many living at a distance did not attend, so that the Prince's objections to a great crowd were amply respected. The Chancellor, Vice-Chancellor, and Dr. Wood (Chairman of the Jubilee Committee) met the Prince at the entrance, and escorted him to what is known as the "common room," just behind the statue, where the principal members of the Committee were assembled. In less than a minute the centre of interest shifted to the first landing on the main staircase, just in front of the statue, where the Chancellor made a graceful and appropriate little speech to the Prince; the Prince, amid loud applause, drew away the sheet that had hitherto concealed the statue, and then in turn made an equally graceful and appropriate little speech to the Chancellor and the rest of the company. After mounting to the upper balcony to inspect the statue—with which he declared himself to be most favourably impressed—from different points of view, the Prince departed, amid a volley of cheers from the spectators.

Mr. Boehm's fine statue is of rather heroic proportions (some eight feet high), and is chiseled out of a magnificent block of the purest white marble; the attitude of the Queen is majestic, and her extended right hand offers to everyone who mounts the stairs a copy of what is understood to be the Charter of the University. The statue rests upon a massive and handsome pedestal of grey marble, which was executed and supplied (as were also the temporary decorations) by Her Majesty's Office of Works, and which bears the following inscription:—

VICTORIAE · REGINAE · AC · FVNDATRICIS ·
HANC · EFFIGIEM · NVMIS · CONLATIS · GRADVATI · ALII ·
ANNO · REGNI · EODEM · VNIVERSITATIS · CONDITAE . LMO .
PC

The annual meeting of Convocation was held on the evening of May 14th. For once, the house stuck pretty close to business, and very nearly cleared the agenda-paper. Among the more interesting proceedings may be mentioned, first, a resolution *à propos* of the resignation by Sir William Gull of his chair in the Senate, recognizing his past services, and expressing sympathy with him in the serious illness which has led to his resignation. In the earlier days of the University Sir William worked hard to secure the recognition of an incorporated body of graduates as a part of the constitution of the University; and he was himself one of the first graduates appointed a Fellow under the new charter by which Convocation was recognized. His successor in the Senate is Prof. T. E. Thorpe, Ph.D., F.R.S., of the Royal College of Chemistry, who was recently an examiner in the University.

The same meeting adopted an amended scheme of Local Examinations, which is, like former schemes, to go before the Senate: it is probable, however, that, under the present charter of the University, such examinations are *ultra vires ejus.* Another item of business was a resolution calling the attention of the Senate to the very wide differences in the percentage of failures of candidates at successive examinations, which appeared to depend on other causes than the state of preparation of the candidates; the Report of the sub-committee upon this subject is a very valuable piece of work. Another item was the recommendation of a motto for the University. It is sad to think that this great institution should have existed for more than half a century without a legend for its shield. More than two years ago, however, Convocation awoke to a sense of the destitution, and requested the Senate to select a motto. Many graduates and others are said to have sent in mottos ranging, as to authorship, from Pythagoras down to Mr. Browning; but the Senate appear to have shelved the matter: they were not even allured to take action by *Uno avulso non deficit alter,* which is, being freely (very freely) interpreted, "We pluck fifty per cent. at every examination, but just as many are anxious to be plucked next time." Now, however, some members of Convocation think they have found the right thing in *Patet omnibus porta;* for is not the door of the University, like that of an

omnibus, open to everybody? But, just as the adoption of this motto was about to be proposed, the house was counted out.

Lastly (although it was taken up nearly first), a resolution was adopted urging upon the Senate the importance of obtaining a fixed annual grant from the Government and the free control of its own income from fees. The resolution was originally presented in a much more forcible form; but, it was generally felt that, at the present crisis, when extensive changes in the constitution and requirements of the University may be imminent, some degree of caution was highly desirable. The question of sustentation, opened by this resolution, is one which few, even of the graduates, understand, and upon which we could have wished to say a few words here, but perhaps we may find time and space for doing so next month.

The 15th of May was Presentation-day (the *third* Wednesday this year; for the ceremony is not fixed for the second Wednesday, as most people think: it is held on the day following the May meeting of Convocation, which *is* fixed for the second Tuesday). The proceedings were rapid but mostly dull. The presentation of the ladies evoked, as usual, considerable enthusiasm, especially when Mrs. Scharlieb appeared for the M.D. degree, and Miss Worley for the M.A. in classics, with the great gold medal in that subject. Once, indeed, the audience was aroused to long-continued hilarity; it was when a young gentleman was presented for the B.A. degree who rejoiced in the name of "William Waterloo Wellington Rolleston Napoleon Buonaparte Guelph ——," a combination that deserves record. When Mr. Childers was Chancellor of the Exchequer he remarked in the House of Commons that, among the suggestions he had received for increasing the revenue, one was that he should levy a tax upon all Christian names beyond the first. Certainly a string of such names is a luxury for which parents who hang it round their child's neck for life might well be called on to pay; and we would suggest that the taxation for each successive name, should increase in a geometrical ratio.

Early in May the Colonial Pass-list of the January Matriculation Examination was published. Four candidates have passed in the West Indies, seven in Mauritius, two in Ceylon, and five in India; only one candidate has got into the Honours division, viz., Mr. Francis Xavier D'Souza, a private student, examined at Madras; but he has done extremely well, having obtained a number of marks which places him above the first candidate in the original Honours list. The Gilchrist Scholarship, assigned to the Indian group of centres, will no doubt be awarded to Mr. D'Souza.

Oxford.

The Council of Somerville Hall have elected as their new Principal—to succeed Miss Shaw-Lefevre — Miss Agnes Maitland, who for some years past has taken an active part in various movements connected with women's education in the North of England.

The Judges for the Gaisford Compositions have awarded the Prizes as follows: — For Greek Prose — Reginald Carter, Exhibitioner of Balliol College. For Greek Verse — Réné L. A. Du Pontet, Scholar of Trinity College. *Proxime accessit*—William M. Geldart, Scholar of Balliol College.

The Chancellor's Prizes:—English Essay—F. G. Kenyon, B.A., Fellow of Magdalen. *Proxime accessit* — R. R. Marett, B.A., Balliol. Latin Essay—J. U. Powell, B.A., Balliol. Latin Verse—Not awarded. The Newdigate—D. H. B. Roberts, Scholar of Lincoln.

The Headmasters, it seems, are still in trouble about Smalls. They complain that colleges now-a-days insist on men taking Smalls before they come into residence, and that as a consequence their boys spend much of their time going to and fro between Oxford and their schools in the attempt to fulfil this requirement. When it is suggested that the Joint Board Certificate ought to meet their needs, they urge that the standard for certificates is higher than for Smalls, and that, if their boys are ploughed by scores for Smalls, they are ploughed by fifties for certificates. We cannot now discuss the question why, after a public school education of five or six years, boys should find themselves unable to pass the test of Responsions—it might be suggested perhaps that there is a defect in teaching or discipline somewhere.

Magdalen College announce that they will give a fellowship for Botany —the first, as far as we know, that has ever been offered for this subject at Oxford.

Archdeacon Watkins, of Northumberland, has been appointed Bampton Lecturer for next year, in succession to Prof. Cheyne.

Mr. J. C. Wilson, fellow and tutor of Oriel, has been elected to the Wykeham Professorship of Logic, vacant by the resignation of the President of Corpus.

Cambridge.

The Rede Lecture will be delivered in the Senate House by Professor Stokes, on Wednesday, June 12th, at two p.m. The subject of the lecture is, "Some Effect of the Action of Light on Ponderable Matter."

An estimate of the income and expenditure of the University for 1889 has been presented. The receipts of the University chest for last year exceeded those for the year before by £1,300; the fees for matriculation produced £360 less, but the degree fees produced £1,200 more, and the fees for examination £400 more; the expenditure amounted to nearly £35,000. It is expected that this year there will be an increase in the expenditure of £1,500, of which the new Professor of Greek will receive £210. As to the Common University Fund (1889), the receipts are estimated at £19,000, and the expenditure at about £12,600.

An appointment to the Clark Lectureship in English Literature at Trinity College will shortly be made, and candidates are requested to send in their applications to the Master of Trinity College not later than 4th June, 1889. The lecturer will be appointed for three years from October next. He will be required to deliver twelve lectures during full-term time in every academical year; such lectures to be free to all members of the University, and to be distributed over two terms at least. The lecturer will receive as his annual stipend the sum of £200. The electors are the Council for the time being of Trinity College.

The Le Bas prize is not adjudged.

The examiners for the Lightfoot Scholarship have appointed the following selected subjects for the examination to be held in the Easter term, 1890: (1) "John of Salisbury," (2) "The Pontificate of Alexander VI."

For the Regius Professorship of Greek, vacated by the death of Dr. Kennedy, three candidates presented themselves — Dr. Jebb, formerly public orator, late Fellow and Tutor of Trinity College, and now honorary Fellow of that Society, and Professor of Greek in the University of Glasgow; Dr. Jackson, Fellow, Classical Lecturer and Praelector in Ancient Philosophy at Trinity College; and Dr. Fennell, late Fellow of Jesus College. Dr. Jebb has been elected.

The Lightfoot Scholarship has been awarded to W. E. Collins, B.A., of Selwyn College.

The Winchester Reading Prizes have been awarded as follows: First prize to Ds R. O. Hutchinson, Jesus, the second prize to Ds G. F. Still, Caius.

On the recommendation of the Joint-Committee of the Royal Geographical Society and the Council of the Senate, Mr. J. Y. Buchanan has been appointed University Lecturer in Geography, in succession to Dr. Guillemard, who has been compelled to resign the office by ill-health.

Mr. E. A. Gardner, M.A., Fellow of Caius, has been reappointed to the Craven Studentship for a year.

Other Universities, Colleges, and Schools.

Prof. W. P. Ker, of Cardiff and of Oxford, has been appointed to the Quain Professorship of English Literature and Language at University College, London, vacant by the resignation of Prof. Henry Morley.

The Rev. L. H. Pearson, Headmaster of the Grammar School, Amersham, has been appointed Headmaster of the Market-Bosworth Grammar School.

The Rev. E. B. Cooper, M.A., of Keble College, Oxford, has been appointed Headmaster of the Grammar School, Amersham, Bucks.

Mr. Percy W. Bowell, Trinity College, Dublin, Assistant Master at Clewer House School, Windsor, has been elected Headmaster of Binley Grammar School, Warwickshire.

Mr. J. Sterndale Bennett, M.A., has been appointed Headmaster of Derby School, in succession to the late Rev. Walter Clark. Mr. Bennett is a son of the late Sir J. Sterndale Bennett, the musician and composer.

The Rev. E. J. Evans, M.A., Headmaster of Conway College, has been appointed Headmaster of Lynn Grammar School, Cheshire.

Mr. Francis Arthur Heron, B.A., of New College, Oxford, has been appointed, after competitive examination, to the Assistantship in the Geological Department of the British Museum, vacant by the resignation of Mr. Arthur Dendy, now Demonstrator of Biology in the University of Melbourne.

Professor Thorpe, of the Normal School of Science and Royal School of Mines, has been appointed to a Fellowship of the University of London, with a seat on the Senate, in place of Sir W. Gull, resigned. The appointment is in the gift of the crown.

EDUCATIONAL NOTES AND SUMMARY.

The Report of the Royal Commission on the Teaching University for London, which has been laid on the table of the House of Commons, shows that on two points the Commissioners are agreed—first, that the petition of the Royal Colleges of Physicians and Surgeons to be authorised to grant degrees in medicine should not be entertained; secondly, that it is desirable that London should have a teaching university. On the third point, whether a charter shall be granted to the associated colleges of King's and University, constituting these colleges the teaching university of London, the Commission are divided. The three Commissioners connected with the teaching profession—Sir William Thomson, Professor Stokes, and Mr. Welldon—are in favour of it; and Lord Selborne, Sir James Hannen, and Dr. Ball are opposed to it. The report ends with a request that this question be referred back to the Commission for their further consideration, in order that they may determine whether it is not possible to devise a scheme of common action between the two colleges and the existing University of London.

The Bill for the provision of technical education, introduced by Sir Henry Roscoe on behalf of the National Association for the Promotion of Technical Education, has been read a second

time without opposition. It is understood that the Government will accept the measure, subject to a few modifications.

Dr. Gladstone directs the attention of the readers of *Nature* to the effect of the recent alterations of the Code on the teaching of science in elementary schools, and contends as follows:—

"What is wanted is a far more liberal recognition of the claims of science in elementary education. At present, object lessons or certain sciences are, no doubt, recognised by the Code; but it is merely as an additional subject of instruction not comparable with the literary subjects which are considered essential, and which occupy the great bulk of the scholars' time. The knowledge of nature is, in fact, totally neglected in hundreds or thousands of elementary schools, especially in country districts, where it would appear to be even more important than in towns. A boys' or girls' school can obtain the highest credit in the Inspector's report, and the highest possible grant of money, without its scholars having ever heard of animal or plant, or of those materials of the world, or of those natural forces, with which the scholars will have to deal all through their lives. And what is perhaps still more anomalous, those pupil-teachers who are possibly expected to give object lessons in their schools are never examined in natural history by the Department, and may gain a high place in their examinations without the least knowledge of any kind of natural science."

Sir John Bennett Lawes, the eminent agricultural scientist, of Rothamstead, has, it is stated, just completed arrangements for bequeathing to the cause of agricultural science the sum of £100,000, together with fifty acres of land and the laboratory and museum at Rothamstead. In the latter are stored more than 45,000 bottles of experimentally-grown produce, of animal products, and of soils. The income of the fund will be handed over to a committee of nine persons, including the owner of Rothamstead for the time being.

The Elementary Education (Continuation Schools) Bill has been published. According to a memorandum by which it is prefaced, the Bill is intended to provide for continuing the education of children who are wholly or partially exempted from attending the day schools, and are beginning to be employed in manual labour, and thus to secure the full benefit of the national outlay on elementary schools. In these continuation schools it is proposed to provide education of an interesting and practical character, such as will be attractive to children and of service to them in their daily employments. The Bill does not make attendance at continuation schools compulsory, save in the case of children who, not having passed the exemption standard, elect to continue their education in a continuation school instead of a day school. Such children will remain in the continuation school till they have passed the exemption standard or reached the age of fifteen. It will thus allow children who have not passed the exemption standard at thirteen to attend at a continuation school until they either pass that standard or reach the age of fifteen, instead of compelling them to attend a day school until the age of fourteen.

A correspondent of the *Times*, treating of Free Education, writes:—

"Unless schoolmasters and schoolmistresses are willing to give their services without salary, and coal merchants and gas companies to provide fuel and light without charge, and that in buildings placed on sites given without purchase, planned by architects who took no fees or commission, and erected by builders who did the work gratis, employing workmen who received no wages, it is obvious that there is and can be no such thing as free education. All these expenses must be met by some one, and the only question is by whom? Education, so far from being 'free,' is a very costly matter, and it certainly does not seem any very great hardship that those who receive the benefit of it should contribute, at least in some small degree, towards its cost. As it is, the preliminary expenses of building, &c., are defrayed entirely by persons whose children do not attend the schools—namely, the ratepayers in the case of Board schools, and voluntary subscribers in the case of voluntary schools. It does not seem unreasonable to expect that, in schools thus provided for them free of cost, parents should pay something towards working expenses. What they do pay is not more in the aggregate than a fraction, perhaps a third, of the teacher's salaries, and a fifth of the total working expenses, and to each individual about the price of two glasses of beer weekly. It is surely unreasonable to speak of such payment as 'this great, this arbitrary tax,' and as the great cause of irregularity of attendance, when, on the contrary, experience shows that the payment of a small fee is of the greatest service in promoting regularity of attendance, by teaching parents to value the education which their children receive."

At a meeting of the Council of the South Wales College, at Cardiff, an offer was announced from the Drapers' Company of London, which will greatly enhance the educational advantages of that institution. The Council have been in communication with the Company, with a view to obtaining a grant towards the establishment of a department of mining and mechanical engineering. The Company have recognised the importance of technical education in the large provincial centres of commerce, by voting from their corporate fund the sum of £1,000 towards the expense of establishing such a department, and they promise, in addition, to contribute £1,500, in five annual instalments of £300, towards the maintenance of the same, provided the sum necessary for the building and equipment is obtained within a reasonable time.

Lord Selborne presided at Mercers' Hall, Cheapside, over the annual general meeting of the Governors of the City and Guilds Institute for the Advancement of Technical Education. In moving the adoption of the Report, the Earl of Selborne stated that there had been a decrease of 107 in the number of students attending the Central Institute, compared with the previous year. In 1888 the total number of students preparing for the technological examinations was 10,404; in the present year the number was 11,734. In 1887 the number of the classes was 365, in 1888 it was 473, and this year it was 505; and the towns, in which the classes were held, numbered in the present year 133. The examinations last year were in 49 subjects, and in 240 centres. They had suffered a reduction of £4,000 a year in their income, from the separation from them of the Drapers' Company, from whom, in the past, they had received most generous support, and who, they hoped, would, after the lapse of some time, return to them. Valuable assistance had been received from the Fishmongers', the Clothworkers', the Skinners', and the Weavers' Companies, and the Institute had also received several donations in the shape of scholarships. In 1888, the subscriptions and donations received by them amounted to £24,960, but, for the present year, he regretted to say, they could only reckon upon £22,495. The votes made, independently of the fees, came to £22,385 for the current year. Although fully appreciating the generosity of many of the companies, he really thought that the magnitude and importance of the work in hand were such that it ought not to be allowed to languish. Everything in connection with the Institute was encouraging, excepting the one matter of money. He hoped that they would receive greater support from the Corporation.

Professor Dr. Foster, director of the University Ophthalmic Clinique, at Breslau, has recently drawn the attention of parents and pedagogues to what he believes is often the cause of short-sightedness in the young—namely, that they are allowed to wear collars which are too tight for them. In 300 cases that had come under his notice the patients were suffering from a chronic complaint brought on by a disturbance in the regular and normal flow of blood caused by the wearing of collars which were not large enough.

India, it would seem, is practically uneducated. The total number of scholars in schools and colleges of all sorts is only three and a-quarter millions, or $1\frac{1}{2}$ per cent. of the entire population. These are mainly confined to the cities and towns, and out of 250,000,000 in all India, less than 11,000,000 can read and write. A census of the illiterates in the various countries of the world, recently published in the "Statistische Monatsschrift," places the three Sclavic States of Roumania, Servia, and Russia at the head of the list, with about 80 per cent. of the population unable to read and write. Of the Latin speaking races, Spain heads the list with 63 per cent., followed by Italy with 48 per cent., France and Belgium having about 15 per cent. The illiterates in Hungary number 43 per cent., in Austria 39, and in Ireland 21. In England we find 13 per cent., Holland 10 per cent., United States (white population) 8 per cent., and Scotland 7 per cent. unable to read and write. When we come to the purely Teutonic States we find a marked reduction in the percentage of illiterates. The highest is in Switzerland, 2·5; in the whole German Empire it is 1 per cent.; in Sweden, Denmark, Bavaria, Baden, and Würtemberg there is practically no one who cannot read and write.

According to the latest educational report of 1884, only 1,466,913 of the fifteen million children in Russia attended

schools. About 90 per cent, therefore, of young Russia receive no instruction at all. In sixty governments there is only one school for secondary instruction to every 18,000 boys and 22,000 girls. Only 63 per cent. of the boys of an age to attend a public high school can be accommodated. For girls the number of such schools is even more insignificant.

Professor Richards, of Yale College, has made a study of the records of 2,425 students in order to determine, if possible, the relation of athletics in Yale, to scholarship. The general result is that the athletes fall slightly behind the non-athletes in scholarship, but not so much as to demand a suppression of such exercises. In some branches of athletic exercises the students who engage in the sports are above the average of the non-athletes in scholarship. For the slight difference noted between the two great classes, there may be greater strength and endurance or physical development compensating for the loss of scholarship.

The university delegates have decided to arrange a second meeting of university extension and other students in Oxford in August next. The objects of the meeting are to stimulate and direct systematic home study by means of short courses of lectures, to supplement university extension teaching by a brief period of residence and study in Oxford, and to afford opportunities for conference between teachers and others interested in education on the best means of developing university extension and other educational work. The meeting will be divided into two parts: the arrangements for the first part, which will last ten days, will be similar to those which were successful last year. The second part of the meeting will consist of a supplementary period of three weeks' quiet study. The first part of the meeting will begin with an inaugural address by Professor Stuart, M,P., on Tuesday, July 30, and will end on Friday evening, August 9. During the ten days there will be delivered on each morning, at 10.15, and at noon, short courses of lectures on history, literature, science, art, and political economy, and a number of evening lectures of a more general character. Among those who have already promised their assistance are Professor Max Müller, Professor S. R. Gardiner, Sir Robert Ball, Mrs. Fawcett, Rev. W. Hudson Shaw, Messrs. Arthur Sidgwick, R. G. Moulton, R. W. Macan, H. J. Mackinder, E. B. Poulton, D. S. M'Coll, F. Madan, &c. The second part of the meeting will begin on Saturday morning, August 10, and end on Friday evening, August 30. It is proposed that this period should be devoted to quiet study. Lectures will be delivered each morning at 9.45 and 11.45, and a class will be held after each lecture. The courses will be longer than those of Part I., and will deal in greater detail with the subjects then introduced.

The President of the Council and the Home Secretary, on the 16th ult., received a deputation from the London School Board, in reference to two matters which seriously impede the beneficial action of the Elementary Education Acts—viz., the employment of children in theatres, and the present method of dealing with School Board non-attendance summonses by the London Magistrates. In reference to the former, the deputation urged that the employment of children in theatres either led to their education being interfered with, or to their being overworked. They, therefore, suggested that child labour up to the age of ten should be prohibited, and after that age should be regulated in cases where the Factory Acts did not apply. Lord Cranbrook expressed the opinion that no Department of State would take upon itself to say that a particular employment was so demoralizing that it would interfere with it. Therefore, the opinion of the Houses of Parliament would have to be obtained on the question of the alleged demoralizing effect of theatrical employment upon children, before action could be taken in the direction desired. If it was immoral to employ the children in the way described, was it not equally immoral, enquired the Lord President, to see their performance. Now, it does not seem to us that this latter question, however important, is in issue at all. If grown-up people, in pursuit of pleasure, never think or care about the amount of physical pain, mental anguish, moral degeneracy, that goes to the making of their entertainment, the law cannot take account of their thoughtlessness or carelessness. But the law of England does compel parents to send their children to public elementary schools if their education is not otherwise provided for, and if employment of children in theatres is inconsistent with obedience to the law, then it seems to us that it can be dealt with quite apart from the morality or immorality of the theatre.

"The old order changeth." So plainly thought the Wandsworth Magistrate who recently felt himself compelled to recognise modern humanitarianism to the extent that "he granted summonses, but with some reluctance," against the headmaster of a grammar school and one of the assistant-masters for flogging a pupil. The solicitor who appeared for the pupil who had been flogged, and who could not quite see the fitness of the antique discipline to his offence, called the lad into the witness box, and elicited from him that the teacher fetched him from home, and that he was severely flogged about the body. The Magistrate: "Had you been guilty of misconduct?" Lad: "I had only stayed away from school for three days." Solicitor: "I submit that that is a matter for the parents, and not for the schoolmaster." The medical man who had examined the boy then went into the witness box, and said that he was severely bruised about the body, back, and legs, and gave his opinion that the flogging was excessive. The Magistrate: "I have been flogged myself." Doctor: "And so have I—in a public school." Solicitor: "And so have I." This common experience of the professional men did not, however, suffice to prevent the Magistrate granting the summons. The position of the schoolmaster is humiliating, whatever may be the justification for the punishment; but, to the credit of the profession, it is one which is rarely seen in the present day.

Mr. Samuel Butler concludes a whimsical article in the May number of the *Universal Review*—an article which he hopes may give his readers absolutely no food whatever for reflection—with words which, though themselves whimsical, are not without their salt of truth, and might perhaps frustrate the very hope which he expresses:—

"I have sometimes thought," he says, "that, after all, the main use of a classical education consists in the check it gives to originality, and the way in which it prevents an inconvenient number of people from using their own eyes. That we will not be at the trouble of looking at things for ourselves if we can get any one to tell us what we ought to see, goes without saying; and it is the business of schools and universities to assist us in this respect. The theory of evolution teaches that any power not worked at pretty high pressure will deteriorate; originality and freedom from affectation are all very well in their way, but we can easily have too much of them; and it is better that none should be either original or free from cant but those who insist on being so, no matter what hindrances obstruct, nor what incentives are offered them to see things through the regulation medium. To insist on seeing things for oneself is to be an ἰδιώτης, or, in plain English, an idiot; nor do I see any safer check against general vigour and clearness of thought, with consequent terseness of expression, than that provided by the curricula of our universities and schools of public instruction. If a young man, in spite of every effort to fit him with blinkers, will insist on getting rid of them, he must do so at his own risk. He will not be long in finding out his mistake.

There is a fine flavour of "Hudibras" in this view of the case, which Mr. Sully might use as an example of heredity.

In a highly important and interesting address, delivered by the President (Professor Marshall) to the General Medical Council, at the beginning of the 46th Session, on the 28th instant, there is the following paragraph, which deserves the serious attention of all Schoolmasters:—

"In relation to the latter subject," (*i.e.*, Preliminary Education) "it may not be altogether without useful effect if I allude in terms of great disappointment to the persistent frequency of examples of bad spelling, not merely of scientific terms, but of common English words, in the written papers of Candidates, even at a Final Professional Examination. This defect, though often associated with considerable ability, is most deplorable in the members of a profession whose position is so high, from whom society and Government may justly claim, and will more and more certainly exact, evidences of a good education, and who are yearly becoming more and more engaged in the performance of public duties, bringing them into relation with fully-trained and critically-disposed members of society. I commend these remarks especially to the attention of those who now take charge of the Preliminary Examinations in this portion of the kingdom. It may come to pass that for the cure of this, and certain other defects, which surely reflect blame somewhere, a Leaving-School-Examination, such as has been recently established in Scotland with so much success, will yet prove to be the efficient remedy."

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THE EDUCATIONAL TIMES.

LONDON, JUNE 1, 1889.

Of the various important matters with which the Thirty-sixth Report of the Charity Commissioners deals, that touching the Inspection and Examination of Endowed Schools, possesses more than a passing interest for schoolmasters. It is very characteristic of English methods of administration that a public body originating as the Charity Commission did, and doing the work it does, should find itself compelled to undertake duties which would more fitly fall to the Education Department, if this latter was not organised solely with a view to seeing that the Public Elementary Schools earned their grants of money as prescribed in the Code. We have not in England a Department of State, such as exists in foreign countries, for administering a public school system of secondary and higher education. Our secondary and higher public schools continue meanwhile to grow rapidly, mainly through the action of the Charity Commissioners, in exercise of their powers under the Endowed Schools Acts. There are, in fact, no fewer than 82 1st Grade, 208 2nd Grade, and 170 3rd Grade Schools now at work under schemes framed by the Endowed Schools Commissioners or their successors the Charity Commissioners. The surprising thing is, that the supervision of these schools was not specifically entrusted to any authority. Sir Lyon Playfair's Committee (1886–87) of inquiry into the administration of the Endowed Schools Acts reported in favour of the extension of the powers of the Commissioners in order that the objects of the Acts should be fully attained. "At present," says this report, "the powers of the Commissioners under these Acts are limited to the framing of schemes and do not include the supervision of the schemes when framed; while their ordinary jurisdiction under the Charitabl Trusts Acts is not specially adapted to it."

Notwithstanding this declaration, and although the legislature has not armed the Commissioners with any new powers since it was made, they, of their own motion, boldly assumed, in the circumstances that had arisen, jurisdiction to supervise the working of the schemes they had framed with so much care. They are indeed at pains to vindicate the legality of the position they have taken up. "In old times" they plead:—

"It was the duty of the Visitor of an educational foundation to see, in case of need, that it was properly administered. The Court of Chancery subsequently established a more general jurisdiction. But the functions of the Court of Chancery in this respect are under the Charitable Trusts Acts, now mainly exercised by us; and further, under section 20 of the Endowed Schools Act 1869, taken together with the provisions which have in pursuance of that section been inserted in Schemes, your Majesty has now become sole depositary in almost every instance of the rights and powers of the Visitor of educational foundations under such Schemes, and exercises such rights and powers solely through our agency."

Having satisfied themselves by such reasoning that they were responsible for the supervision of the schools constituted under the Acts they were administering, they resolved, towards the end of 1887, to institute a systematic inspection of all the schools and educational endowments appropriated to secondary or higher education in the Counties of Devonshire, Lincolnshire, Northamptonshire, and Staffordshire, intending, if in the result it should appear desirable, to extend the inspection to other Counties.

The work of inspection was entrusted to assistant commissioners, who received very precise instructions as to the character of the inquiries they were to make. They were directed to take note of any point in which the provisions of schemes had either not come into operation, failed of effect, or had been disregarded, and to report, according to the circumstances, what reasons were alleged for failure or disregard, whether any amendment of the scheme seemed proper to be made or was desired by the Governing Body, and what steps, if any, were required to be taken in order that practice in future might conform to the law. Further, the attention of the Assistant Commissioners was to be particularly directed to the working of the clauses, usually inserted in schemes prescribing the manner of appointing representative Governors and other business arrangements; to the financial arrangements of the endowment as prescribed by the scheme; to the educational arrangements of the school and scheme; to the course of instruction, whether in regard to subjects prescribed it was in accordance with the scheme, and in regard to other subjects (if any) whether it was suitable to the grade of school contemplated; to the working of the clauses allowing extra fees, especially the extra fee often prescribed for Greek in second grade schools; to the exhibition and scholarship clauses, the preferences established by the scheme, the places to which leaving exhibitions were taken, and from which boys came with extraneous exhibitions; and finally to the conditions of the buildings, completeness of plant, and sufficiency of apparatus, especially for scientific teaching; to the adequacy or otherwise of staff, to the rate of fees actually charged to the scholars, and of capitation fees paid to the Headmaster; to the number of scholars in the school; and to the degree of favour with which it was regarded in the neighbourhood, or by the class for whom it was intended.

It will be seen that no matter of any practical importance connected with the working of a school could elude the observation of an inspector who acted intelligently on his instructions. It will also be perfectly clear that a properly organised central body having acquired experience of the working of the various endowed schools throughout the kingdom will be in a position to judge fairly as to the degree of blame, and the incidence of it, in cases where established schemes have been disregarded. As put by one of the Assistant Commissioners, "The want of some unifying authority seems to be felt in connexion with secondary education. The larger schools live in a state of complete isolation, dreading one another's competition and working at haphazard, with the one aim of sweeping all sorts of fish into the net."

The Charity Commissioners may not be the best possible body to supply the unifying authority needed for the efficient organisation and control of secondary endowed schools, but there can be no doubt that some competent authority should be armed with the means and powers necessary for the discharge of such work. The Commissioners felt some hesitation in undertaking one important branch of the inquiry into the healthy working of their schemes, viz., the examination of the scholars in the schools. They recognise the fundamental distinction to be drawn between a purely administrative inspection, and an examination into the proficiency of the scholars, and the efficiency of the teaching in the schools, and accordingly excluded the latter work from the scope of the inspections. They however draw attention to the fact that it is required by every scheme under the Endowed Schools Acts that the scholars in the schools shall be annually examined by an Examiner or Examiners appointed and paid by the Governors of the school, but otherwise unconnected with it. Having enumerated some of the requirements of such examination, they significantly add, "We are alive to the necessity, in the general interests of secondary education, of providing additional guarantees of the efficiency of these examinations, and we propose to consider during the present year what measures, if any, it may be proper that we should take with that object." It requires no great foresight to predict that this new departure of the Commissioners will lead to very important consequences in connection with the organisation of secondary education.

The Universities (Scotland) Bill, a measure introduced by the Government, awaits, as we write, a second reading in the House of Commons. Its avowed object is to provide for the better administration and endowment of the Scotch Universities and for improving and regulating the course of study therein. Its interest, however, is not confined to Scotland, for the successful solution of the difficulties attending University extension North of the Tweed, cannot fail in fruitful suggestion for the solution of our difficulties in connection with University expansion here in London.

Scotch educational reformers do not desire to add to the number of their ancient Universities; they rather seek to make these efficient for all purposes for which they exist, and having secured efficiency to leaven with that efficiency the whole education of the country.

To effect the contemplated reforms in the mode of government and administration of the existing Universities, and to pave the way for an increase in their teaching power, the Government Bill, in the first place, nominates Commissioners, and empowers them to do all things that the framers of the measure deem to be necessary for carrying out its provisions. Having started the new University system, these Commissioners retire. On their retirement each University will be placed under a supreme governing body, a University Court. The administrative and executive functions, now discharged by the *Senatus Academicus* of each University, will in future be vested in this new body, which will represent more or less adequately all those interested in University work.

These changes will involve the sweeping away of one venerable relic of the past, viz., the voting by "nations," for the rectors in the Universities of Glasgow and Aberdeen, a practice which carries the mind back to the dim and distant origin of European Universities, in that time of chaos which followed the break-up of the Roman empire.

Equally significant of the growth of the modern spirit is the clause which deals with the admission of women to graduation "in one or more faculties, and to provide for their instruction." Those of us who followed with deep interest Miss Sophia Jex-Blake's single-handed fight with the professorial prejudice of Edinburgh, and were grieved at her discomfiture, can now read in the clauses of this Bill the defeat of the professors and her triumph.

In Scotland, University expansion is sought by means either of "affiliation," or what is called "extra-mural" teaching. Provision is made in the present Bill for the regulation and development of both. Affiliation is defined as "such a connexion between an existing University and a College, as shall be entered into by their mutual consent, under conditions approved by the Commissioners, or after the determination of their powers by the Universities Committee."

By "extra-mural" teaching is understood such teaching as is given in halls or colleges having a recognised position. For example, in Edinburgh, in the Medical School a student may spend two *anni medici*, or take out four classes of the required fifteen in the extra-mural school. In the faculties of Science and Divinity, it is necessary in the former to spend one year only in attendance at University classes, provided that recognised classes are attended during the remaining two years; whilst for the Divinity degree all the classes may be attended in the extra-mural theological halls.

In the faculties of Law and Arts the same facilities for extra-mural teaching are not accorded. In fact, there is a good deal of hostility displayed by the University professors towards both affiliation and extra-mural teaching. This showed itself recently in the action of the Glasgow professors against the Bill for the Establishment in the east end of Glasgow of a college of the University of Glasgow, to be called St. Mungo's College, and still more recently in the action of the Senatus of St. Andrews in reference to University College, Dundee, about which a deputation from the latter waited on the Secretary for Scotland, a week ago, to urge upon him that the Universities Bill might be passed this session, and to protest against the action of the Senatus of St. Andrews in respect to their college.

There is considerable feeling shown in Scotland on these two questions of affiliation and extra-mural teaching, as it is suspected that the influence of the professors will be used to wreck the Bill.

Whatever may be the merits of the controversy between the university reformers and the professors—as to which we give no opinion—we think the Bill affords the means of adjusting all conflicting claims, and of settling the basis on which a reorganised University system may be made capable of satisfying all the legitimate needs of the higher education in Scotland.

We are not always able to agree as completely with Miss Beale as we should like to do, because there are times when we are not quite clear as to what she would have us do, or when we do not feel convinced that she has looked at a question from every point of view. It is therefore with special pleasure that we refer our readers to her article on "the Evil of Scholarships," in the May number of *Murray's Magazine*, with which we very heartily agree, and for which all who are in earnest about education will be grateful. The case is stated with clearness, force, and good judgment; and the recommendations are practical and tend in the right direction. Scholarships are rapidly ceasing—if indeed they have not already ceased—to be a help to the poor deserving scholar, and a means for spreading sound education. They have largely become the implements which schools use to vie with one another in buying up the best talent in the market, to be used afterwards in the way of advertisement; and they divert the attention of the young from the value of education as an end in itself to mere money-winning and prizes. They foster premature specialisation and cram. They tend rather to increase than to decrease the general cost of education in schools—for the many who do not gain them have, in a measure, to pay for those who do, and the schools with many scholarships are by no means the least expensive. They delude the public by inducing them to look upon scholarship-winning as a test of the quality of the education given; and they unduly depress the work of the poorer schools by enabling the richer ones, as Mr. Millington puts it, to "pick out their very eyes." Through the misplaced ambition of parents—the rich even more than the poor—preparatory schools are forced into disregarding the laws of health and of sound education, and are driven to converting themselves into racing stables—and thereby sacrificing the good of the many for the very questionable advantage of the few. These points—or points similar to these—Miss Beale brings forward, and urges upon our attention; and no serious teacher can afford to turn away from them. More than one of them were stated by leading Headmasters at their Conference last Christmas—notably by Mr. Welldon, of Harrow—although perhaps not quite so bluntly; and Mark Pattison and Professor Henry Sidgwick, of Cambridge, have spoken to very much the same effect. It is time that something should be done. But what to do is the difficulty. We shall not spoil our readers' interest in Miss Beale's article by stating here all the recommendations which she puts forward as mitigations or improvements — there are, however, one or two to which we should like to call special attention. We think it was Professor Max Müller who first proposed that scholarships, instead of being used for buying up clever boys, should be devoted to the improvement of the school and of school apparatus, and to the cheapening of the education given. In this way, all the boys would gain something—the less clever as well as the geniuses—nor would the school itself be a loser. Many a school has to do without museums, libraries, laboratories, &c., because so much of the endowment is spent in scholarships. Again, in many cases, things might be so arranged that a boy when he has gained a scholarship should be at liberty to choose the school at which he desired to be educated—after the manner of the scholars of the Gilchrist Trust—and some declaration of real need for help might also be required. The detaching of scholarships from particular places would be a great boon to the poorer schools, which would not then be so often robbed of their best boys. It would be a boon also to poorer parents, who, when the school is at a great distance, have to spend a good deal over railway travelling. And it would force the schools themselves into a healthier rivalry—for they would have to vie with one another in proficiency and completeness, instead of in money-giving and prizes. And lastly there is yet another plan, which has been worked

with success in the case of women. The scholarship endowments might be converted into a fund from which loans could be made to deserving scholars to enable them to complete their education—such loans to be afterwards repaid, wholly or in part, with or without interest, and within a specified period of years. In this way help would be given to those only who really needed it; and the help given would not destroy, but would foster and promote a right sense of the high value of education. Scholarships would then aid in producing character; instead of producing—as is so often the case at present—narrowness and overstrain and false ideals.

The Sub-Committee appointed by Convocation to consider the variations in the proportion of candidates who pass the London University Examinations, has brought to light some very curious facts. In the Greek for instance, for thirteen years in succession, from 1875 to 1887 inclusive, the percentage of candidates who failed at the January Examination was higher than the percentage in the June Examination.

It is noticeable that this period of thirteen years begins with the entrance of a new Classical Examiner, and closes a year after his second period of service as Examiner terminates. The cause seems to be that this examiner set the January papers and his colleague set the June papers. It appears that under the present arrangements an Examiner may habitually set papers that on the average cause the rejection of nearly twice as many candidates as those set by his colleague (*e.g.*, 30·6 as against 16·7) or by other Examiners in the same subject (*e.g.*, 30·6 as against 17·0).

The following summary of this and other strange fluctuations is also given in the report:—

(1) In the Matriculation Greek, the January paper prior to 1888 was for thirteen years more difficult, usually considerably more difficult, than that set in June.

(2) In Latin and French in the B.A. Examination, there have been fluctuations of a serious character.

(3) In Mixed Mathematics in the B.A. Examination, the fact that no candidates failed in 1884, and 68·1 per cent. in 1888, is a startling discrepancy, for which we can find no parallel instance elsewhere.

(4) In the Intermediate Science and Preliminary Scientific Examinations, variations that seem excessive occur in Chemistry, Physics, and Mathematics.

(5) In the LL.B. Examination there has been a considerable alteration in the standard, more particularly in connection with Common Law.

In almost all the above instances it has been shown that when a serious change in the standard of a paper takes place, it is concomitant with the change of an Examiner.

The sub-committee point out that these large variations are neither inevitable nor desirable. It is inevitable that there should be some fluctuations, for neither can the examiners exactly reproduce the same degree of difficulty in successive examinations, nor will the knowledge and ability of successive bodies of candidates be the same. But such variations as the Committee has traced to their causes are not of this natural kind, and their deliberate production by examiners is exceedingly unfair to candidates. It is not too much to suppose that these sudden and large changes in the character of the papers have often caused the failure of many who have deserved to pass. They must have discouraged from study those to whom they have brought undeserved failure, and have proved of very serious import to those whose professional work they have unnecessarily delayed. We think, therefore, that the sub-committee is quite justified in urging the Senate to exercise a more careful supervision of the ways of examiners in general, and particularly of new examiners.

The recent publication of a New Series of Vere Foster's Copy-books, and of several entirely new sets by other publishers, shows that attention is being paid to the forms of letters required for rapidity of writing combined with legibility. There has been great improvement in this respect of late years. Palmerston's Park Railings have disappeared. Indeed, the improvement in five years is far greater than some people, whose observation does not keep pace with educational progress, are willing to admit. Nevertheless, there is yet room for further improvement. Very nice, neat copy-books are shown in our schools to H.M.'s inspectors or any one else who cares to look at them. Sometimes we are further called upon to admire beautifully made and elaborate flourishes which would be appropriate enough in a class for teaching free-hand drawing; but this is not what is wanted for the common purposes of life, nor does experience show that skill of this kind leads to the clear, compact, and rapid hand-writing which is required for them.

Failure, too often, comes in after the copy-book stage. The transition from making separate letters deliberately to writing whole words rapidly, is by no means easy, and it is this process which is too generally left very much to chance. But the writing of the "copy-book" is only the basis of the instruction required. The child has to be taught not only to copy *letters*, but to make them in such a way that, with due practice, they may be quickly run together without confusion to form *words*. The more complete forms first taught are not to be forgotten, but have necessarily to be modified and often abbreviated, yet not so changed that they cannot readily be recognised. Any one who will carefully examine copy-books will be surprised to see how often this is neglected. The letters look very well, but let him try to write them quickly, as the child has been suffered to make them, and he will no longer wonder that the result is a confused scrawl in so large a number of cases.

Even when these preliminaries are taught with due forethought, little more can be said than that the child has nothing to unlearn: nor is this any light praise at this period. But this good and seasonable work is wasted if we do not go on to instruct the pupils how to apply the modicum of manual dexterity which they have learnt, and to prevent them from falling into bad habits, which, as we all know, are very easily acquired. Indeed, very few will write a good hand unless they are taught to keep a constant watch for themselves over any little eccentricities into which they may unconsciously fall, and this remark applies quite as much to "young people" as to children.

Surely the best way to teach current hand-writing is to practise it assiduously—at first under close supervision. As soon as children have obtained a mastery over their pens let them begin to put what they have learnt into practice. A suitable dictation lesson may answer this purpose, with the special object of gradually training the scholars to write as they will have to do in after-life, *i.e.*, quickly as well as neatly and legibly. It should be short; ten or even five minutes will be quite enough to begin with, for to make this practice useful it will call for a very full concentra-

tion of the scholars' minds on every successive word and letter they have to make at comparatively high speed. The mere pace will be especially trying if they have never been used to it. Nevertheless, apart from the immediate gain, this training in promptitude and vivid attention has an independent value. In due time the effort required will, as a rule, become instinctive, and in no way interfere with the train of the thoughts which are to be expressed. At the least, a good and useful habit is gained.

Writing words from print is also an exercise which might be more used, and not merely for the lower classes in a school; for it has the advantage of calling upon the memory to reproduce the form learnt, and it would effectually prevent little ones from copying their own copy and carefully reproducing their own mistakes to the bottom of the page.

To insist on too exact an uniformity is at best a very doubtful advantage; there is a great deal of individuality shown in hand-writing, which it is needless, if not indeed mischievous, to repress.

REVIEWS, NOTICES, &c.

Lectures on Pedagogy, Theoretical and Practical. By Gabriel Compayré: translated by W. H. Payne, A.M. (*D. C. Heath and Co.*)

Mr. Payne has, before this, given us a translation of Dr. Compayré's *Histoire de la Pédagogie*, and now he gives us another of the *Cours de Pédagogie*. Both these works are of good average merit—clear, well-arranged, thoughtful, and suggestive; but both are very inferior to the work by which Dr. Compayré first made his reputation: his *Histoire Critique des Doctrines de l'Education en France depuis le Seizième Siècle*. This last is a very striking and valuable book—one of the very best and best-written monographs on the history of education in existence—and it seems somewhat hard that its author should be introduced to those English and American readers who do not know French by works which, though good in their way, are distinctly of a lower order than the *Histoire Critique*. Mr. Payne should atone for his mistake by giving us this book as well; and Messrs. Heath and Co. should set it forth with as excellent print and paper as delight us in the "Lectures" now before us. These *Lectures on Pedagogy* are divided into two parts: the theoretical, which treats of the child himself in his natural development, and in the formal school-culture of his faculties; and the practical, in which, turning from the child to the matter and means of education, Dr. Compayré deals with the subjects and methods of instruction, and the principles and rules of discipline. Let us say, at once, that the general views are almost invariably excellent; that the points are made with moderation and skill; and that the quotations, which are numerous, are well chosen, though they might perhaps be increased with advantage in the department of German pedagogy. But, with all this, the book nevertheless leaves us with a feeling of something wanting. And this does not arise from the fact that the whole ground of the subject has not been covered—Dr. Compayré himself warns us that he does not pretend to write a *complete* treatise—but rather from a lack of a full appreciation of the bearing of psychology on education, and from the absence of any very definite application of its principles to the art of teaching. In other words, the theory does not seem to be adequately set forth; and the methods and practice are not shown to spring directly and vitally from the theory—in some cases, as in the retention of grammar in the study of the mother-tongue, modified though this be, methods and practice seem to be at variance with theory. Dr. Compayré knows psychology, and is well acquainted with most educational doctrines, both old and new; but he does not seem to have thoroughly assimilated these things. In him the old scholastic conception of education has been reformed; it has not been born anew. Much as the book has delighted us here and there, and highly suggestive as it frequently is, we have felt bound to give this warning, lest young teachers should imagine that it expounds the views of those who most firmly believe in a science of education. But, having said this, we strongly recommend teachers to get the book and read it. The first chapter, on Education in general, is excellent; and so are those on Moral Training, and on Object-lessons, while some of the most suggestive things in the book are contained in the chapters on Rewards and Punishments and on Discipline in general. We may add that Mr. Payne's translation is nearly always satisfactory, and at times very good; and the notes he adds will, we think, be found serviceable. The book is well indexed, and costs, we believe, some seven or eight shillings.

Mr. Stranger's Sealed Packet. By Hugh MacColl, B.A. (*Chatto and Windus.* 1889.)

This is a very remarkable book. Its author, one of the most original of the contributors to our mathematical columns, reappears after a long absence with a problem (Question 10,119) in our last number, and the present volume, in one of the chapters of which the problem is accounted for, and discussed so far as a book of this kind will permit. Well, in story-writing, as in far other work, Mr. McColl has a way of his own. Finding, almost in his schooldays, that Euclid's fifth book was both perplexing and cumbrous, he forthwith wrote and published a method, to his own satisfaction, wherein proportion was, he thought, dealt with less abtrusely. As he thus began so he went on. Coming, by and by, to the Theory of Probability, while knowing nothing whatever of the Integral Calculus, he at once proceeded to invent a Calculus of his own, whereby to cope with problems that ordinary geometry or algebra would not enable him to solve. And now he comes before us as a writer of stories—as a novelist, let us say, if this remarkable book can be called a novel. We do not see why he should not prove as good at story-telling as he has been heretofore at Geometry and Probability; indeed we feel pretty sure that this first novel of his cannot fail to *attain*, as it certainly *deserves*, an eager recognition and a wide circulation. It is not often that men of science, least of all mathematicians, indulge the world with imaginative works, but when they do, they show, as in the present instance, the immense advantage their scientific knowledge gives them. Science, romance, and adventure are blended by a master-hand, so that there is not an uninteresting page in the book. It is true that other writers have attempted the same kind of thing before, but with, as yet, only partial success. The present work out-Vernes JULES VERNE, leaves far behind our old friend BARON MUNCHAUSEN, and even distances WORCESTER with all his *Century of Inventions*. To few of us is given the magician's wand; there is only an EDISON or a STRANGER here and there to point out the immense difference between the improbable and the impossible. Observe, then, the magnificent boldness of the following conception which, after all, is but a poor sample of Mr. McColl's imaginative flights:—

"Attraction is the chain which binds us to this earth—a chain which, it is supposed, no power of man can ever loosen or break. This supposition is erroneous. Broken, perhaps, it cannot be; loosened it certainly can. That very force of *attraction* which now binds us to the earth can be converted into an opposite force of repulsion, which will take us away from the earth. How this may be effected will be explained in the following pages."

That there is nothing impossible here every school-boy is ready to acknowledge, when by an effort of his will-force he springs from the earth and leaps into the air, having broken the equilibrium which had previously subsisted between the earth and his body. How he breaks the equilibrium the schoolboy does not know, let him therefore read Mr. Stranger's account. He will there see that the same law by which he can leap five or six feet from the earth, if logically considered, may enable him to rise as many miles, nay, to surpass the limits of the atmosphere and penetrate the interplanetary space. For the purpose indicated, Mr. Stranger constructed a machine, which it took him three years to complete, and which he called the "Shooting Star." "By raising its electrical activity," he says, "I could impart to the machine a velocity compared with which that of a cannon-ball would be sluggish." When in the interplanetary ether, fifty miles per second was no unusual pace for it, but when in atmospheric air the speed had to be greatly reduced on account of the great heat generated by friction. He had—besides food, a good telescope, and other useful articles—a store of solidified oxygen and nitrogen with him which he could gasify at pleasure for respiration. Thus equipped he took his first voyage to the planet Mars, which, as most resembling the earth, would, he judged, be most likely to give him, on his arrival, a hospitable reception. His experiences by the way are graphically recounted. Indeed, everything is worked out with the most surprising care.

He reaches Mars in nine or ten days, and meets with many thrilling adventures. He also finds a more attractive force than he had ever dreamed of, and quite different from that which impelled his machine; for to his great delight the planet is inhabited by beings like himself in most respects, and amongst them, wonder of wonders, a beautiful maiden! Their love-story is very simply but most powerfully told.

The customs of the Marsians are described, and specimens given of their language, which appears to be a combination of Greek, Italian, Dutch, and Hebrew, somewhat resembling, we believe, the present (or past) Maori dialect of New Zealand. Moreover the aspect of the country is pourtrayed with the greatest verisimilitude, and many amusing, as well as tragic, incidents are given. Stranger spends his honeymoon in the "Shooting Star," with his own sweet little *Ree;* and we are sure there is no male reader but will envy him in that charming career through space. Even an old fogey like Dr. Johnson could find delight in driving in a dog-cart at twelve miles an hour, with a lovely creature seated by his side. But what is that to going through space—ethereal and star-bespangled—at fifty miles a second with the same lovely creature, all one's own?

But we must refer our readers to the book itself, assuring them all—whether mathematical or otherwise—that they will find in it abundant and varied interest. And we hope that Mr. McColl's success in this new field may stimulate some of our other mathematical contributors to go and do likewise. We have already more than six times as much mathematics as our space will allow us to publish; thus, if some of our correspondents will take to story-writing, the pressure on our mathematical columns will be lessened, and we may hope to have—what we regard as far better — more delightful stories like the one before us. For we hold that the popular notion of a mathematician, as an arid and uninteresting being with not an atom of poetry or romance in him, is altogether a mistake. Among mathematicians — as, indeed, among men of all classes and conditions—PETER BELLS may, no doubt, be found who satisfy this popular misconception; but, as a matter of fact, most of the mathematicians that we have known well have shown themselves to be pretty full of both poetry and romance, to which, indeed, they are apt to turn—and naturally enough, we think—as a recreation from their severer studies. And as to music, own sister to poetry, we need do no more than call attention to the following *note*, which our illustrious contributor, Professor SYLVESTER, one of the very ablest of the mathematicians of the day, inserted at the foot of an abstruse paper published in the *Philosophical Transactions* (of the Royal Society) for 1864:—

"Herein I think one clearly discerns the internal grounds of the coincidence or parallelism, which observation has long made familiar, between the mathematical and musical ethos. May not Music be described as the Mathematic of sense, Mathematic as Music of the reason? the soul of each the same! Thus the musician *feels* Mathematic, the mathematician *thinks* Music—Music the dream, Mathematic the working life—each to receive the consummation from the other when the human intelligence, elevated to its perfect type, shall shine forth glorified in some future Mozart-Dirichlet or Beethoven-Gauss—a union already not indistinctly foreshadowed in the genius and labours of a Helmholtz!"

We think, therefore, that if our mathematical correspondents would, as we suggest, follow Mr. McColl's example, and turn their serious attention to novel-writing, they may well, by and by, find out for us something altogether new and delightful in the way of stories. And if they will, moreover, as Mr. McColl has done, limit themselves to *one* volume, in place of the much padded *three* of the lending libraries, we shall owe them all the more thanks.

The New Popular Educator: a complete Encyclopædia of Elementary and Advanced Education. Vol. I. (Cassell & Co.)

When the "Popular Educator" first appeared, it was found to be a great boon to the private plodders in learning all over the land, and many were the blessings it carried with it wherever it went; but thirty or forty years have wrought great changes as regards education, and the new edition therefore differs from the old in many respects. One of the differences which strike us on comparing the first and last editions is that, in the days of the former, the private and self-taught students needed to be stimulated to exertion, to be encouraged, and to be convinced of the possibility of making successful progress by sheer perseverance. Hence, in every few pages the advantages of study and the possibility of success with no other tutor than the "Popular Educator," are set forth in such examples as the following:—"There are numerous instances in every hamlet in England of dwarfed intellects and disappointed aspirations, in consequence of the want of means to procure even elementary works on common subjects." The instructions given, particularly if supplemented by oral assistance, are expected to "create an interest and a desire to learn among our working population which will have the happiest effects on their social and industrial habits, and on the welfare of all with whom they are connected by the nearest and the dearest ties." The various lessons frequently commenced with such exhortation; for example, the lessons on music began thus:—

"We have a friend, who was long persuaded by his relatives, who were all 'musical,' that he had 'no voice.' Any innocent attempt of his to unite in the vocal pleasures of the family circle was instantly checked by some compassionate expression or imploring look. He humbly acquiesced in this judgment of his friends, but found it often difficult to resist the sympathy of song, and sometimes startled the singers by adding his honest voice to the closing strain. He often wondered how it was that he came to be born with 'no voice,' especially when he observed that the infants of the present day are so much more highly endowed, every one of them who attends an infant school apparently taking for granted that he 'has a voice,' and using it accordingly. . . . Such thoughts as these led him to the conclusion that it is 'no practice' and 'no cultivation,' rather than 'no voice' and 'no ear,' with which the majority of men are afflicted."

In the same strain are given the biographies, which are all lives of self-made men and women.

In the introduction to "Sketches for Young Thinkers," we have the following typical example:—"It was a remark of Sir William Jones, that 'what has been done by one man can be done by another,' and, in remembrance of this, he assiduously pursued his studies, until he raised for himself a monument which will not decay, so long as literature continues to occupy the proud position which is its due. Left an orphan at three years of age, he knew not the value of paternal counsel, but he was under the superintendence of a mother, who lived in her boy, and was desirous for his intellectual advancement. Her uniform reply to the boundless inquisitiveness of her son is not a little remarkable; instead of satisfying his curiosity, by any endeavour on her part to solve his problems, she contented herself by answering, 'Read, and you will know;' he did read, and the world remembers him as an intellectual prodigy!"

Entertaining matter as well as that of instruction took up a considerable portion of the first edition, and consisted of lessons in reading and elocution, physical education, and problems and queries. All these are excluded from the new edition, and we think, rightly so. No one now doubts that it is possible to secure a certain amount of education by mere reading; and, it is unnecessary to be for ever parading the self-made man. At the same time it is a question whether there might not be something of a different type in the new edition for the same purposes of entertainment, encouragement, and stimulation. Occasional bird's-eye views of what lies ahead of the student, masterly recapitulations of what has been passed, concise expositions of the correlation of the various branches of knowledge as they are simultaneously followed, will suggest thought and be of the nature of mental recreation to the matured students who chiefly use the Educator.

The lessons of this Educator are altogether new and in many respects they are fully thirty years in advance of the old. This is particularly the case with the diagrams and the printing. The subjects taken up are Arithmetic, Astronomy, English, French, German, Latin, Geography, Geometry, Physiology, Music, Shorthand, and Drawing. We can imagine this encyclopædia being used with success as the sole text-book for subjects in a high class school.

The Leading Facts of French History. By D. H. Montgomery. (Ginn & Co.)—This is an excellent example of how well our cousins in the United States have learnt the art of bringing out a school-book properly. The binding is plain and good; the type is clear and well spaced; the fourteen maps are excellently printed; and at the end of the book we have a good and full index, a summary of the principal events and dates, a useful set of eight genealogical tables, and a short list of the best books in English on French History. And yet the book is only a small school-history of France of some 300 octavo pages. The plan on which the book is written is one which we have often advocated, and which we therefore are glad to see so well handled. This plan is, to restrict ourselves, in a history for beginners, solely to the leading facts and events, linking these together by just so much as is necessary to make the narrative consecutively

intelligible, and at proper intervals bringing everything into focus by the use of brief and striking summaries. This is what Mr. Montgomery has done, and done well. The right books have been consulted; the facts and views are well up to date; and the language itself is bright and attractive—though perhaps, here and there, terms and expressions are used which those for whom the book is intended will not readily understand. One fault the book has—to our mind. Too many leading facts are included for a book of this size, and so some of the paragraphs are forced to become uninteresting through excessive condensation. In these matters we must keep the needs and minds of the learners more prominently before us than anything else. Our knowledge of the pupil must govern our treatment of the subject-matter, and not our knowledge of the subject-matter our treatment of the pupil. Mr. Montgomery knows this well enough, and shows that he knows it; but here and there he seems to let it slip out of sight. The book should have been half as big again for the number of facts it contains; or the facts themselves should have been reduced in number to allow of every one of them being treated without undue condensation. This is our own individual opinion. But teachers of French History will do well to get the book and judge for themselves. Whether they agree with us on this point or not, they certainly will not regret having got the book.

Cassell's New German Dictionary. In Two Parts; German-English and English-German. By Elizabeth Weir.—The compiler of the present portly volume candidly acknowledges that "the well-known Dictionaries of Lucas, Flügel, Hilpert, and Köbler form the basis of her work, and that their contents have been modified by constant reference to the *Deutsches Wörterbuch* of Daniel Sanders, to that begun by the brothers Grimm, etc." This candid admission impressed us at once very favourably, and we took it as a sign of honest labour on the part of the compiler. For, as a rule, Lexicographers rarely acknowledge the results of their predecessors, just as editors of text-books so very frequently omit to mention the labours of their precursors, to whom they owe considerable obligations. On carefully consulting Mrs. Weir's German Dictionary, we found our first impression fully confirmed. It is a conscientious piece of work, and one of the very best German-English Dictionaries we know of. That her book is not perfect is, considering the great difficulty of the task, almost a matter of course. A number of archaic or unnecessary expressions are given, whilst some current and necessary words are omitted. Some renderings of phrases require correction. Thus, *über Stock und Stein* does not mean "up hill and down dale," but "hurry-skurry," or "helter-skelter." Some phrases again ought to have been more fully explained. The mercantile phrase, *die Soll "und Haben" Seite beim Eintragen verwechseln*, is merely translated, "to enter on the wrong side," which phrase, as it stands in English, without any special explanation as to what subject it refers to, might give rise to a curious mistake in conversation. We mention these, apparently minor details, in order to call the compiler's attention to the desirability of subjecting her work to a thorough revision, before issuing a new edition. We must also add a word about the German spelling, concerning which Mrs. Weir is silent in her preface. On the whole, she seems to have adhered to the old orthography, but in the words formerly written with *th* and now with *t* only, she has judiciously put the letter *h* in brackets. The device is very good, more especially as the new spelling has not yet been adopted in all German books, but it is a pity that the compiler has not resorted to some similar expedient with regard to the different spelling of other words, such as *Brod* and *Brot*, *Geheimnisz* and *Geheimnis*, *studiren* and *studieren*, etc. The type has been very ingeniously arranged, but we are afraid that in the longer articles referring to the same word, it will be found rather trying. We have yet to add, in commendation of Mrs. Weir's useful German Dictionary, that it is printed on good paper and well bound, and that it sells at a remarkably low price.

The English Historical Review. No. 13, *January* 1889, *and No.* 14, *April* 1889. (*Longmans, Green & Co.*)—It is manifestly impossible for us in the space at our disposal to do more than call attention to some of the most interesting points in the very interesting numbers before us. In the former, as in the latter, the *pièce de resistance* is Mr. J. B. Bury's paper on "Roman Emperors, from Basil II. to Isaac Komnênos"—an excellent contribution to Byzantine history of the eleventh century. In the January number Mr. D. M. Ford gives a short clear sketch of "the Growth of the Freedom of the Press," and Professor J. K. Laughton explains in a most interesting way, the true story of "the Captains of the 'Nightingale.'" In the February number what attracts us most is a paper by Mr. H. C. Lea, on "El Santo Niño de la Guardia," a Spanish legend connected with the persecution of the Jews under Ferdinand and Isabella, which has its parallel in the tale told by Chaucer's Prioress. We should, perhaps, also mention Mr. Standish O'Grady's "The last Kings of Ireland," which puts his view very clearly that these kings unconsciously prepared Ireland for its conquest by the Normans. Both numbers contain several "Notes and Documents" of decided value, and a very large number of admirable reviews of books. The "list of Historical Books recently published" and the "contents of Periodical Publications" are continued as heretofore, and are, as they always have been, two of the most valuable features of the Review.

OUR LIBRARY TABLE.

Homer's Odyssey, Books I.—IV. By B. Perrin. (*Boston, U.S.A.: Ginn & Co.*)—We cannot be too lavish in our praise of the Series of Greek Authors now being published by Messrs. Ginn & Co. The book before us forms one of this series, and is in no way inferior in binding, paper, printing, and general style to the other productions of this firm, which we have previously noticed with real pleasure. The notes and appendices furnish considerable material for the higher criticism of the poem, but at the same time sufficient assistance of an elementary character has been provided to make the volume useful as an introduction to the study of Homer. Text and notes appear on the same page, which does not seem to us a good plan; but, to make the work thoroughly complete, with each edition of text and notes the purchaser receives a separate copy containing the text only, and, since this text edition can only be obtained separately at a very small cost, we heartily recommend it to our readers.

Homeric Vocabulary. By T. D. Seymour. (*Boston, U.S.A.: Ginn & Co.*)—This is a vocabulary to the first six books of the Iliad. The maker has endeavoured to be concise—to give nothing but what is important for the accurate reading of the poem—and yet to show the original and derived meanings of the words. We are glad to see that no attempt has been made to tell the history of each word in pre-Hellenic and post-Homeric times. The unusual words that are met with in the study of the Iliad, are numerous, and the use of this Vocabulary will prevent the student from unnecessarily wasting time in wading through a Lexicon, with frequently fruitless results.

Lessons in French Syntax, adapted to conversation by F. Julien. (*Hachette et Cie.*)—The title of this small book sufficiently describes its plan—which is, as far as possible, to postpone the introduction of formal grammar till the pupils have acquired some acquaintance with the language itself, by mean of oral lessons and conversation. Short and simple rules are supplied, accompanied by a large number of examples for practice and exercise; and only such idioms are introduced as are indispensable for ordinary conversation or reading. Particular attention is paid to the use of the subjunctive mood. Considerable care seems to have been given to the construction of the book; but we think M. Julien has made a mistake in framing his exercises of short, disconnected sentences, instead of giving us connected narratives. The isolated sentence, like the isolated word—and, indeed, like all isolated knowledge—slips away very soon from the memory.

French Composition through Lord Macaulay's English. II.: Warren Hastings. Edited, with Notes, Hints, and Introduction, by J. Boïelle. (*Williams and Norgate.*)—It is not very long since we noticed favourably the first volume of this series—which dealt with the essay on "Frederic the Great"—and we have nothing new to add in the way of criticism and praise. As before, M. Boïelle succeeds admirably in supplying us with the means of *vivâ-voce* French composition—on the high value to be attached to which we are quite at one with him. But we are not quite sure whether the majority of English students would admit that Macaulay's prose "goes smoothly and readily into French." The plan is to print the text of the essay, with footnotes on difficulties of phrase and idiom, and a short introduction (contributed by M. Léon Delbos), giving very serviceable "hints on French composition." When the pupils have mastered all the difficulties on, say, some ten pages, another English text of the essay *without notes* is to be placed in their hands, and they are to be required to read it off aloud in French. The idea is excellent, and we advise all teachers of French to try it.

Treatise on Trigonometry. By W. E. Johnson, M.A. (*Macmillan & Co.*)—This work is probably one of the most complete yet published. The matter common to all treatises on the subject is treated with remarkable fulness and detail, and may be as well studied here as in any other book with which we are acquainted. It is, however, on the newly introduced propositions that the value of the book depends. Chapter ix. contains a useful treatment of the Modern Geometry of the Triangle which subject is further developed in connection with the circle in the following chapter. Interpolation is very well explained in chapters xi. and xx., while chapter xix. contains the Hyperbolic Functions, tan θ and cot θ as continued fractions and a proof of the incommensurability of π and π^2. Imaginary and complex variables are fully explained before De Moivre's Theorem is touched, and the last chapter of all contains the Geometrical Interpretation of Imaginaries. Altogether the book is ex-

ceedingly well done, and should become popular. We have not noticed any serious errors, and the style of production leaves nothing to be desired.

Mind: A Quarterly Review of Psychology and Philosophy. No. LIV. April 1889. (*Williams & Norgate.*)—There are many things of interest in this number—in particular an article on "The Double Brain," by Dr. Maudsley; the second part of Mr. Leslie Stephen's paper on "Some kinds of Necessary Truth;" and a series of short contributions on "Mental Association investigated by experiment," by Prof. Cattell, Mrs. Bryant, Prof. Edgworth, Miss Hughes, Miss Collett, and others. Amongst the notices of books we may mention Mr. G. F. Stout's notice of Romanes' *Mental Evolution in Man*, and Prof. Sully's of M. Ribot's *La Psychologie de l'Attention*. To teachers, however, undoubtedly the most interesting is the account given of the experiments in connection with Mental Association, to which we have already referred. We trust that these will be continued so as to afford us a rather wider basis for generalisation, though what has already been given is full of valuable suggestions.

Jules Michelet. Récits d'histoire de France. Part I. Edited by A. Esclangon. (*Hachette et Cie.*)—It is a good idea to compile a French reading-book from Michelet's picturesque and interesting "History of France;" and M. Esclangon and Dr. Seignobos have done their work with care and judgment. In order to make the narrative connected, a short introduction in English is prefixed to each chapter. The harder constructions and phrases are explained in brief but satisfactory notes, and a vocabulary and an explanatory index of biographical and geographical names are added. Three good maps are given; and there are a great many illustrations. These last are well chosen, but for the most part very poorly printed. We may add, that Part I. extends from "the earliest times to the battle of Rocroy (1642);" contains 170 pages of text; and costs two shillings.

The Elements of Vital Statistics. By Arthur Newsholme, M.D. (*Swan Sonnenschein & Co.*)—This seems to be a carefully compiled and useful book; but it is too little educational for us to be able to notice it at length as it deserves. Dr. Newsholme's "School Hygiene," is probably known to most of our readers; and those who value that book and have a taste for statistics will find much to interest them in this new work, which deals very fully with such matters as population, birth, sickness, death, marriage, &c. It is satisfactory to find, that teachers as a body, are high up among the longer-lived members of society, being only beaten by clergymen. What have struck us most, however, are the pains taken to explain the exact nature and sources of the statistics, and the extreme moderation shown in the deductions which are drawn from them.

A Treatise on Spherical Trigonometry, and its application to Geodesy and Astronomy. By John Casey, LL.D., F.R.S. (*Hodges, Figgis, & Co.; Longmans, Green, & Co.*)—This book completes Dr. Casey's Trigonometrical course, and completes it well. Written in the same style and with the same regard to modern requirements as the work on Plane Trigonometry, it well sustains the author's great reputation as a writer of text-books. Some of the most prominent features are the chapter on Formulae connecting the Sides and Angles of a Spherical Triangle, and the many useful applications contained in Chapter IV., which include the most important theorems in connection with transversals and inscribed and circumscribed circles. Small circles on the sphere, inversions, and polyhedra are fully discussed, and the last chapter exhibits the applications to Geodesy and Astronomy. As usual, Dr. Casey, in a collection of examples, illustrates every part of the subject, and includes in them the most elegant theorems of the subject.

Teacher's Manual of Elementary Arithmetic. Parts I. and II. By John A. Hartley, B.A., B.Sc. The Adelaide Illustrated Arithmetical Tables. The Adelaide Exercises in Arithmetic. (*Adelaide: H. F. Leader.*)—These little books are intended for the instruction of very young children. The author has treated his subject exhaustively, and has bestowed much thought on the graduation of the work, so as to secure a series of easy and natural steps. Part I. deals with the numbers from one to twelve, while in Part II. the course is extended as far as one hundred. The illustrated arithmetical tables are excellent.

Socialism and Christianity. By the Rev. M. Kaufmann, M.A. (*Religious Tract Society.*)—This is one of the best of the series of Present-day Tracts, to which we have often referred. No subject more urgently needs popular and wise exposition, and no better author could have been selected than Mr. Kaufmann, whose many admirable volumes on "Socialism" have constituted him one of the greatest living authorities on the subject. This tract deals almost exclusively with compulsory Socialism or *Collectivism*, as expounded by Karl Marx and Mr. Lawrence Gronlund, and shows the many weaknesses in the proposed reconstruction of society and the dangers of some forms of the Socialist propaganda. Mr. Kaufmann does not enter, to any extent, into the aims of Christian or voluntary Socialism, but believes that the solution of our social troubles is to be found in a more practical Christianity and an extension of co-operative industry.

Ovid's Metamorphoses, XI. (*W. B. Clive and Co.*)—The eleventh book of Ovid's Metamorphoses has been selected as one of the subjects for the Matriculation Examination at the University of London. This work contains an account of the life and works of Ovid, an analysis of the book, some notes on the metre, text, and notes on the text. It will be of much value to students preparing for the examination.

Faciliora. Compiled by the Rev. J. Lingen Seager. (*Geo. Bell and Sons.*)—This is a book of graduated easy exercises in Latin for beginners. It is as like as possible dozens of other Latin exercise books in its plan; but in its method of printing it seems to have ideas of its own.

The Eclogues and Georgic of Virgil. Translated from the Latin by J. W. Mackail, Fellow of Balliol College, Oxford. (*Rivingtons.*)—This book is presented in a very artistic style, with a woodcut on the title-page after a drawing by Raffaelle in the Academy at Venice. The translation follows the common established text of modern authors of Virgil.

Notes on Shakespeare's play of the Tempest. By T. Duff Barnett, B.A. (*G. Bell & Sons.*)—These notes are condensed, accurate and interesting; the introduction contains a sufficient discussion of the usual topics and also a careful summary of each scene of the drama. A number of appendices deal with quotations, allusions, peculiarities of grammar and similar matters. Occasionally, Mr. Barnett's use of words strikes us as peculiar, as when he terms the play "an *illustrious* extract from our great Library of English Literature" and classifies the evidence for date under the headings of *extrinsic* and *intrinsic*.

Outlines of Lessons in Botany. By Jane H. Newell. (*Boston, U.S.A.: Ginn & Co.*)—The outlines of lessons are suitable for children of twelve years of age and upwards. They follow the plan of "Dr. Gray's First Lessons" and "How Plants Grow," and are intended to be read with either of those books.

Statics for Beginners. By John Greaves, M.A. (*Macmillan & Co.*)—This little book is not quite, though nearly, on the lines of the same author's "Elementary Statics." We are inclined to question the advisability of introducing Duchayla's proof of the Parallelogram of Forces, but in other particulars the book is excellent. Perhaps the best chapters are vii.—Centre of Gravity, and x.—Work. As in the larger work the figures are beautifully drawn and the examples exceedingly well chosen.

The Teacher's Handbook to the Code Examinations: Standard V. By the author of "How to Pass Ninety per cent. and earn 'Excellent.'" (*London and Manchester: John Heywood*)—contains examinations and selected questions in dictation, grammar, geography, and mental arithmetic, given by H.M. Inspectors.

Natural Science Examination Papers. By R. E. Steele, M.A., F.C.S. (*George Bell and Sons.*)—This compilation is intended for teachers who desire to have ready in their hands the means of testing their pupils' knowledge and progress. The part before us contains more than 1,000 questions on inorganic chemistry.

The Pet Readers. By Mrs. A. H. Garlick: Nos. I. and II. (*Blackie and Son.*)—These readers are illustrated, and printed in large type. They are adapted to the use of very young children.

The Beginner's Book in French. By Sophie Doriot. Part II.: Reading Lessons. (*Boston, U.S.A.: Ginn and Co.*)—The reading lessons are numerous, and have been selected with care. The type is large and distinct. The exercises at the end of each selection are a novel introduction in a French reader.

The Choral Book. By Friedrich Zuchtmann and Edwin L. Kirtland. (*Boston, U.S.A.: Ginn and Co.*)—There are ninety hymns in this book, all of which have been translated and adapted from the German. The tunes are unchanged, and the hymns have been translated with religious fidelity to both sentiment and music.

Voices of Children. By W. H. Leib. (*Boston, U.S.A.: Ginn and Co.*)—This work contains a series of articles and lessons on the principles and discipline through which the voices of children may be made efficient in speaking and singing.

Alphonse Daudet's Tartarin sur les Alpes. By George Petilleau, B.A. (*D. Nutt.*)—This is the sole authorised edition of the novel. It contains 150 illustrations by eminent French artists, with a biographical sketch of Alphonse Daudet, and grammatical, philological, and explanatory notes.

New Editions.

A Phonographic and Pronouncing Dictionary of the English Language. By Isaac Pitman. (*Isaac Pitman & Sons.*)—This, the sixth edition, has been thoroughly revised by Mr. Pitman. It contains the shorthand forms for 54,500 words and 5,500 proper names, an addition of more than 6,000 words over the former addition.

A Complete Guide to the Improvement of the Memory. By the Rev. J. H. Bacon. (*Isaac Pitman & Sons.*)—This is the second edition of Mr. Bacon's work. The greater portion of it has been re-written.

The Citizen Reader. By H. O. Arnold Foster. (*Cassell & Co.*)—The first edition of this admirable work was published rather more than three years ago. The hundredth thousand, now ready, is revised up to date, and contains information respecting the new County Council. *The Citizen Reader* has evoked great interest. It was originally intended for schools only, but has attained a wide-spread circulation among all classes of the community.

La Canne de Jonc, ou la Vie et la Mort du Capitaine Renaud. Par Alfred de Vigny. Edited by Victor, J. T. Spiers, M.A. (*Rivingtons.*))—The new edition of this work has been revised, and several corrections have been made. A few grammatical difficulties are elucidated in the appendices.

Matriculation Mathematics. (*W. B. Clive and Co.*)—A third edition of this guide is now issued by the tutors of the University Correspondence College.

Matriculation Latin. By B. J. Hayes, B.A. (*W. B. Clive & Co.*)—Corrections and additions have been made in the second edition of this work.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending May 31st, 1889.

Benison's (H. W. S. W.) Haunts of Nature, cr. 8vo, 5s. cl.
Boïelle's (J.) French Composition through Lord Macaulay's English: (2) Warren Hastings, cr. 8vo, 3s. 6d. cl.
Boulger's (G. S.) The Uses of Plants, cr. 8vo, 6s. cl.
Church's (Rev. A. J.) To the Lions, a Tale of the Early Christians, cr. 8vo, 3s. 6d. cl.
Cockshott (A.) and Walters's (Rev. F. B.) Treatise on Geometrical Conics, cr. 8vo, 5s. cl.
Damas's (Rev. H.) A First Euclid, Book 1, imp. 16mo, 2s. cl.
Dargue's (T.) Through the Holy Land, cr. 8vo, 3s. 6d. cl.
Defoe's (Daniel) Earlier Life and Chief Earlier Works, edited by H. Morley, cr. 8vo, 2s. 6d. cl.
De Vere's (A.) Essays, Chiefly Literary and Ethical, 6s. cl.
Dymes's (T. J.) Trade of the United Kingdom with the World, cr. 8vo, 3s. 6d. cl.
Euripides's Ion, transl. into English by H. B. L., 4to, 4s. 6d. cl.
Eves's (C. W.) The West Indies, cr. 8vo, 7s. 6d. cl.
Fritsche (W.): Die Gleichstrom-Dynamomaschine, 4m.
Gateuil (N.): Dictionnaire de Menuiserie, 5fr.
Gateuil (N.): Recueil de Charpentes en Fer, 25fr.
Harcourt's Home Life in Florida, cr. 8vo, 6s. 6d. cl.
Harms (F.): Ethik, 6m.
Humphrys's (Rev. D.) Evidence submitted to the Commissioners of the Educational Endowments (Ireland) Act, 2s.
Intermediate (An) Greek-English Lexicon, newly abridged from Liddell and Scott's Greek-English Lexicon, 12s. 6d. cl.
Johnstone's (A.) Botany Notes, 2 parts, 12mo, 2s. each, swd.
Johnstone's (A.) Zoology Notes, 2 parts, 12mo, 2s. each, swd.
Jusserand's (J. J.) English Wayfaring Life in the Middle Ages, translated by L. T. Smith, cr. 8vo, 12s. cl.
Kœchlin (M.): Applications de la Statique Graphique, 30fr.
Loewy's (B.) Graduated Course of Natural Science, Part 1, 2s.
Loomis's (L. C.) The Index Guide to Travel and Art Study in Europe, Alphabetically Arranged, 16mo, 15s.
Motley (J. L.) A Memoir, by O. W. Holmes, cr. 8vo, 6s. cl.
Needham's (G. C. and E. A.) Bible Briefs, or Outline Themes for Scripture Students, cr. 8vo, 2s. 6d. cl.
Nye's (J. L.) Stories for Bible Readers, cr. 8vo, 2s. cl.
Postgate's (J. P.) Sermo Latinus, a Short Guide to Latin Prose Composition, cr. 8vo, 2s. 6d. cl.
Smith (W. R.) and Norwell's (J. S.) Illustrations of Zoology, 4to, 12s. 6d. cl.
Somerville's (A. A.) A First French Writer, cr. 8vo, 3s. 6d. cl.
Theocritus, Bion, and Moschus rendered into English Prose, with an Introductory Essay, by A. Lang, 18mo, 4s. 6d. cl.
Watson's (J.) Sylvan Folk, Sketches of Bird and Animal Life in Britain, 12mo, 3s. 6d. cl.
Wentworth (G. A.) and others' Algebraic Analysis, 4s. 6d. cl.
Wentworth's (G. A.) Plane Trigonometry, 8vo, 2s. 6d. swd.

LANGUAGE AND LINGUISTIC METHOD IN THE SCHOOL.*

By S. S. Laurie, M.A., LL.D.,
Professor of Education in the University of Edinburgh.

Lecture I.

Language as the supreme Instrument of Education.

Every human being is educated by the experiences of life. At the same time there can be little doubt that no two human beings are precisely alike in respect of their native capacity to receive these experiences and to utilize them for the building up of their characters. The experiences begin very early. The babe at its mother's breast is receiving impressions for good or for evil as certainly as a seed which has just begun to sprout is already receiving from the soil those influences which are to make it or mar it as a vigorous plant of its kind. As next he walks *non aequis passibus* at his mother's side, the whole world of nature is seeking to form the child. Earth and sky, the events of his little life, the words and acts of those about him are all busy in the work of his education. Unconsciously at first and thereafter consciously, he is organising into himself the vast and infinite realm of feeling and education. Every human being is undergoing this process of education; and it is not at all a question whether he is to be educated or not, but simply *how* and *to what end* he is to be educated.

When one takes a wide survey of the history of education, one is driven to conclude that there is much, very much, a much that is almost incalculable, in the instincts and aptitudes of race. It is impossible to compare the Chinese child, the Persian, the Hindoo, the Hellenic, the Roman, the British, as we find them in history, and not be convinced of this. Next to race in educative power is the spirit of the race, as expressed in its national religion, in its more or less conscious aims as a political society, in its public life and national acts. These alone without the help of schools will, under favourable conditions, make a people and a great people; and, whatever, may be done of set purpose by schools and teachers, national life in its various forms will always be the most perfect educator of the young.

The parent is the first teacher of the young within the State; and no State is in a healthy condition where the family life is not always the most potent as it is the nearest of educative influences. But as the pressure of life becomes heavier and social conditions more complex, it becomes necessary to appoint a substitute for the parent, but not on this account to set aside the God-appointed tutor.

I have said that it is the individual experiences, and the national life in all its forms as the most potent of those experiences, which chiefly educate, and from this I may draw the conclusion that where schools are instituted, their main purpose is to focus, so to speak, the life of the nation and bring its best elements—its language, religion, ethics, art, literature, history—to bear on the young whom we gather into our public seminaries. This we do, in the hope that by so doing we may make sure that the experiences which educate shall not be arbitrary and uncertain, but assured, and wisely ordered to the making of a good citizen. To this end, it is the best in the life of the nation to which they belong that we have to give to the young. All other languages, literatures, histories are to be regarded as merely contributory to the native elements and the national character.

It is always character indeed that we keep before us, not knowledge. It is an educational truism that it matters not what and how various a man's knowledge may be, if it does not enter into the texture of his mind it may as well be on his bookshelves. Knowledge which is not woven into life and conduct is so far from being wisdom that it is often an enemy of wisdom and an obstructor of wise counsel.

To form the good citizen, remember, we must first form the good man. So thought the ancient Athenian; so thought the Roman, whether he spoke through the mouth of Cato, or Cicero, or Quintilian; so assuredly *must* think the Christian, for he has to seek *first* the Kingdom of God. Hence it is that, when the education of the young is not wholly left to casual influences and custom, we are compelled to ask the question, What is a good man? and, How shall we form him? The answer to this question is contained in the science and art of education. Surely, then, a subject worth considering by all, necessary to be considered by those who mean to devote their lives to the task of educating.

I am not, of course, going to deal here and now with the science of education, or even to show what it precisely means. I have to confine myself to one element in all education, which, next to ethical training, I consider the chief, because it contributes more than any others to the desired ethical result—viz., Language. And I shall speak of the *art* of education alone in this connection—of those methods of procedure which best enable us, as educators, to achieve our self-imposed task. I mean to be strictly practical, leaving it to yourselves, when thinking over what I may say, to connect it with the science which underlies and vindicates the argument.

Of the education of man generally, we may say with the Greeks that our aim is ἀρετη, the excellence of the individual after his kind, and that the action of mind in attaining to this excellence is σωφροσύνη, if we give it the sense of self-regulation. This self-regulation, which is the wise conduct of life, is dependent on the Will, which, as the dominant characteristic of man, sets in motion (speaking broadly) his intelligence and selects his motives. But this intelligence and this will cannot work in the air, and materials on which they may exercise their formal activity must be provided, and it is these which the instincts of our nature and the experiences of life furnish. The school interposes to formulate, enrich, and elevate these experiences, and supply the principles and aims of life, out of which the fabric of motives may be built. The richest mind, however, may be weak in intelligence and will. It is the power of discriminating and of rightly reasoning, of separating the right from the wrong, the good from the bad, which must always govern.

Now, if this be so, it may plausibly be maintained that, by exercising the intelligence purely as such—as a system of abstract powers, we shall best fit it for coping with the complex materials of experience; that, by disciplining these powers and mental processes which enter into all knowledge and make it possible, we should best fit a human being to regulate his life. And why so? Because these powers and processes of mind are

* A Course of Six Lectures delivered at the University of Cambridge and at the College of Preceptors during the month of May, 1889.

universal and not partial in their application. They cover the whole field of possible human knowledge and activity. But we cannot do this; because the exercise of the pure abstract faculties of man is not possible at all in their purity. They can be exercised only in and through material of some sort; and even this latter kind of exercise is not possible till the period of adolescence, when the great mass of the population has already escaped from scholastic control.

Not the formal and abstract, then, by itself (logic and metaphysics), but these as entering into and constituting some *real* subject, something which has substance in it, must be the instrument of intellectual *discipline;* and, of all subjects, *that* will necessarily be the best which is most universal, viz., language. Here you have mind, in all its formal relations, expressed in a substantial form—as something not purely abstract, but concrete, and capable of being grasped and handled. By the analysis of language, then, you introduce the young intellect to the analysis of its own thinking in its whole range, while so resting in a concrete familiar to all, that the formal discipline it yields is not forced into view. Of this there can be no doubt, that a boy who is intelligently analysing language is analysing the processes of thought, and is a logician without knowing it. And this is the reason why the study of language has always been regarded as the best preparation for the logician and philosopher. Hence, too, it is the best preparation, I hold, for the study of all or any of the sciences.

Concrete as language itself is, the formal study of it is the study of the abstract, and as abstraction is difficult to the young (and to the old, too, for that matter), it demands an effort such as the "real" never does. A very young child may receive and enjoy the sentiment of Tennyson's "May Queen," or Wordsworth's "We are Seven," and yet find the formal analysis of the language to present insuperable difficulties; and yet it is this formal and abstract treatment of the mere vehicle of expression that we must give if we are to give *power* to the mind. That the discipline yielded by the study of the formal or grammatical in language give it power and discrimination to find its intellectual way amid the conflicting experiences and contradictory motives of daily life, all will admit; but few recognise the close connection between this kind of discipline and moral discipline. Now, what is moral discipline? It is the habituating of the will—the dominant fact and function in a human being—to overcome the difficulties of temptation to stray from what is seen and affirmed to be the right path. But it is the *same will* which I call upon for energizing activity when I present the mind of a boy with the intellectual difficulties of formal studies, and call upon him to overcome these. The *effort*, then, which all formal studies demand of the young, that they may overcome intellectual difficulties, is not merely intellectual, but moral, in its effects on character. It is an old saying that labour produces ingenuous minds, and, if we translate ingenuous as well-bred, well-conditioned we see the truth of the apophthegm.

It may be said with truth that, to attain this great result—intellectual and moral discipline—the language of elementary mathematics, physics, or biology would serve. It would serve, unquestionably, but not so well, because the language of these is partial and restricted, whereas the language of which we are speaking—the language of everyday intercourse and of literature—is universal in its sweep, and presents a variety, a delicacy, and subtlety of thinking processes which all the sciences of nature taken together cannot for a moment approach. The language, then, of ordinary human intercourse and of literature is, when pursued as an abstract study—*i.e.*, in its historical forms and logical relations—the best of all possible disciplines of the intellect; first, because it is the study of the intellect itself, but this in a concrete material which brings it within the capacity of the immature mind of youth; and secondly, because of its universal character—because, that is to say, all the processes of mind are presented for study, and this in every possible relation of simplicity, complexity, and subtlety.

2. This brings us to the second ground of the claim which language makes for a supreme place in the education of youth. Language presents to us not merely concrete *thinking*, it is also concrete *thought* on all that concerns the life of man as an individual, and as a member of society.

There is no aspect of human life, no complication of human motive, no ethical relation, no human emotion, no religious aspiration, which language, as medium of intercourse and as literature, does not convey and, while conveying, illumine.

Accordingly, important as is the discipline which the analysis of logical processes gives, as these enter into language, still more important is the training and instruction which language, as embodying the substance of thought, yields. It is in and through language that man enters on the inheritance which the past has bequeathed to him. Every word, almost, has a lesson for him. A large proportion of words introduce him for the first time to moral and religious truths, others define his social relations, others, again, contain in their bosom the counsels of perfection. Nay, there are words which bring into his consciousness not merely one thought, but a whole system of thought. If we wish to train a boy in the true, or the good, or the beautiful, how are we to do it? There is no way but by introducing him to the utterances of the wise and good on those questions, so vital to all, a right answer to which alone makes humanity worth preserving. Through the perusal of literature alone can man enter into the possession of the hard-won victories of the past, and make himself the fellow and companion of the greatest and noblest of our race—the prophets of all time. The content of literature in its various forms is a moral content, a religious content, and an æsthetic content. It is the very core and substance of man universal. The substance of mind is of more importance than discipline in the logical forms by which that substance has been elaborated and expressed. After what I have said above, I shall not be accused of underrating the discipline which the formal or grammatical study of language gives; and yet I say it has been allowed to obscure the education that lies in the *real* study of it. I believe that it has been the necessity of acquiring the ancient tongues which has led to the exaggerated importance assigned in education—especially in secondary education—to the pursuit of the formal, *i.e.*, grammar, to the exclusion of the substance of the language, the real as opposed to the formal. Far more effectual in moving the mind than any logical analysis of language can be, is the food, the nutrition of ideas, which language as literature conveys. What was the revival of letters in its influence on the school but the substitution of substance for form—the reading of authors instead of grammars, and rhetorics and logics? Through substance (it was felt) you may best reach form and the formal itself; through the formal you can rarely reach substance.

By way of parenthesis let us apply this same conception to the moral and religious sphere. I must presume that in educating a boy you wish to make him familiar with great thoughts and to inspire him with a high ethical spirit. If you do not aim at this, then in what sense and for what end do you educate? Now it is easy, if only you set about it in the right way, to engage the heart of a child up to the age of eleven or twelve on the side of kindliness, generosity, self-sacrifice, and to fill him with ideals of greatness and goodness. You thus lay a basis in feeling and emotion on which may be built a truly manly character at a later period. Without such a basis you can accomplish nothing ethical, now or at any future time. But when the recipient stage is past and boys begin to assert themselves, they have a tendency to resist, if not to resent, professedly moral and religious teaching. And this chiefly, because it then comes to them or is presented to them in the shape of abstract precept and dogma. Now, I hold that the growing mind of youth is keen after realities, and has no native antagonism to realities because they happen to be moral or religious realities. It is the abstract form in which these are presented that they detest. How then at this age of puberty to present the most vital of all the elements of education is a supremely important problem. I hold that you can only do so through literature, and the New Testament itself I should introduce simply as literature. The words, the phrases, the ideals, which literature offers so lavishly, unconsciously move the mind to lofty motives and the true perception of duty. You do not commit the fatal blunder of making a didactic lesson out of what is read. You take care that it is understood and illustrated, and then leave it to have its own effect. Just as concrete language treated on its *formal or abstract* side introduces a boy to logic without his knowing that it does so, so concrete language on its *real* side introduces him to the ethical life in all its relations without his being aware that it is doing so.

I may now conclude that language as formal is the most effective and universal of all pure disciplines possible in the school; language as real is the most effective and universal of all educators of the mind of man and outweighs the formal.

3. But this is not all: for language is the most universal teacher of art. Far be it from me to attempt to answer the vexed question, What is art? But this much, in the interests of my argument, I may venture. Art is the beautiful in a concrete

form. What again is the beautiful? When I say a thing is beautiful I use a word of complex meaning; no other *one* word can define it. But this at least is a prominent factor in the notion which the word conveys—the beautiful is a feeling of the perfection of a thing after its kind, the ideal of its kind.

In the earlier portion of this discourse I said that we might very well take the Greek ἄρετη, excellence (or perfection) of a thing after its kind, as summing up in a single word our aim in the educating of a human being, and our own aim consequently in educating ourselves. No man in whom the process of thinking has been started but has an ideal of life for himself more or less consciously expressed. Whether this ideal is truly the ἄρετη, or excellence of man, it is for the thinkers of the world to say. By the help of these thinkers every nation and every age forms its ideal — the ἄρετη; and it is to this ideal that we seek to train our children.

We cannot say that a man is educated until he is possessed by an ideal of life. So we cannot say that a man is educated until the ordinary precepts and maxims of the understanding which regulate the conduct of life have been conceived by him not as mere judgments, but as *ideas*. Now to conceive an ordinary maxim of virtue or any form of goodness, as not merely a judicial maxim, but as an idea, is to conceive it in its purity as the Divine law of his being. A certain infinity is thereby given to the prosaic and finite maxim; and the idea—be it of benevolence, or of integrity, or of purity, or justice, or holiness, now stands out in his consciousness as at once imperative motive and ideal end of all his daily life. It is only then that he is a spiritual being as opposed to a merely moral being. If then, we can train so as to give an ideal of life and so as to raise maxim and precept to the potency of divine ideas we have attained our ethical purpose as educators; the discipline of life must do the rest.

Now, the study of art is the study of the idea in the concrete, and the emotion which the perception of the concrete idea evokes is an emotion similar in kind to that which those spiritual ideas which bear on the conduct of life evoke in us. I am not going to argu that you can moralise a man by art, or that there is salvation in æsthetics. But I will say this, that however immoral a man may be, yet if he is alive to the beautiful in nature and art, he must be, though perhaps a beast, yet a more refined, more delicate, and altogether a more human beast than he would be without æsthetic perceptions.

The unquestionably close alliance between the beautiful and the spiritual, as I have endeavoured briefly to indicate it, was recognised by the Greeks. All æsthetic training, if not put forward as moral and spiritual training, but kept in its due place, is only ancillary to the spiritual life, but it may awaken the spiritual in boys and men who are inaccessible to the less sensuous forms of ideas.

Now, the most universal form of art is to be found in language as literature. Painting has its limits, sculpture has its limits, architecture has its limits; dados and wall-papers will not do much for the soul of man. Literature is the universal medium for the expression of the whole range of man's nature under the impulse of the emotion of the beautiful. Its highest form is poetry. But it may be said that, wherever we find apt and felicitous expression, whether in prose or poetry, we have so far a work of art to be admired for its beauty. And this, I take it, means that the expression of thought so conveyed not only engages the activity and the assent of our reason, but touches also our emotions—the emotion of the beautiful, the joy in the ideal.

Thus and so far the teaching of literature is a training in ideals, and so, whether it moralises or not *directly*, is a potent indirect force in the formation of spiritual ideals and the pursuit of the spiritual life generally.

I shall give an illustration. The brutality and egoism of the English schoolboy is part of history—see the records of fagging, &c. Now what I venture to say is this, that even were there no moral or Christian education at all from day to day (and, so far as I can see, there is none consciously aimed at in our public schools, except by an individual here and there), yet, a boy who, having read beautiful prose and poetry suited to his age, with me his master, was enjoying in my company, and that of his schoolfellows, a fine creation of Wordsworth or Tennyson, could not possibly leave the room and go and do a mean or nasty thing; or if he did, he could not do it without bringing down on his head the reprobation of his fellows and his own self-condemnation. And this, not because of the substance of the thought in Wordsworth, but because of its form, because of the ideal impulse which it gave.

Now, the beautiful in art or language is not only universal in its character, but it is universal in its relations to the human mind as compared at least with other forms of art. The material used—language—is familiar to all; all can be made, at least, to understand it; and, I hold further, that the great majority at least may be led by a skilful master to *feel* it, and so be æsthetically trained, brought under the influence of art-forms, of the beautiful in the concrete—of ideals.

I have now said enough to explain what I mean when I affirm that, whether we regard the discipline of intellect, the substance of morality and wisdom, or the growth of the distinctively spiritual life, language as a formal or logical study, as a real study, and as a literary or art study, is and must always be the supreme subject in the education of a human being, the centre round which all other educational agencies must range themselves in due subordination.

In conclusion, when I say that language is the supreme subject in all education, I mean the vernacular language. Mind grows only in so far as it finds expression for itself; it cannot find it through a foreign tongue. It is round the language learned at the mother's knee that the whole life of feeling, emotion, thought, gathers. If it were possible for a child or boy to live in two languages at once equally well, so much the worse I should say. His intellectual and spiritual growth would not thereby be doubled but halved. Unity of mind and of character would have great difficulty in asserting itself in such circumstances. Language, remember, is at best only symbolic of a world of consciousness, and every word almost is rich in associations of life-experience, which give it its full value for the life of mind. Subtleties, and delicacies, and refinements of feeling and perception are only *indicated* by words. The rest lies deep in our conscious or half-conscious life, and is the source of the tone and colour of language, and of its wide-reaching relations with all that is not itself and yet is itself. Words must be steeped in life to be living, and as we have not two lives but only one, so we can have only one language. To this mother-tongue, then, all other languages we acquire are merely subsidiary, and are of value in education only in so far as they help to bring into relief for us the character of our own language as a logical medium of thinking, or help us to understand it as thought, or to feel it as literary art.

MATHEMATICS.

2419. (The late T. Cotterill, M.A.)—1. If AA′, BB′, CC′ are the opposite intersections of a complete quadrilateral, an infinite number of cubics can be drawn through these points and another point D, touching DA, DA′ at A and A′. Amongst these cubics, there are two triads of straight lines and four cubics having respectively a point of inflexion at B, B′, C, C′.

2. The locus of the intersection of tangents at B, B′ is the conic DAA′BB′; and of tangents at C, C′ is the conic DAA′CC′.

Give the reciprocal results when the class cubic degenerates.

Solution by Professor Sebastian Sircom.

1. Let $\alpha, \beta, \gamma, \delta$ be the lines of the quadrilateral; AA′, BB′, CC′ the intersections of α, β; $\gamma, \delta : \beta, \gamma$; $\alpha, \delta : \alpha, \gamma$; β, δ respectively, then the equation of the cubic may be written $(c\gamma + d\delta)\,\alpha\beta = k\,(a\alpha + b\beta)\,\gamma\delta$, where $a\alpha + b\beta = 0$ and $c\gamma + d\delta = 0$ are the tangents at A, A′; and the curve passes through their intersection D for all values of k.

The values $k = 0$, $1/k = 0$ give the triads of lines, and if $\delta \equiv l\alpha + m\beta + n\gamma$, the tangent at C will be $d\alpha = kb\gamma$, which will be an inflexional tangent if $kma = c$, so for C′, B, B′. [The rest in volume.]

9632. (Professor Nilkantha Sarkar, M.A.)—If $\alpha, \beta, \gamma, \delta$ be the tangents of the angles which the normals from any point to an ellipse make with the major axis, find an invariable relation between them.

Solution by Rev. T. Galliers, M.A.; G. G. Storr, M.A.; *and others.*

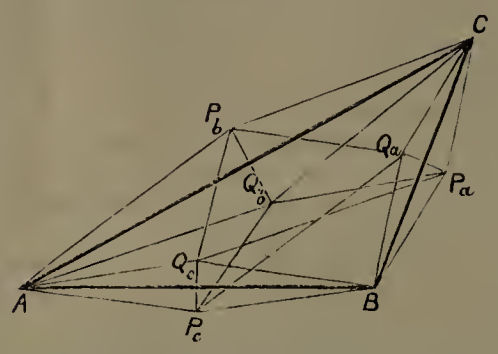
The ellipse being $b^2x^2 + a^2y^2 = a^2b^2$, it may be shown that $\alpha, \beta, \gamma, \delta$ are the roots of $b^2h^2x^4 - 2b^2hkx^3 + \left\{b^2k^2 + a^2h^2 - (a^2 - b^2)^2\right\} x^2 - 2a^2hkx + a^2k^2 = 0$, where (h, k) is the point through which the normals are drawn; hence the relation required is $(\alpha + \beta + \gamma + \delta)^2 a^2 = 4b^2 (\alpha\beta\gamma\delta)$.

10035. (Professor Goe.)—Sur les côtés de ABC, on construit six triangles isoscèles semblables; soient P_a, P_b, P_c les sommets des triangles extérieurs à ABC, et soient Q_a, Q_b, Q_c les sommets des triangles intérieurs.

Montrer que les quadrilatères $AP_bQ_aP_c$, $AQ_bP_aQ_c$ sont des parallélogrammes.

10096. (W. S. M'Cay, M.A.)—Let A′, B′, C′ be three corresponding points on the perpendicular bisectors of the sides of a triangle ABC, whose parameter is θ (*i.e.*, vertices of three isosceles triangles on the sides, with base angle θ). Prove that the lines joining ABC to the middle points of corresponding sides of A′B′C′ concur at a point on Kiepert's hyperbola whose parameter is $-\theta$.

Solution by Professors Schoute, Nash, *and others.*



(10035.) This is a particular case of the following due to Prof. H. van Aubel:—If on the sides BC, CA, AB of a given triangle are constructed outward the triangles BP_aC, CP_bA, AP_cB, and inward the triangles CQ_aB, AQ_bC, BQ_cA, so that these six triangles are similar to one another in the indicated order of the vertices, the figures $AQ_bP_aQ_c$, $AP_bQ_aP_c$, etc. are parallelograms (compare, in *Mathesis* I., p. 166, the elementary demonstration by Interdonato, and in the *Wiskundige Opgaven*, III., Question 36, the solution by means of equipollences by Mantel).

(10096.) This is an immediate consequence of the preceding, and of the generally known mode of generation of the hyperbola of Kiepert (compare *Mathesis* VII., p. 208, and *Schlömilch's Zeitschrift*, t. XXXII., p. 61).

On the Recent Geometry of the Triangle, embodying Solutions of Questions **9950, 10007, 10045, 10101, 10139.**

By R. Tucker, M.A.

[*** **The Questions will be added in Contents to Volume.**]

(9950.) The equation to the join of the Lemoine point (K) and the orthocentre (O) is $\alpha\cos^2 A\sin(B-C)+\ldots+\ldots=0$,

and Σ (9875) is $\alpha\cos A/a\cos(B-C)=\ldots=\ldots$,

whence (1) at once follows.

The join of

D $(0, \cos C, \cos B)$ and σ_1 $[a, b\cos(C-A)/\cos B, c\cos(A-B)/\cos C]$

is $\alpha(b^2-c^2)\cos A-\beta a^2\cos B+\gamma a^2\cos C=0$;

hence $E\sigma_2$ is $\alpha b^2\cos A+\beta(c^2-a^2)\cos B-\gamma b^2\cos C=0$,

and $F\sigma_3$ is $-\alpha c^2\cos A+\beta c^2\cos B+\gamma(a^2-b^2)\cos C=0$;

these cointersect in $\alpha\cos A/a^2=\ldots=\ldots$ (the point π' say) .....(2).

From the above equations we see that the lines pass through $(-a, b, c)$, $(a, -b, c)$, $(a, b, -c)$, which are the associated points (P, Q, R, *Simmons*, p. 113) of K.

The join of Π and O is $\alpha(b^2-c^2)\cos A+\ldots+\ldots=0$, which clearly passes through the circumcentre and the centroid. The join of Π and Σ will be found to be $bc\cos A\cos 2A\sin(B-C)\alpha+\ldots+\ldots=0$, and it evidently passes through $(a\sec 2A, \ldots, \ldots)$.....(3).

[The rest in Volume.]

8926. (Professor Asutosh Mukhopâdhyây, M.A., F.R.A.S.)—A right circular cone, the semi-vertical angle of which is $\tan^{-1}\frac{3}{16}$, is placed with its base on a smooth plane inclined at 75° to the vertical; to the vertex of the cone is attached a fine string, which, passing over a pulley, on the inclined plane, at the same height as the vertex, sustains a heavy particle. If the system is in limiting equilibrium, show that the ratio of the weights of the cone and the particle is such that the slightest increase in the weight of the particle would cause the cone to turn about the highest point of the base as well as to slide.

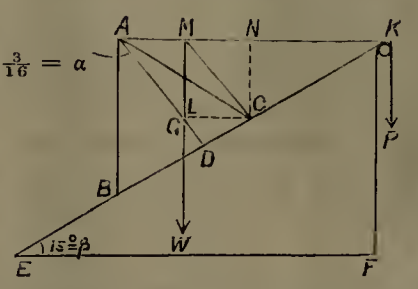
Solution by G. G. Storr, M.A.; Rev. T. Galliers, M.A.

Let $AD=h$, $GD=\frac{1}{4}h$,

AK horizontal, GM vertical,

CL ,, CN ,,

$\tan^{-1}\frac{3}{16}=\alpha$



Now

$CD : CM = h\tan\alpha : AG\sin\beta$

$= 1 : 4\sin\beta$,

and $DK : AK = \cos\beta : 1$,

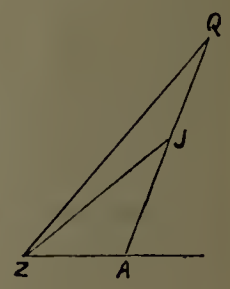
$\therefore$ $CD : AM = DK : AK$.

Since $2\sin 2\beta = 1$.

[The rest in Volume.]

10065. (Professor Matz, M.A.)—A man, standing on a plain, observes a row of equidistant pillars, the tenth and seventeenth of which subtend the same angles as they would if they stood in the position of the first and were respectively one-half and one-third of the height; show that, neglecting the height of the eye, the line of the pillars is inclined to the line drawn to the first at an angle whose cosine is $5/(168)^{\frac{1}{2}}$ or $\frac{5}{13}$ nearly.

Solution by D. Biddle; C. Morgan, M.A.; *and others.*



Let the distance from pillar to pillar be unity, and $AZ = x$, then

$AJ = 9$, $AQ = 16$, $JZ = 2x$, $QZ = 3x$,

and $\cos QAZ = (256+x^2-9x^2)/(32x)$

$= (81+x^2-4x^2)/(18x)$,

whence $x = (42)^{\frac{1}{2}}$,

and $\cos QAZ = -5/(168)^{\frac{1}{2}}$.

10027. (Professor Abinash Chandra Basû.)—If

$$y^2+yz+z^2=a^2,\quad z^2+zx+x^2=b^2,\quad x^2+xy+y^2=c^2,$$

a, b, c being the sides of a triangle; find (1) the value of $xy+yz+zx$; and (2) show how to solve the set of equations.

Solution by J. D. H. Dickson, M.A.; R. Knowles, B.A.; *and others.*

If the triangle is ABC, and x, y, z are the distances of a point O from A, B, C respectively, O is the point where $x+y+z$ is a minimum. For, if B, C be the foci of an ellipse through O, AO $(=x)$ is shortest when AO is normal to the ellipse, and in this case $\angle AOB = \angle AOC$, and similarly $= \angle BOC$. From these we get

$$\cos AOB = \frac{x^2+y^2-c^2}{2xy} = -\tfrac{1}{2},\ \text{whence}\ x^2+xy+y^2=c^2,\ \&c.$$

[The rest in Volume.]

10034. (Professor Morley.)—Prove that, of the four focal circles of a circular cubic or bicircular quartic, any two are orthogonal, and the radii are connected by the relation $\Sigma(\mu^{-2})=0$.

Solution by W. J. C. Sharp, M.A.; Sarah Marks, B.Sc.; *and others.*

If $x^2+y^2-2hx-2ky+c=0$ and $x^2+y^2-2h'x-2k'y+c'=0$ cut orthogonally $2hh'+2kk'=c+c'$, we have

$$2\frac{ha^2}{c}\cdot\frac{h'a^2}{c'}+2\frac{ka^2}{c}\cdot\frac{k'a^2}{c'}=\frac{a^4}{c}+\frac{a^4}{c'},$$

therefore the following inverses of these circles also cut orthogonally

$$x^2+y^2-\frac{2ha^2}{c}x-\frac{2ka^2}{c}y+\frac{a^4}{c}=0\quad\text{and}\quad x^2+y^2-\frac{2h'a^2}{c'}x-\frac{2k'a^2}{c'}y+\frac{a^4}{c}=0.$$

[The rest in Volume.]

9902. (Professor Laisant.)—On donne une circonférence Δ, un point fixe O et un axe fixe OX. Soit M un point quelconque de Δ. (1) Soient N un point tel que *angle* NOX $=\frac{1}{2}$MOX, ON $=(a\,.\,OM)^{\frac{1}{2}}$, a étant une constante; démontrer que N décrit un ovale de Cassini. (2) Le lieu d'un point P tel que *angle* POX $=$ 2MOX, OP $=$ OM$^2/a$ est un ovale de Descartes.

Solution by R. F. Davis, M.A.

If upon the bisector of the angle A of a triangle ABC (Fig. 1), points P, Q be taken such that $AP^2 = AQ^2 = AB\,.\,AC$; then

$$BP\,.\,BQ = BC\,.\,AB,\quad\text{and}\quad CP\,.\,CQ = BC\,.\,AC.$$

Let D be the mid-point of BC; E, F the extremities of the diameter of the circumcircle through D, F and A lying on the same side of BC. Then, since the triangles ABP, APC are similar, and the angle $BPC = \pi-\frac{1}{2}A$, the points B, P, C, Q obviously lie on a circle centre F. Hence, if CM be perpendicular on AD, $CP\,.\,CQ = 2CM\,.\,CF$.

[The rest in Volume.]

9982. (Professor Steggall.)—If a circle intersect the sides of a triangle ABC in PP′, QQ′, RR′, and if AP, BQ, CR are concurrent, so also are AP′, BQ′, CR′.

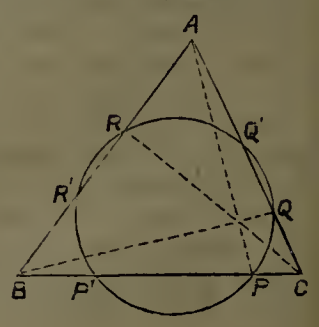
Solution by J. J. Barniville; R. H. W. Whapham, B.A.; *and others.*

$BP\,.\,CQ\,.\,AR/CP\,.\,AQ\,.\,BR = 1$,

therefore $BP'\,.\,CQ'\,.\,AR'/CP'\,.\,AQ'\,.\,BR'$

$$=\frac{BP\,.\,BP'\,.\,CQ\,.\,CQ'\,.\,AR\,.\,AR'}{CP\,.\,CP'\,.\,AQ\,.\,AQ'\,.\,BR\,.\,BR'}=1,$$

therefore AP′, BQ′, CR′ are concurrent.



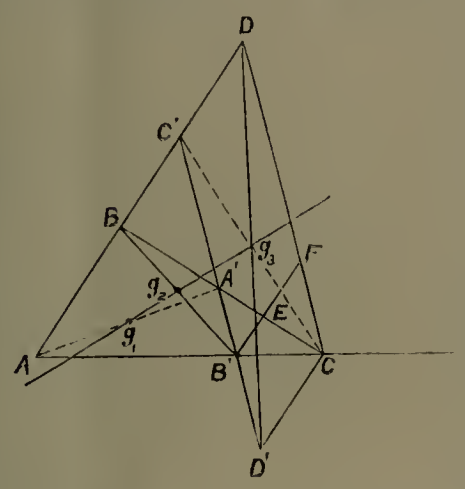
[This theorem is true if, instead of a circle, we have any conic intersecting the sides of the triangle.]

10076. (Professor Genese, M.A.)—ABA′B′ is any quadrilateral; AB′, BA′ meet at C; from C are drawn parallels to AB, A′B′, meeting A′B′, AB respectively in D′, D. Prove that B′A′ : A′D′ :: BA : AD. Hence show that the well-known theorem about the middle points of the diagonals of a completed quadrilateral, is a particular case of the theorem, that the mass-centre of two particles with uniform rectilineal velocities describes a straight line.

Solution by R. H. W. Whapham, B.A.; Professor Sarkar; *and others.*

Draw B′EF parallel to AB or CD′, therefore

$$B'A' : A'D' = B'E : D'C$$
$$= B'E : B'F = BA : AD,$$



Now suppose two equal masses at A and A′, their centre of mass is at g_1, the mid-point of AA′; let these masses move with uniform velocities proportional to AB and A′B′ respectively in the directions AD and A′D′. Then, when the masses are at B and B′, their centre of mass will be at g_2, the mid-point of BB′. Also, since

$$B'A' : A'D' = BA : AD,$$

the masses will arrive at D′ and D at the same time, and their centre of mass will be at g_3, the mid-point of DD′; but g_3, the mid-point of DD′, is also the mid-point of CC′. Therefore g_1, g_2, g_3 are in a line.

9790. (W. J. C. Sharp, M.A.) — If u be a rational and integral symmetrical function of $x_1, x_2 \dots x_n$, show that

$$x_r^p \frac{du}{dx_r} - x_s^p \frac{du}{dx_s} \text{ and } x_s^p \frac{du}{dx_r} - x_r^p \frac{du}{dx_s}$$

are divisible by $x_r - x_s$ for all positive integral values of p, r, and s.

Solution by D. Edwardes.

Let $x_1, x_2 \dots x_n$ be the roots of $p_0 x^n - p_1 x^{n-1} + \dots = 0$, and let

$$p_0 x^n - p_1 x^{n-1} + \dots = (x - x_r)(p_0 x^{n-1} - p_1' x^{n-2} + p_2' x^{n-3} - \dots),$$

then $\quad p_k = p_k' + x_r p_{k-1}', \quad$ therefore $\dfrac{dp_k}{dx_r} = p_{k-1}'$.

[The rest in Volume.]

QUESTIONS FOR SOLUTION.

10140. (Professor Sylvester, F.R.S.)—(1) If the probability of i or *more* out of a constituency of n persons (all equally likely to vote) going to the poll at a certain election, is p_i; show that the probability of exactly i electors doing so may be symbolically represented by

$$\frac{\pi(n)}{\pi(i)\,\pi(n-i)}\, p_i\,(1-p)_{n-i},$$

with the convention that the laws of interpretation are to be the same for subscript as for superscript indices. Thus, *ex. gr.*, $p_3\,(1-p)_5$ is to be interpreted to mean $\quad p_3 - 5p_4 + 10p_5 - 10p_6 + 5p_7 - p_8$.

As a particular case the probability of no persons voting will be $(1-p)_n$.

(2) If P_i represent the *sum* of the probabilities of every combination of i electors voting with or without any others, show that the sum of the probabilities of every combination of i (and *no more*) voting may be expressed under the same convention as before by $P_i\,(1+P_1)^{-i-1}$.

*** P_∞ will be liable to become infinite, or the series to diverge and the formulæ become futile, if the constituency is infinitely great; but, in the practical application of the theorem, the number of voters is necessarily limited, and then P_j becomes zero whenever j is greater than the limiting number. As an example, let the limit be 5, and let Q_i represent the sum of the probabilities of all the combinations of i electors voting without any others; then we shall have

$$Q_5 = P_5,\ Q_4 = P_4 - 5P_5,\ Q_3 = P_3 - 4P_4 + 10P_5,$$
$$Q_2 = P_2 - 3P_3 + 6P_4 - 10P_5,\quad Q_1 = P_1 - 2P_2 + 3P_3 - 4P_4 + 5P_5,$$

and Q_0 (the probability of no electors voting) $= 1 - P_1 + P_2 - P_3 + P_4 - P_5$.

It must be understood that the above formulæ have a purely logical basis, and that the probability of A and B both voting is not to be assumed as known when the probabilities of A and B separately voting are given; *i.e.*, A's voting and B's voting are not to be treated as independent events. Essentially the theorem is one of things and not of quantities.

—141. (Professor Neuberg.)—On donne l'orthocentre H d'un triangle ABC, le centre O du cercle circonscrit et une droite d sur laquelle doit se trouver le sommet A. Démontrer que la base BC enveloppe une parabole, et que les deux côtés AB, AC enveloppent une même courbe de la 4e classe, dont d est une tangente double.

—142. (Professor Boutin.)—On prend sur une même droite OX les longueurs OA′, OB′, OC′ proportionnelles à sin 2A, sin 2B, sin 2C, où A, B, C sont les angles du triangle ABC; on mène ensuite par A′, B′, C′ trois droites faisant respectivement avec OX des angles égaux aux compléments de A, B, C. Démontrer que ces droites concourent en un même point T, et que l'angle TOX est le complément de l'angle de Taylor, c'est-à-dire, $\quad \cot TOX = \log A \log B \log C$.

10143. (Professor Déprez.)—Sur les côtés BC, CA, AB du triangle sphérique ABC on prend, dans le même sens, trois arcs égaux, BA′ = CB′ = AC′. Démontrer que le point de rencontre des médianes du triangle A′B′C′ décrit un grand cercle.

—144. (Professor Nash.)—Assuming that a knight's tour is completely determined when the first and last squares are given; show that there are 136 distinct tours, no one of which is the reflected image of another, or can be derived from another by rotating the board. In 21 of these tours the terminal squares are a knight's move apart; if these squares be joined, show that a tour can be constructed from which each of the remaining 20 re-entrant tours can be derived either by rotation of the board or by reflection. Hence the 136 tours are reduced to 116.

—145. (Professor Mannheim.)—On donne un triangle abc. On trace une circonférence qui passe par a, elle coupe ab en c' et ac en b'. On trace une circonférence qui passe par b et c', elle coupe bc en a' et la première circonférence en i; les points i, a', c, b' sont sur une même circonférence. On prend un point arbitraire o sur le plan abc. La droite oa coupe en α la circonférence qui passe par a. La droite ob coupe en β la circonférence qui passe par b. Enfin sur la troisième circonférence on a le point γ à sa rencontre avec oc. Démontrer que les points $o, \alpha, \beta, \gamma, i$ sont sur une même circonférence de cercle.

—146. (Professor Beyens.)—Resoudre le système des équations

$$x^{2n}(y^n - z^n) = a,\quad y^{2n}(z^n - x^n) = b,\quad z^{2n}(x^n - y^n) = c.$$

—147. (Professor Hudson.)—If A, B, B be the angles of an isosceles triangle, $2\sin^2(A-B)(2-\cos A) = (\sin^2 A + 2\sin^2 B)(1 - 8\cos A\cos^2 B)$.

—148. (Professor Wolstenholme, Sc.D.)—Prove that, if

$$f(x) = f(0) + xf'(0) + \frac{x^2}{2!}f''(0) + \dots + \frac{x^n}{n!}f^n(\theta x),$$

$$\int_0^\infty \frac{f^n(\theta x)}{x^r}\,dx = \frac{\Gamma(n+1)\,\Gamma(r)}{\Gamma(n+r)}\int_0^\infty \frac{f^n(x)}{x^r}\,dx,$$

r being any positive quantity. [If $r > 1$, both integrals generally $= \infty$.]

—149. (Professor Mathews, M.A.)—If n is a real positive integer, and t, u any real integers such that $t^2 - nu^2 = 1$, prove that (1) the substitutions $z' = (tz + u\sqrt{n})/(zu\sqrt{n} + t)$, where t, u assume all possible values consistent with the above condition, form a discontinuous group; and (2) if complex values of z are associated with points (x, y) in the usual way, then there is one and only one substitution belonging to the group, which will transform a point z into a point z' which is situated in the space bounded by the axis of y, and the circle

$$x^2 + y^2 - (t_0^2 + nu_0^2)\,x/(t_0 u_0 + \sqrt{n}) + 1 = 0,$$

where t_0, u_0 are the least positive values of t, u.

—150. (Professor Gob.)—Une tangente quelconque au cercle ABC rencontre les côtés du triangle ABC aux points A′, B′, C′, que l'on joint au point de Lemoine K. Démontrer que

$$\cot B'KC' + \cot C'KA' + \cot A'KB' = \text{const.}$$

—151. (Professor Schoute.) — Given the binary equation $a_x^n = 0$, representing n points $A_1, A_2, \dots A_n$ along a line. To find the equation $a_y^n = 0$, that represents the n points $B_1, B_2 \dots B_n$, every point B_i of which is determined by the condition $\Sigma \dfrac{B_i A_{\text{not } i}}{A_i A_{\text{not } i}} = 0$.

—152. (Professor De Longchamps.)—Résoudre l'équation

$$\alpha(x^2 - px + q)^2 + \beta(x^2 + px + q)^2 = x^2.$$

—153. (Professor Morley, B.A.)—Let A, B, C, D be orthocentric points, and E, F, G the intersections of lines through them. The locus of the double focus of all circular cubics through the seven points is the circle EFG; the locus of the single foci is the four self-polar circles of the triangles A, B, C, D (Salmon's *Higher Curves*, p. 249); the envelope of the asymptote is a three-cusped hypocycloid circumscribing the circle EFG.

—154. (The Editor.)—If among the sides and diagonals a, b, c, d, e, f of a quadrilateral we have $e : f = ad + bc : ab + cd$ ..... (α), prove that (1) one of the two following relations (β, γ) will also subsist,

$$ef = ac + bd,\ 2(ab + cd)(ad + bc)$$
$$-(ac + bd + ef)(-ac + bd + ef)(a^2 + b^2 + c^2 + d^2 + e^2 + f^2)$$

(2) if the quadrilateral be *convex*, the sinister of (γ) is always *positive*, so that in this case (α) implies (β).

—155. (Ch. Hermite.)—Prouver que, pour toutes les valeurs réelles et positives de la variable x, l'expression $(x^a - x^{1-a})/(x-1)$, dans laquelle a désigne une quantité comprise entre zéro et l'unité, peut être représentée par $(2a-1)\,\theta$, en supposant $0 < \theta < 1$.

—156. (R. Holmes, B.A.)—Solve the differential equation

$$(1 + a^2x^2)^2 \frac{d^2y}{dx^2} + b^2y = 0.$$

10157. (R. W. D. Christie.)—If p be a prime number > 2; prove

$$\{(2p!/2\times p!\times p!)-1\} = p^2(M),$$

where M is the sum of $(p-1)/2$ integral square numbers.

—158. (C. H. Thompson, B.A.)—On the sides of a triangle ABC are described three similar triangles BCD, CAE, ABF of any given species, so that the pairs of angles at A, B, C are equal. Prove that the circles described about the three triangles pass through a common point, and that AD, BE, CF meet in this same point.

—159. (R. Tucker, M.A.)—Prove that the sum of the areas of the two in-Isoscelian triangles of the circle ABC

$$= R^2[\sin A\cos 3(B-C)+\ldots+\ldots]$$

[See "Isoscelians," Lond. Math. S. Proc., Vol. xix., pp. 163—170. "Isoscelians" are the lines defined in (3) of p. 441 of the *Educational Times*, Dec. 1886.]

—160. (D. Biddle.)—A random square lies randomly within a given circle; find the probability that it encloses the centre.

—161. (Maurice d'Ocagne.)—Soit ABCD un quadrilatère inscrit dans un cercle. Par le sommet A on mène les droites AB′ et AD′ symétriques par rapport à la bissectrice de l'angle BAC, et qui coupent CB et CD en B′ et en D′. Les pieds des perpendiculaires abaissées respectivement de B′ et de D′ sur AB et sur AD sont en ligne droite avec le milieu de BD.

—162. (E. M. Langley, M.A.)—BKC, CLA, AMB are equilateral triangles described externally on the sides BC, CA, AB of a triangle ABC; prove that AK, BL, CM are equal, and have a common point.

—163. (Rev. D. Thomas, M.A.)—If α, β, γ be the vectors from A, B, C having a common origin at the circumcentre of ABC, and if $l\alpha+m\beta+n\gamma$ be the vector joining any two points P, Q, prove that

$$PQ^2 = R^2(l+m+n)^2-(a^2mn+b^2nl+c^2lm).$$

[*Example*:—$OI^2 = R^2-2Rr$.]

—164. (W. J. C. Sharp, M.A.)—Show that

$$A^r(0!) \text{ or } r!\left\{1-1+\frac{1}{1.2}-\frac{1}{1.2.3}+\ldots+(-1)^r\frac{1}{r!}\right\}$$

$$=(-1)^r\{1-r+r(r-1)-r(r-1)(r-2)+\ldots+(-1)^2r^2(r-1)\ldots 3\}.$$

—165. (W. J. Greenstreet, M.A.)—Find the locus of the vertices of the triangles circumscribing a fixed circle, and of which the orthocentre is a fixed point.

—166. (C. A. Swift.)—Equilateral triangles are described on the four sides of a square, the triangles all lying within the square. Show that the area of the eight-pointed star-shaped figure formed by the vertices of the triangle and the corners of the square, together with three times the area of the square, is equal to eight times the area of one of the equilateral triangles.

—167. (H. L. Orchard, M.A., B.Sc.)—Find the relation that must subsist among the coefficients of the general cubic equation

$$x^3+ax^2+bx+c=0,$$

in order that it may be soluble by a simple quadratic method.

—168. (H. W. Segar.)—A side of a square has its extremities on two straight lines at right angles, and touches a circle which touches those straight lines. Show that the other angular points lie on two hyperbolas; find their equations referred to the fixed lines as axes.

—169. (R. H. W. Whapham, B.A.)—If the area of the triangle whose base is the polar of its vertex with respect to the ellipse $b^2x^2+a^2y^2=a^2b^2$ is constant and equal to $k\,.\,ab$; prove that the locus of the vertex is $(x^2/a^2+y^2/b^2-1)^3 = k^2(x^2/a^2+y^2/b^2)^2$.

—170. (R. Knowles, B.A.)—The sides AB and CD of a quadrilateral inscribed in a conic meet in E; the diagonals AC and BD intersect in G; prove that the four points E, G, and the poles of AD and CB are collinear.

—171. (Col. H. W. L. Hime, R.A.)—If α, β, γ are the vectors of the sides of a triangle ABC, M the mass-centre, E the incentre, I an excentre, P the orthocentre, Q the circumcentre, N the mid-centre (*i.e.*, of nine-point circle); prove (1) that $OM = \frac{1}{3}(\alpha+\beta+\gamma)$,

$$OE = \frac{a\alpha+b\beta+c\gamma}{a+b+c},\quad OI = \frac{\pm a\alpha\pm b\beta\pm c\gamma}{\pm a\pm b\pm c},\quad OP = \frac{\tan A\alpha+\tan B\beta+\tan C\gamma}{\tan A+\tan B+\tan C},$$

$$OQ = \frac{(\tan B+\tan C)\alpha+\ldots}{2(\tan A+\tan B+\tan C)},\quad ON = \frac{(2\tan A+\tan B+\tan C)\alpha+\ldots}{4(\tan A+\tan B+\tan C)};$$

(2) since $OP+OQ = 2ON$, that N bisects PQ; (3) if X is the join of three lines drawn from the corners, cutting the opposite sides as the xth powers of the other sides, that is, if OX cuts BC in A′, and that $BA' : A'C = c^x : b^x$, then $OX = \dfrac{a^x\alpha+b^x\beta+c^x\gamma}{a^x+b^x+c^x}$,

OM and OI being special cases for $x=0$ and $x=1$.

—172. (Col. Servais.)—Soient A, B, C trois points d'une courbe quelconque Σ. Il existe une conique inscrite au triangle ABC et ayant pour foyer un point donné F. Si les points B et C se rapprochent indéfiniment de A, le rayon de courbure de la conique au point A tend indéfiniment vers le quadruple de celui de la courbe Σ au même point.

10173. (Rev. T. C. Simmons, M.A.)—Within a given closed convex area a random point is taken, and joined with any point on the perimeter. Show that, if two more random points be now taken in the area, the odds are two to one in favour of their falling on the same side of the line thus drawn. [This is Quest. 8604, reproposed by Mr. Simmons's desire.]

—174. (F. Bouvier.)—Dans un hexagone inscrit, les six circonférences passant par le centre du cercle circonscrit et par les extrémités de chaque côté se coupent deux à deux en trois points situés sur une circonférence passant par le centre du cercle circonscrit.

—175. (M. Truc.)—Trouver le lieu géométrique des milieux normales à une parabole donnée en supposant ces normales limitées à l'axe.

—176. (B. F. Finkel, B.Sc.)—Inscribe a regular 17-gon in a circle.

—177. (F. R. J. Hervey.)—Prove the following statements relating to the system of rectangular hyperbolas passing through four given mutually orthocentric points:—(1) The mean point of the centres of any six *equal* hyperbolas is the mean of the conjugate triad determined by the given points. (2) The asymptotes of six such hyperbolas cut the locus of centres again in two sets of six points, diametrically opposite each to each, such that the mean point of each set is the mean of the given points. (3) The system of mean positions on the circle determined by the six points in (1) is independent of the magnitude of the hyperbolas; the same applies to either set in (2). (4) The three *maximum* hyperbolas have the property that their normals at the given points are concurrent; the mean point of their centres divides in the ratio 1 : 2, the distance between the means in (2) and (1).

—178. (E. Lemoine.)—Soient ABC, A′B′C′ deux triangles; a, b, c, a', b', c' les longueurs de leurs côtés; soient, en coordonnées normales, ABC étant le triangle de référence, $\beta\lambda+\gamma=0$, $\gamma\mu+\alpha=0$, $\alpha\nu+\beta=0$ les équations des parallèles à B′C′, C′A′, A′B′ menées respectivement par A, B, C; soient aussi, A′B′C′ étant le triangle de référence,

$$\beta\lambda'+\gamma=0,\quad \gamma\mu'+\alpha=0,\quad \alpha\nu'+\beta=0$$

les équations des parallèles à BC, CA, AB menées respectivement par A′, B′, C. Cela posé, démontrer que, si l'on a identiquement

$$\cos A\,(b-\lambda c)\,(b\mu\nu-\mu a+c)+\cos B\,(c-\mu a)\,(c\nu\lambda-\nu b+a)$$
$$+\cos C\,(a-\nu b)\,(a\lambda\mu-\lambda c+b)=0,$$

on aura aussi identiquement

$$\cos A'\,(b'-\lambda'c')\,(b'\mu'\nu'-\mu'a'+c')+\cos B'\,(c'-\mu'a')\,(c'\nu'\lambda'-\nu'b'+a')$$
$$+\cos C'\,(a'-\nu'b')\,(a'\lambda'\mu'-\lambda'c'+b')=0.$$

—179. (John J. Barniville.)—Prove that (1) the continued surd

$$\sqrt{a+b\sqrt{a+b\sqrt{a+\&c.}}} = \frac{a}{-b+}\,\frac{a}{-b+}\,\frac{a}{-b+},\ \&c.$$

(2) if $\sqrt{a+b\sqrt{a+b\sqrt{\&c.}}} = X$, and $\sqrt{a-b\sqrt{a-b\sqrt{a-\&c.}}} = Y$,

then $XY = a$, and $X-Y = b$; (3) $2\cos\frac{1}{5}\pi = \sqrt{1+\sqrt{1+\sqrt{1+\&c.}}}$,

and $$2\sin\tfrac{1}{10}\pi = \sqrt{1-\sqrt{1-\sqrt{1-\&c.}}} = \frac{1}{1+}\,\frac{1}{1+}\,\frac{1}{1+\&c.};$$

$$(4)\ i = \sqrt{i-1-\sqrt{i-1-\&c.}},$$

and $$\omega \text{ or } \omega^2 = \sqrt{-1-\sqrt{-1-\sqrt{-1-\&c.}}} = \frac{-1}{1+}\,\frac{-1}{1+}\,\frac{-1}{1+\&c.}.$$

NOTICE TO CORRESPONDENTS.

Better solutions than those sent as yet desired to the following Questions, from 10000 onwards:—6, 10, 17, 18, 33, 36, 40, 43, 44, 50, 51, 52, 60, 61, 64, 67, 69, 70, 73, 74, 75, 77—79, 81, 85, 87—91, 97, 99, 104, 108, 110, 113—116, 120, 122—124, 128, 129, 133, 137. To these our contributors should give attention, rather than to Questions whereof from 3 to 30 or more solutions are already in the Editor's hands.

LONDON MATHEMATICAL SOCIETY.

Thursday, May 9th.—J. J. Walker, F.R.S., President, in the Chair. The following communications were made:—"On the solution in Integers of equations of the form $x^3+y^3+A.z^3=0$," S. Roberts, F.R.S.; "On the Concomitants of k-ary Quantics," W. J. C. Sharp, M.A.; "On the Complete Elliptic Integrals K, E, G, I," Dr. J. Kleiber, Privat-docent of the University of St. Petersburg. Mr. Tucker (Hon. Sec.) read abstracts of papers by Prof. Lloyd Tanner, M.A., "On Cyclotomic Functions, § iii., the Cyclotomics belonging to the f-nomial periods of the pth roots of unity, where p is a prime number"; by J. Griffiths, M.A., "A Note on the G function in an Elliptic Transformation Annihilator"; and by Signor Betti "On the Motion of an Elastic Solid strained by extraneous forces." ("By *Symmetrical Algebraic Analysis* the Author obtains an expression, in terms of the rotations of the element, for the unbalanced couples acting on each element of a solid when strained by given forces; and he points out that the result is in accordance with a form of the elastic equations given by Sir W. Thomson.")

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THE

EDUCATIONAL TIMES,

AND

Journal of the College of Preceptors.

Vol. XLII.] New Series, No. 339. JULY 1, 1889. {Registered for Transmission Abroad} *Price to Non-Members, 6d. By Post, 7d.*

COLLEGE OF PRECEPTORS.—The Half-yearly General Meeting of the Members of the Corporation will be held at the College, Bloomsbury Square, W.C., on Saturday, the 20th of July, at 2 p.m. C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—EXAMINATIONS FOR 1889.

1. DIPLOMAS.—The Midsummer Examination of Teachers for the Diplomas of the College will commence on the 2nd of July.

2. CERTIFICATE EXAMINATIONS.—The Christmas Examination for Certificates will commence on the 3rd of December.

N.B.—The Higher Certificates of the College are recognised by Her Majesty's Judges, and by the General Medical Council, as guarantees of good general education; and consequently the holders of them, who may be intended for the Legal and Medical Professions, are exempted from the necessity of submitting to the Preliminary Literary Examinations held by the Incorporated Law Society, and by the various Medical Corporations of the United Kingdom. The Lords of the Committee of Council on Education admit the holders of the same Certificates, without further examination, to the Competition for allowances granted to Students of the Junior Training Class of the National Art Training School. All the College Certificates above the Third Class, the holders of which have passed an Examination in Latin, are also recognised by the Pharmaceutical Society and the Royal Veterinary College.

3. EXAMINATIONS FOR CERTIFICATES OF PROFICIENCY IN MERCANTILE SUBJECTS.—The next Examination will take place on the 2nd of December.

4. PROFESSIONAL PRELIMINARY EXAMINATIONS.—These Examinations are held in March and September. The next Examination will commence on the 3rd of September, 1889.

5. INSPECTION OF SCHOOLS.—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

PRIZES.

Diploma Examination.—The following Prizes will be competed for: Theory and Practice of Education, £10; Classics (Greek and Latin), £5; Mathematics, £5; Physical Science, £5.

Certificate Examination.—The "Isbister Prize" will be awarded to the Candidate who stands First, and the "Pinches Memorial Prize" to the Candidate who stands Second in General Proficiency. Prizes of Books will also be awarded to the Third and Fourth in General Proficiency, and to the First and Second in the following subjects:—Classics, Mathematics, Modern Languages, Natural Science, English Subjects. The "Taylor Jones Memorial Prize" will be awarded to the best Candidate in Scripture History.

The Regulations of the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—LECTURES FOR TEACHERS. A Course of Twelve Lectures on the PRACTICE OF EDUCATION, by the REV. CANON DANIEL, Principal of St. John's Training College, Battersea, will commence on the 26th of September.

The Fee for the Course is Half-a-Guinea.

The Lectures will be delivered on successive Thursday Evenings, at 7 o'clock, in the Lecture Hall of the College, Bloomsbury Square.—Members of the College have Free Admission to all the Courses of Lectures.

(For Syllabus, see page 268.)

C. R. HODGSON, B.A., *Secretary.*

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(*a*) At any Training College for Teachers in Secondary Schools, either at home or abroad, that may be approved by the Council; or

(*b*) At any school of established reputation, approved by the Council, which is prepared to offer such facilities for training as may be satisfactory to the Council; it being open to the Council to require the attendance of the scholar at such lectures on the Theory and Practice of Education, and to require him or her to pass such examinations in the Science and Art of Teaching, as the Council may determine.

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The Examination will take place in London, and at the following Local Centres:—Birmingham, Bristol, Leeds, Liverpool.

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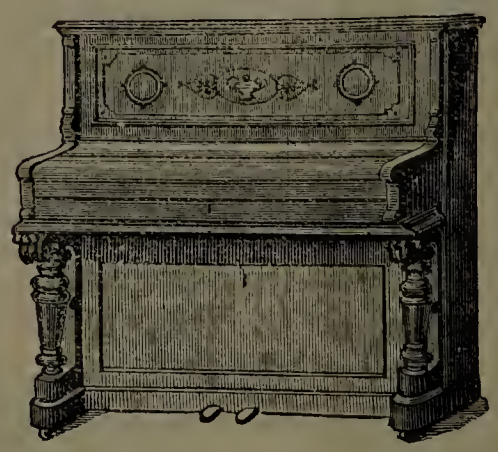

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The Educational Times.

COLLEGE OF PRECEPTORS.

EVENING MEETING, JUNE 12TH, 1889.

THE Chair having been taken by Dr. J. G. Fitch, the Rev. Canon DANIEL, M.A., delivered the following Lecture:—

COMMON FAULTS IN TEACHING CONSIDERED IN THE LIGHT OF MENTAL SCIENCE.

THE critic who proposes to speak of Common Faults in Teaching has no lack of matter to complain of, for it is difficult to move a step in education without committing some fault or other. We may, for instance, teach a subject but not the child, or a child and not the subject; we may teach the right class of subjects in wrong ways, or the wrong class of subjects in right ways; we may do too much for our pupils or too little; we may teach the class, as a whole, and not the individual, or the individual and not the class; we may attempt too much or too little; we may use a method, suitable at one stage of development, in teaching children who are passing through a very different stage; we may cultivate one side of a child's mind at the expense of another; we may, in short, commit mistakes in teaching anywhere and everywhere.

Now there are various ways in which we may avoid mistakes. We may follow what appear to be the best examples. It has not been left for us to discover the whole of the secrets of education. Education is one of the oldest of the arts, if not of the sciences, and the experience of the world has taught us that certain methods of instruction are more successful than others. We may stand on the shoulders of our predecessors and, while avoiding their blunders, appropriate their discoveries. Hence the enormous importance to the would-be teacher of studying the History of Education, and of serving an apprenticeship in some school where he may at once enter upon the possession of the highest form to which the Art of Education has been brought.

But there is something more wanted than good models, and that is, an intelligent comprehension of the principles on which successful education, whatever be its methods, depends. Without such a comprehension we are liable to rob the best methods of much of their value, through the mechanical way in which, regardless of varying circumstances, we apply them; and we shall be unable, except by accident, to improve on the practice of our predecessors. I need hardly say that the extent to which intelligence is brought to bear upon education makes a vast difference not only in its results, but in the character of the work itself. The dullest subject and the dullest child become interesting when the higher powers of the mind are set to work to make the subject interesting and the child acute.

Now what are the principles by which the teacher must be guided? I know of none that do not rest upon the laws of body and mind. We must conquer Nature by obeying her. We cannot teach *what* we like, but only what a child is capable of assimilating. We cannot teach *how* we like, but only as Nature will allow us to teach. In other words, all our methods are conditioned by what a child is, and a knowledge of child nature is indispensable to intelligent education. I do not propose, in the short time at my disposal, to attempt any general survey of the laws of mind, but I will single out a few here and there to illustrate the close connection between theory and practice. This I do the more readily because I have found many teachers sceptical about the practical value of mental science. It is sometimes argued, in depreciation of the study of the science that underlies art, that a ploughman will not drive a straighter furrow for knowing Euclid, nor a cook make a better plum-pudding for knowing the chemical constituents of the ingredients. I admit the force of the argument as regards ploughmen and cooks, though I can conceive cases where the ploughman would be all the better for a little geometry, and the cook all the better for a little chemistry; but the work of the teacher is of a very different character from that of either the ploughman or the cook. It deals with much more difficult problems, in the solution of which rule of thumb, skill, and the recipes of some educational Mrs. Beeton go but a little way.

I have said enough by way of preface. Let us come to business and, in order that we may have some definite order of procedure, let us follow the ordinary classification of the human faculties.

We all know that Attention is a condition of all mental processes. We cannot observe, recall our observations, analyse them, classify them, combine them, or reason from them, without Attention. And as it is with our own independent efforts in the acquisition of knowledge, so it is in teaching, which is, properly, only a mode of stimulating the efforts of our pupils. If our pupils are not attending to us, our labours, no matter how excellent, are thrown away. We are wasting our sweetness on the desert air. The pitcher is not beneath the spout. This last, by the way, is a most inadequate illustration, for a pitcher is the passive recipient of the water which flows into it, whereas the child must be an active recipient before the stream of knowledge can flow into his mind at all. "We learn," it has been said, "only so much as we teach ourselves." We cannot transfer knowledge from our mind to the minds of our pupils as we could transfer some material object from one room to another. The pupil must do something for himself, and the first thing for him to do is to attend to his teacher, the next to attend to whatever his teacher sets him to do.

Now I constantly find that teachers disregard this essential preliminary. They begin to teach before the pitcher is under the spout, and often continue to teach long after the pitcher has moved away. They forget that the human pitcher has power of locomotion, of expansion, and of contraction, and that it has an unfortunate propensity to get from under the spout or contract its mouth, even while seeming to be perfectly still. As a consequence of this propensity a large part of the instruction given in our schools never enters the pitcher. It is simply spilled. More serious even than the loss of information supposed to be conveyed by the teacher is the failure, consequent upon inattention, of the child's independent efforts to perform the task assigned him. If he gives but a corner of his mind to matters which demand the whole, his progress will be commensurate with his attention. Mr. Darwin tells us that "a man who trains monkeys to act in plays used to purchase common kinds from the Zoological Society, at the price of five pounds each; but he offered to give double the price, if he might keep three or four of them for a few days, in order to select one. When asked how he could possibly learn so soon whether a particular monkey could turn out a good actor, he answered that it all depended on their power of attention. If when he was talking or explaining anything to a monkey, its attention was easily distracted, as by a fly on the wall or other trifling object, the case was hopeless. If he tried by punishment to make an inattentive monkey act, it turned sulky. On the other hand, a monkey which carefully attended to him could always be trained." I will not pretend to say how much of the monkey nature there is in man, but there is evidently a good deal of human nature in a monkey. It is not only inattentive monkeys that are attracted by "a fly on the wall or other trifling object." Most of us have to deal with children

whose attention goes out to flies and other trifling objects more readily than to matters of importance. They are not absolutely inattentive; but unfortunately they attend to the wrong thing. They are under some spout, but it is the wrong spout.

There are two conditions of Attention which are often disregarded—one negative, the other positive, one the removal of all sources of distraction, the other our rendering of the work in hand interesting. At every moment our attention is solicited by a variety of candidates all anxious for notice, and, as usual, the most clamorous is generally the most successful. The teacher will greatly increase his chances of success by reducing the number of his rivals. Like eastern potentates he should tolerate no rival near his throne. Instead of doing this he often goes out of his way to multiply them. It is an excellent practice in Object Lessons and Science Lessons to provide each pupil with specimens for personal observation and experiment, but there is this danger in the practice. The specimen may beat the teacher out of the field, and, though this might seem a desirable object, inasmuch as Nature is, in her own department, the better teacher of the two, yet there are moments when the human teacher ought to be heard, and when pupils ought to attend to *him*. To secure this we need special means for withdrawing attention from the specimen and directing it to the teacher at the right moment. Objects for examination, whether exhibited before the whole class or placed before each child separately, should be exposed only when needed, and should be removed as soon as done with. Every material object within the range of children's senses and fingers admits of an endless variety of observations and experiments, some of which are not of a strictly scientific character, and may be wholly irrelevant. I have known a teacher place her specimens inside an envelope laid upon the desk before each child. The specimens were taken out when wanted, and returned to their hiding place when done with. This was an excellent artifice as far as it went, but, unfortunately, the envelope itself was made the subject of an interesting series of experiments on the conditions of stable equilibrium. An envelope has four sides and four corners, on each of which attempts may be made to balance it. It can be poised in the middle on the tip of a finger. It has a flap, which can be lifted at various angles. It can be made to stand by resting it on one side and the tip of the flap. And these and many other such opportunities were seized, to the great neglect of the subject of the lesson. In the absence of specimens, children will find convenient objects of distraction, and an inexhaustible store of experiments in an ordinary penholder, in the resisting powers of the back of a book, in the motion of the cover of an ink-pot, in the examination of their fingers, to say nothing of furtive explorations of the contents of their pockets. Whatever the cause of distraction may be, you must remember that the greater the amount of attention given to other things, the less is given to you. The law of Mental Science is—The greater the area over which attention is spread, the less intense will it be on any point in that area. *Pluribus intentus minor est ad singula sensus.* My advice, therefore, is, Do not rest content without obtaining the whole of your pupils' attention. Withdraw objects from observation as soon as they are done with. If they must be repeatedly examined provide some contrivance, such as a sheet of tissue paper, by which they may be covered when not wanted. Remove all objects that are not needed for the lesson. Keep the fingers out of mischief by insisting on folded arms; keep the eyes out of mischief by insisting on their being fixed on you. The attitude of attention favours the act of attention. The attitude is not enough in itself, and is often very deceptive. A child looks at you as if he were hanging upon your lips as you unfold the use of the subjunctive mood, and all the time he is speculating whether there will be three eggs or four eggs in the thrush's nest which he is going to rob after school. But the attitude of attention minimizes the sources of distraction, and by a curious reaction on the mind tends to arouse the mental condition desired.

I would recommend teachers, however, to depend less on drill than on the intrinsic interest of the subject and of the share taken in its investigation by the pupils. Make the lesson interesting and you will witness a miracle. The pitchers will run to the spout of their own accord; their mouths will expand; their necks will stretch out; their containing power will swell visibly. The fly on the wall will buzz for them in vain. The once welcome barrel-organ will be unanimously voted by them an obtrusive nuisance.

I pass on to lessons demanding the employment of the observing faculty, and here the commonest error I find is the neglect of observation. Children are not sufficiently required to use their senses. They are allowed to observe by deputy. They look at Nature through the spectacles of books, and through the eyes of the teacher, but do not observe for themselves. It might be expected that in object lessons and science lessons, which are specially intended to cultivate the observing faculty, this fault would be avoided, but I do not find that such is the case. I often hear lessons on objects that are not object lessons at all. The object is not allowed to speak for itself, eloquent though it is, and capable though it is of adapting its teaching to the youngest child who interrogates it. The teacher buries it under a heap of words and second-hand statements, thereby converting the object lesson into a verbal lesson and throwing away golden opportunities of forming the scientific habit of mind. Now mental science teaches us that our knowledge of the sensible qualities of the material world can come to us only through our senses, and through the right senses. If we had no senses we should know nothing about the material world at all; if we had a sense less we should be cut off from a whole class of facts; if we had as many senses as are ascribed to the inhabitants of Sirius in Voltaire's novel, our knowledge would be proportionately greater than it is now. Words cannot compensate for sensations. The eloquence of a Cicero would not explain to a deaf man what music is, or to a blind man what scarlet is. Yet I have frequently seen teachers wholly disregard these obvious truths. They have taught as though their pupils had eyes that saw not, and ears that heard not, and noses that smelled not, and palates that tasted not, and skins that felt not, and muscles that would not work. They have insisted on taking the words out of Nature's mouth and speaking for her. They have thought it derogatory to play a subordinate part to the object itself. Like Bottom in the play, they have wished to play all the leading parts, from the lion's to Thisbe's. With what result I need not say. Now in object lessons and science lessons the teacher must be content with the humble duties of a demonstrator. He must let Nature teach for herself, and content himself with arranging the order of her teaching, getting his pupils to ask her the right questions in the right sort of way, securing opportunities for her replies to be fairly heard, recording her answers in intelligible and accurate language, and registering them in convenient forms for remembering. Hitherto he has overshadowed both Nature and his pupil; he must be taught by mental science to know his place. There is a good deal for him to do yet, but he will never do much as a teacher until he has disabused his mind of the error that he is *the* teacher. He is only one of a crowd of teachers, and in Nature's school he must be content with the post of assistant. Yes, head-master though he be, he must come down from his high stool and let Nature take his place.

In order that children may interrogate Nature for themselves, specimens should, wherever it is possible, be placed before each child and opportunities should be afforded for each child to experiment, care being taken to restrict observation and experiment to proper times. A single specimen held up before a large class is not enough; it can be observed only with the eye and with that very imperfectly. An experiment performed before a class is not enough; it should be repeated, either at the time or afterwards, by each pupil. It is only in personal intercourse that Nature gives up her secrets. She never tells the whole of her mind through the medium of others. We must know her personally and consult her personally. We must experiment for ourselves as we observe for ourselves, and we shall learn as much through our failures as our successes. There is this further advantage in personal experiment—the truths learnt are wrought into our life history, and made part and parcel of ourselves. They are converted from objective into subjective truths. We forget the statements of books, but we rarely forget the teaching of experiments which we have ourselves performed.

My next point is that you can rarely observe any object well without having some object with which to compare it. Mental science teaches us that all our knowledge is of resemblances and differences, that all we can say of any object is that it is like some other object or class of objects or unlike them. It follows that in all lessons of observation and experiment we must have materials for comparison. Now when teachers give an object lesson or science lesson I often find that they provide themselves with specimens of the object, or with experiments directly bearing on the scientific truth to be established, but they forget the need of illustrations for comparison and contrast. If they are giving a lesson on the sparrow they think they have done all that can be reasonably expected from them in providing a

sparrow, whereas they will want a dozen birds besides, one with a different build, another with a different beak, another with different wings, another with different tail, and so on. If they are giving a lesson on Oxygen, they will need not only experiments on oxygen, but on a number of other gases that resemble or differ from oxygen. Here let me remind you that the closer the objects compared are brought together in time and space the more effective will the comparison be.

Let us pass on to the treatment of Memory. One of the commonest mistakes committed with regard to memory is the disregard of the conditions of retentiveness. It is assumed that the retentive faculty is an independent faculty coordinate with Observation, Judgment, Reason, &c., whereas it is a phenomenon consequent upon the exercise of the other faculties. We do not observe a thing and remember it by two different processes, but we find that, if we observe we *do* remember, and the more carefully we observe the better we remember. So with the other faculties. If I wish to remember the contents of a general idea, I go through the process by which the idea was formed, noting wherein the things from which it is derived agree among themselves and wherein they differ from other things. I do not remember the idea by a separate effort, but if I go through the process of generalisation I find that I *do* remember. If I wish to remember a line of reasoning, whether inductive or deductive, I go through the successive steps by which the conclusion is reached, and I find I *do* remember. It may be necessary for me to repeat these processes again and again, but the effect of repetition is only to enable me to observe better, conceive more accurately, reason more clearly, and so forth. Words can, of course, be remembered without going through the mental processes by which our ideas are obtained; but words are not ideas, and if the ideas are not in our minds the words that designate them are powerless to call them into existence. A blind man may remember what some one has told him about the colour of a rose, but in spite of that he has no idea of the colour. A child may remember the definition of a plane, and yet have no idea of a plane. He may remember a proposition in Euclid, and yet be utterly unable to follow the reasoning.

Now the common fault of teachers is to try to impart ideas and truths without going through the mental processes by which they are arrived at. They try to get the memory to dispense with the faculties on which it is dependent. They communicate through words information that children can only acquire through observation; they teach classifications without getting their pupils to see the principles on which the classifications are based; they teach definitions which do not define because the significance of genus and differentia has never been apprehended; they teach conclusions apart from their premisses; they teach rules without first establishing them. Memory is the Cinderella of the mind; she is treated as a drudge, whilst her sister faculties are left in comparative idleness. She is expected to preserve what was never confided to her, and to restore in order what was entrusted to her in confusion. We give her "words, words, words," and expect her to give us in return ideas. We cultivate her, as we facetiously say, and expect to gather where we have not strawed. All this arises from the confusion of verbal knowledge with real knowledge. Once clearly grasp the fact that real knowledge cannot be acquired without the exercise of the appropriate faculties, and you will no longer trust to the alchemy of memory. *Ex nihilo nihil fit.* Teachers seem sometimes surprised at their pupils forgetting, whereas the pupils, perhaps, never had anything to remember but the empty symbols of knowledge. They are astonished at the muddle-headedness of their pupils, overlooking the fact that the knowledge, reproduced in a state of muddle, was stowed away in a state of muddle, for which they are themselves responsible. They might as reasonably expect to find an empty purse fill itself with gold, or the contents of an old drawer sort themselves. I would say to them, Do not in the first instance trouble about Memory. See that the other faculties do *their* work, and Memory will not fail to do hers. I do not say that there is no original difference in the retentive power of different memories. Far from it. But I am convinced that most of the complaints we hear of bad memories are groundless. The real defect lies further back. We never properly observed, and we do not possess correct images; we never properly compared, and we do not possess distinct ideas; we never properly noted the relations of ideas, and do not possess correct judgment; we never properly compared our judgments, and have not drawn correct conclusions.

Teachers are not always sufficiently alive to the importance of repeating information and mental processes. They sometimes seem to think that it is enough to utter a statement to secure its being remembered, whereas it will often require to be made again and again, illustrated in a dozen different ways and recurred to over and over. The younger the class and the duller the child, the greater the need of repetition and of skill on the part of the teacher to avoid that satiety which repetition is apt to produce.

Repetition is as necessary to remembering the processes of thought as to the memory of words and facts. We do not take in the whole of an object at a single observation. We perceive only so much as we attend to. Hence with each observation our percept will grow fuller, clearer, more accurate, more distinct. We do not take in a general idea at once. At first, perhaps, we embrace too much, then too little. It is only by degrees that we conceive what it properly includes and what it excludes. We do not take in a chain of reasoning at once. It takes some time to know exactly what it is we have to prove, and what are the premisses at our disposal. If the chain of reasoning be long and involved, we require time to grow familiar with the route.

The necessity of repetition is greatly diminished whenever a new idea is accompanied by emotional excitement, as of surprise, wonder, admiration, awe, &c. Feeling burns in impressions. It has been said that you do not need to be twice pitched out of a gig in the same place to remember the spot where the accident occurred. I often think that teachers do not sufficiently study the range of emotions at their command. They have an instrument in the human mind of wonderful compass, capable of discoursing most eloquent music, and yet, like Rosenkranz and Guildenstern, with the recorders, they cannot command it to any utterance of harmony. They can fret their pupils but not play on them. They deliver themselves of what they have to say as if they were machines, addressing machines, regardless of the intellectual, æsthetic, self-regarding, social and other emotions by which, not only the work of memory, but all mental work might be brightened and facilitated. They have numberless levers by which they might stir inert and indifferent minds, and yet they never touch them with one of their fingers. Yet everybody knows how easy it is to remember whatever is connected with some pleasant or painful association. The emotion, besides exalting the whole frame, compels attention at the time; if it be pleasant to dwell upon, it is often revived in memory for the sake of enjoying the pleasure again; if it is painful to dwell upon, there is still a sort of relative pleasure in knowing that it is past, and in contrasting it with happier circumstances. A good story, a touch of humour, a stroke of wit, a flash of surprise often fixes indelibly some important fact in the memory.

> Quanquam ridentem dicere verum
> Quid vetat?

It has been said that the whole art of memory, so far as there is such an art, consists in attending to the three A's—Attention, Arrangement, and Association. I have already spoken of Attention. I must say a few words about the other two A's, and first with regard to Arrangement. In every lesson some attempt should be made to gather up its results into a neat and easily remembered form that will ease the grasp of memory and facilitate reproduction. A well-ordered lesson is itself helpful to the memory, but over and above this the teacher should register the points established in his lessons and arrange them in a logical and lucid way. Mr. F. Harrison recently said, "The examinee's memory is a ten-day memory, very sharp, clear, methodical, for the moment, like the memory cultivated by a busy lawyer, full of dates of three different courses, of four distinct causes, of five divisions of this and six phases of the other. It is a memory deliberately trained to carry a quantity of things with sharp edges in convenient order for a very short time. The feats which the examinee can perform are like the feats of a conjurer with bottles and knives." This criticism was not, I am sure, intended to discourage method in the acquisition and storage of knowledge, but only superficial artifices and trivial dodges for assisting the portative memory with a view to examinations. It is not a denial of the existence of natural order and logical relations, but a satire on those slender threads which are supplied by crammers and professors of mnemonics for holding together, for a short time, bunches of facts that might be held together by the imperishable bond of logical or causal relation. I have only one caution to give on the subject of arrangement. As far as possible let your pupils arrange and analyse for themselves. Ready-made abstracts are of little value. It is in the process of analysis and arrangement that we grow intimate with a subject and learn the value of a luminous order.

Another great help in the reproduction of knowledge is a judicious use of the laws of Association. There are associations *and* associations. Teachers make too large a use of those of mere contiguity, and too little of those that are rational. It is not enough to supply our pupils with knowledge, they need *clues* for its recovery. What shall the clues be? I know none comparable to the heads of scientific classification and the relations of causality. Categories serve the same purpose as the labels on a set of pigeon-holes; they help us to put our hands at once on what we want without upsetting the whole collection, and therewith our own temper; and they have the further advantage of contributing to exhaustive treatment. The relations of cause and effect, once grasped, can be easily recovered. So can the relations of premisses and conclusion. In utilizing the higher associations, teachers will do well to remember that their pupils are the most inveterate of crammers, ever on the look-out for short cuts, tips, and dodges. They have reduced the economy of effort to a science, and will tell you to a nicety which is the more effective for the purpose they have in view—learning by heart or understanding a principle—mastering the logic or cramming a mnemonic. The best way to counteract this tendency is to make the yielding to it unprofitable. When cramming ceases to pay, teachers will cease to cram, and pupils will cease to cram. Examiners often complain of the undigested knowledge which pupils tumble out upon their papers. The correction of the evil is in their own hands. Let examiners cease to ask questions addressed exclusively to the portative memory and the portative memory will cease to be exclusively cultivated. Ask for knowledge, if you like, but always, if possible, in new combinations that require from the pupil some independent effort either of arrangement, expression, or inference. I remember reading of Professor de Morgan that shortly before an examination he observed that his pupils had ill prepared their ordinary work and were giving him very little of their attention. "I know what's the meaning of this," he said, "you are cramming up for the examination, but I will take care that you get questions at the examination which all the cramming you are capable of will not enable you to answer." He was as good as his word.

Whilst I am on the subject of examinations, I should like to say that, while I heartily concur in much that has been said against competitive examinations, as ordinarily conducted, I attach the very highest value to examinations as an instrument of education. It is sometimes said that we are constantly digging up the tree of knowledge to see if it grows, and this metaphor is supposed to settle the whole question. But Mental Science teaches us that the tree of knowledge grows by being plucked up, and in proportion as it is plucked up. If you leave it alone it will immediately begin to die. Your facts will undergo strange transformations; your ideas will grow hazy; your long lines of reasoning will unlink themselves and refuse to reform at your bidding. "It is no more possible for an idle man," said Sidney Smith, and, of course, his remark is equally true of an idle child, "to keep together a certain stock of knowledge than it is possible to keep together a stream of ice exposed to the meridian sun. Every day destroys a fact, a relation, or an inference, and the only method of preserving the bulk and value of the pile is by constantly adding to it." No, not the only way. The best way to preserve the bulk is not by adding fresh knowledge destined to follow the same paths to the limbo of oblivion, but to *use* the knowledge we have already. We may add to that knowledge, if we like, but the indispensable condition of preserving what we have is to use it. Hence, I set the greatest store on all sorts of examinations and exercises which require the pupil to take up his knowledge by the roots.

In the treatment of the Imagination, the commonest fault that I note is the endeavour to make bricks without straw, and even without clay. The imagination is expected to construct its airy fabrics without material to work upon, to transport the mind to distant times and distant lands without supplying it with wings, to understand the occult processes of Nature's operations without observing those processes that come within the range of observation, to enjoy poetry and fiction without the key to them supplied by personal experience. In the teaching of every subject in which the constructive imagination plays an important part, the teacher should consider well what is the material at the disposal of his pupils. In history we have the permanent facts of human nature, the remains of antiquity that are still extant, buildings, camps, implements of war, domestic utensils, and, in the absence of the actual remains, photographs and other modes of graphic representation, and, last of all, the words of the historian. Though Cæsar be dead, man remains. Though the Romans quitted England nearly 1500 years ago, they left a thousand traces behind them that we may see with our own eyes. With the help of a good archæological museum, or of a good pictorial history, we can reconstruct the past with tolerable minuteness and accuracy; without such help our words will either cover no ideas or wrong ideas. When children first hear of a Roman soldier, or a Roman ship, or a Roman house, they naturally think of English soldiers, and English ships, and English houses. Their whole conception of the events and scenes of the past is a mass of anachronisms. I was once told by a schoolboy that Henry VIII. fell in love with Anne of Cleves through seeing her *photograph*. Now, we may easily lay an undue stress on the external life of the past, to the neglect of that internal life which is more or less permanent—the life of thought and feeling—but I find as great a disregard of the materials for entering into the one as of the materials for entering into the other. The teacher of history does not adequately illustrate his lesson from without or from within. He does not make sufficient use of those elements of human nature which we possess in common with the remotest ages and the most divergent forms of civilization, or of those materials that are furnished by the remains of bygone times, and by our knowledge of countries that are passing through phases of civilization similar to that with which he has to deal. In a letter to the *Spectator*, Judge Hughes tells us that on last Oak Apple Day he met some Cheshire lads decorated with oak-leaves, and found, by dint of examination, that one of the lads had a vague notion of the event commemorated on that day. The boy knew, as he said, that "a fellow had hid in a oak, and they couldn't find him," and had an impression that the "fellow's" name was Charles; but when the judge said, "Well, boys, do you wish they had found him?" the only answer he got was, "Don't matter to we, one way nor t'other." But it ought to have mattered. If that boy had been made to live in the past of which he had read or heard, the story would have assumed a reality that would have engaged his sympathies, and called into play his moral sense, and impressed itself in a variety of ways on his memory. The nebulous personage, described as a "fellow," and named "Charles" would have taken definite form and features, and been the representative of a cause in which even a plough-boy would have taken a permanent interest. It is noteworthy that the one thing which the boy did remember was just that which his own boyish experience of climbing trees and playing at "Hide and Seek" enabled him to understand.

Similarly we may, by a skilful use of materials that lie at the feet of our pupils, get them to picture foreign lands which they have never seen. Familiar phenomena will explain the remote. The village brook will throw light on the distant Ganges. The wind whistling through the keyhole will help to elucidate the mysteries of trade-winds and tornadoes. The boiling of the kettle will illustrate aerial and oceanic currents, to say nothing of such phenomena as evaporation and condensation. The British schoolboy has a good deal in common with "the heathen Chinee." But too often Geography is treated as though each new country or each new law of Nature investigated were entirely different from anything of which the child has had experience, and the subject is reduced to dreary strings of juiceless facts and names and statistics.

If time served I might show how, through disregard of the laws of the Imagination, the study of English Literature in our schools is often reduced to the study of the meanings of archaic words and other dry-as-dust knowledge—valuable in its proper place, but not literature. The imagination of the child must work in the same way as the imagination of the writer whose works we place in his hand. It must be supplied, either by personal observation or by reading, with the same material. We do, indeed, talk sometimes of the creations of the imagination, but the imagination cannot create—it can only combine. "The light that never was on sea or land," is only the light of common day glorified and consecrated by the poet's art. The noblest product of human genius is only a piece of patch-work, though the stitches may be marvellously concealed.

In the treatment of subjects involving the exercise of the Conceptive faculty the common mistake is to begin at the wrong end. This is particularly seen in Classificatory Sciences like Grammar in which teachers constantly begin with definitions and rules, instead of getting their pupils to form them for themselves. When children have been got to see by comparison that a number of objects agree in certain respects, and differ from other things in certain other respects, they are prepared to recognize them as a class and are ripe for learning the class-name and the definition of that class-name. Thus classification and definition are things

to be worked up to, not from. The first thing is to collect and examine specimens, the next to arrange according to agreements and differences, the next to name, the last to define. One great advantage of following this order is that by so doing we shall not only teach better the subject in hand, but we shall discipline our pupils in logical method, that will be applicable to any other subject in which classification is needed. We shall accustom them to think instead of merely remembering. We shall enable them to use class-names intelligently, and, if memory should play them false, to reconstruct definitions for themselves. Half the blunders of children are owing to vague or inaccurate concepts, and the way to avoid such concepts is to direct the processes by which concepts are formed, to recur again and again to their contents, and to insist upon a consistent use of class-names. As a rule, children acquire ideas from observing how the words denoting them are used, and any inaccuracy in the teacher's employment of words will be accompanied by a corresponding confusion in the minds of his pupils. If, for instance, the teacher uses the terms "vertical" and "perpendicular," as if they were commutable, the pupil will soon forget any technical definition of them that he may learn, and the difference between the two ideas will be ignored.

I need not dwell long on the errors committed in the treatment of the Judgment and the Reasoning Faculty. It is perfectly clear that, if we do not possess clear and accurate ideas, we cannot clearly and accurately compare them, and if we do not possess clear and accurate judgments we cannot deduce from them, or induce upon them, clear and accurate judgments. I am not in a position to say whether A is B, unless I know what A is, and what B, yet I constantly observe teachers and pupils disregarding this impossibility, parsing when they do not know exactly what the limits of the parts of speech are, talking about salts when they have no notion of what a salt is, and so forth. As deductive reasoning consists in the comparison of two ideas by means of an intermediate third, it is equally clear that we cannot perform this process accurately unless we know the contents of these ideas. Before we begin to reason, therefore, we must make sure that we know what we are talking about. Before we set about the solution of a problem we must see that we understand the data. Before we can be sure about the application of a principle we must understand the principle. Every deductive problem, whether arithmetical, algebraic, geometrical, or scientific, should be divided into two parts, the things given and the things to be done or found out, and no amount of time will be thrown away that is necessary to make the things given clearly understood. You will all doubtless remember the famous definition of "metaphysics":—"Twa folk disputin' thegither; he that's listenin' disna ken what he that's speakin' means, and he that's speakin' disna ken what he means himsel'." I believe I have been present at discussions of this character when the subject was not so exalted as metaphysics.

The errors committed in inductive teaching are still more serious than in deductive. In the study of physical science we have constantly to establish general laws, and it is of the first consequence that we should set about this task in a scientific way, not only because that is the best way for the object we have immediately in view, but because it is of more importance to form a scientific habit of mind than to impart a scientific truth. A great deal of our science teaching is unscientific. The subject matter belongs to science, but the method is the method of authority. The pupil learns from the teacher and from books what he ought to learn from observation and reason. Now there is no room for doubting what is the proper method of studying science. The teacher must teach as the philosopher discovers. We may, indeed, teach on authority the principles of science, if our main object is the practical application of those principles, but in that case do not let us call our lessons science lessons. The first thing in every science lesson is to collect the facts relating to the subject that we wish to investigate; the next is to devise some hypothesis to account for them; the next to verify our hypothesis. Let us suppose our lesson is on Volcanoes. Our first business is to collect all we know from personal observation or trustworthy testimony concerning them. Where do they occur? What is the appearance they present? What are the phenomena they exhibit? By what phenomena are they accompanied? What is the condition of the matter ejected by volcanoes? The answers to these and such like questions are the facts that will have to be accounted for, and the hypothesis that best explains the largest number of the facts will most probably be correct. But how are children to form such a hypothesis? Let us see. In volcanic eruptions we have seen that the surface of the land is sometimes raised, that islands are upheaved in mid-ocean, that the summits or sides of mountains are blown away, that huge masses of lava and showers of ashes are ejected from the craters. There is clearly, therefore, some *force* at work to produce these effects. What is that force? It may be some special force with which we are unfamiliar; it may be some force with which we are familiar already. Before rushing to the conclusion that the force is unique, let us consider whether any known force could produce the results we have to account for. Let us enumerate some of the great natural forces with which we are acquainted—electricity, heat, gravitation, steam. Do the facts that we have collected suggest one of these rather than the others? The phenomena themselves embrace manifestations of heat and steam. Which of these is the more powerful in its disruptive qualities? We will now assume that some pupils have arrived at the conclusion that the agency at work in volcanic outbursts is steam. How are we to account for the steam? Where there is steam there must be heat and water. We have had other indications of the presence of fire—molten lava, hot ashes, flame, and smoke. We also know that the lower we descend in a mine the higher the temperature rises. The proximity of volcanoes to the sea and the occurrence of springs everywhere sufficiently account for the presence of water. Our hypothesis seems, therefore, to be satisfactory. Steam is a *vera causa*. Its existence is proved in the circumstances in which volcanoes are produced. It is capable of accounting for all the facts we have collected—upheaval, the ejection of matter, the disruption of mountains, &c. I need not pursue the subject further. My object has been rather to indicate the line of scientific investigation that should be pursued than to exhaust the subject. What I object to is the starting with a cut-and-dry theory of earthquakes instead of getting the pupils to establish a theory of their own under the direction and criticism of the teacher. But it may be said, What is the use of discovering once more truths that have been already established? I reply that truths can rarely be apprehended in all their fulness and significance without reference to the process by which they are established, and, what is of more importance, the mind is best trained for discovering new truths by the investigation of those that have been discovered already. "In order," says Descartes, "that the mind should acquire wisdom, it is necessary that it should find out things that have been already found out."

Now I have found enough fault for one evening. I have no doubt that it has often occurred to your minds in the course of my paper that it is easier to point out faults than to correct them. In that opinion I should fully concur. My object to-night has rather been to put you on the track of correcting faults for yourselves than to put forward any patent methods of my own. I may be wrong over and over again when I come to give specific advice, but I cannot be wrong in contending for the principle that there is no successful teaching which is not an accommodation to natural laws, and no failure in teaching which does not arise out of their violation.

Mr. Lee remarked that the lecturer's view as to the importance of attention as a prime factor in acquisition, was entirely in accordance with what Herbert Spencer had advocated; and herein consisted the great advantage of oral teaching over teaching by the book. Observation was, he considered, mainly an intuitive faculty, which the teacher could not do very much to develop. For memory, three things were required: attention, arrangement, and association. Much depended also on the duration of the impression on the mind; hence the necessity of proceeding slowly and with frequent repetition. He regarded language as affording the best field for the application of method in the imparting of the materials of knowledge.

Mr. Sonnenschein complained that teachers were not allowed to teach what the child was able to assimilate; for in the elementary school they had to teach what the Code demanded, and in the secondary school what the examiners required. As an example of the proper kind of object-lessons, he instanced a lesson given in his presence by an eminent professor at a school in Switzerland, where the teacher himself had scarcely anything to say, and all the explanations were given by the children. He quite agreed with the lecturer as to the supreme importance of the teacher's securing the attention of the class, but the question was how the teacher could be helped to make the lesson interesting, in order to secure that attention. As to memory, he remarked that there were different kinds of memory corresponding with the different faculties of the mind. What was specially required in teaching was that the teacher should have prominently before his mind a teaching-objective (Lehrziel), not in relation to parts of a subject only, but to the subject as a whole. He could not agree with the lecturer's qualified approval of external examinations, and insisted that none but the teacher's own examination could be productive

of good. It was sometimes said that it was necessary to teach what the pupil could not be expected to understand, but he would rather say that what the pupil could not understand should not be taught at all.

Mr. Orchard observed that the important thing was not so much to give the pupil facts as to give him a learning mind. In order to teach properly, the teacher must himself again become a child, and speak in the child's own language, and to call things by names which the child could immediately understand,—to speak of "slice" rather than "section," "pull" instead of "attraction, and so on. Retentiveness of memory was, no doubt, in great part dependent on the strength of the original impression; the observing faculty took hold of an object or idea, and attention stamped the impression thus obtained. As to examination, the child should, he thought, be led continually to question and examine himself in what he had been taught.

The Chairman expressed his entire concurrence with nearly all that the lecturer had advanced, and he thought that the paper would be especially useful for young teachers in training colleges. With regard to the lecturer's recommendation, in giving an object lesson, to withdraw the objects from the view of the pupils, it occurred to him that there might be some danger of removing the object before there had been time for it to make a definite impression on the attention? There was much truth in the remark that object lessons had a tendency to degenerate into mere verbalism, where the ideas that such lessons were designed to convey were not brought out. It was very desirable that experiments should be repeated till they were fully apprehended. What was more important still, was to arrive at a true sense of proportion. Just as in reading, the reader would vary the pace, giving greater prominence to the more important words and phrases; so in giving a lesson it was necessary for the teacher to dwell more upon the significant than upon the less material points, and for this purpose to consider well beforehand what he had to say. With regard to the lecturer's remarks on examinations, and "pulling up the plant by the roots to see how it was growing"; he could not help thinking the metaphor rather misleading. The essential object of examination was reproduction, as a means of fixing anything in the mind, and we could not be said to know a thing until we could reproduce it. Of course the importance of examinations might easily be exaggerated, but their utility could not be questioned by practical teachers, and it was their duty to make them as perfect as they could. With regard to the cultivation of the imagination, it should be remembered that the child must have material to work upon, and he had found it an excellent plan to present a picture or drawing as a ground work on which to build up a story. He was sure he expressed the sense of the meeting in tendering a hearty vote of thanks to Canon Daniel for his very able and most interesting paper.

Canon Daniel having replied to the remarks of the various speakers, the vote of thanks was carried by acclamation, and the proceedings terminated.

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

During June the M.A., D.Sc., and Matriculation Examinations have been held. At the M.A. Branch I. (Classics), 15 candidates have passed; the Gold Medal is awarded to Mr. Bernard John Hayes, of St. John's College, Cambridge; but almost abreast of him is placed a lady, Miss Annie Forbes Burnet, a private student, who is marked worthy of the Medal; a lady, Miss Jane R. Wishart, of University College and private tuition, is bracketed fourth. In Branch II. (Mathematics), only one candidate passed, viz., Mr. H. R. Norris, also of St. John's College, Cambridge; but he has not obtained the medal. At the D.Sc. Examination, two candidates have passed in Experimental Physics, each having lodged a Thesis on an advanced problem in Physics, which was approved by the examiners, and upon which an examination was afterwards based. The reports upon the other branches of the M.A. and D.Sc. Examinations have not yet been posted.

At the Matriculation Examination it is said that about 1550 candidates appeared. This number is above 200 less than that of last year's candidates; but it is a considerable increase upon that of the year before, and necessitated the transference of towards 200 candidates to extra rooms which had been procured at the Westminster Town Hall. The report on this examination will not appear until about the middle of July.

The Report of the "University for London" Commission was published at the beginning of June; the volume containing the Evidence appears as we go to press. A paragraph about this Report, which went the round of the newspapers, and found its way into this Journal last month, was not quite correct on two or three points; firstly, the Report actually proposes a scheme for attaching the London colleges to the existing University; secondly, it is only in the event of their scheme being rejected *by the University*, that the Commissioners ask Her Majesty to remit the whole question to themselves for further consideration; if the Colleges reject the scheme, it would seem that they must remain as they are; and thirdly, the Report is signed by all the six Commissioners; although three of them (Sir Wm. Thomson, Sir G. G. Stokes, and Mr. Welldon) explain in a postscript that they regard the scheme in the light of an experiment that should be tried, with the view of avoiding the possible inconvenience of having two Universities in London; but as they doubt the possibility of effectually adapting the present University to become a Teaching University, they would have preferred the establishment of a new University.

The scheme of the Commission is, in the main, an eclectic one; its chief provisions will be readily apprehended by those of our readers who have preserved, and will kindly refer to, the number of the *Educational Times* for July, 1887, in which (pp. 258, 259) there appeared a careful analysis of the schemes which had up to that time been proposed for the reorganisation of the existing University. The present scheme is based principally on that proposed, about five years ago, by the Association for Promoting a Teaching University, and adopted, substantially, by the first Committee of Convocation; some modifications are embodied from the scheme of the Senate, and others are suggested by the Commissioners themselves.

It is proposed, as before, that the University should consist of Senate, Convocation, Colleges, Faculties, and Boards of Studies.

The *Senate* should, for the present, consist of 38 members,—10, including the Chancellor, to be appointed by the Crown; 10, including their chairman, to be nominated by Convocation; 12 to be elected by the Faculties (three by each of the four); and the six others to be made up of—the President of University College, the Principal of King's College, one nominee of the Royal College of Physicians, one of the Royal College of Surgeons, one of the Council of Legal Education, and one of the Incorporated Law Society. With any increase in the number of Constituent Colleges, the number of senators might be correspondingly increased.

Convocation is, apparently, not to be interfered with.

The *Colleges* may be either "constituent" or "associated"; the former term denotes such as give academical instruction on an adequate scale in all the faculties; and these should have direct representation upon the Senate; the latter term denotes such as give instruction in fewer faculties; and these should be directly represented upon the "Faculties" of the University, and, through these, indirectly upon the Senate. The area of selection of the Colleges in both categories is to be limited to London and the immediate neighbourhood.

The *Faculties* should be four in number—Arts, Laws, Science, Medicine; they should consist of professors and public teachers, severally elected by, and representing, the whole body of professors and teachers in the several faculties of the constituent and associated colleges. Their functions should be elective only, and be exercised in selecting representatives of themselves upon the Senate, members of the Boards of Studies, and members of the committees for choosing examiners.

The *Boards of Studies*, one to each Faculty, should consist of representatives of the Faculties, *plus* (in each) one examiner and one member of Convocation; they should be consultative bodies only, with power to advise the Senate on any matters relating to examinations and degrees.

Such is the bare framework of the proposed constitution, about which cluster many minor provisions and suggestions. Among other things, a distinctly lower order of examinations, especially in medicine, appears to be contemplated; and it is proposed that the University itself should have power to teach. Examinations, upon the present plan, are to remain open to all comers; but, in order to give a definite value to the training and teaching at the recognised colleges, it is recommended that students who have undergone that training be exempted from the Matriculation and, perhaps, the Intermediate Examinations,—the degree examinations remaining the same for all candidates.

Reverting for a moment to the question of sustentation of the present University, mooted in our last number, we have to remember that this institution originated in an address from the House of Commons to the Crown; and that by its Charter it is placed in direct subjection to Her Majesty's Treasury in respect of all money matters, and to the Home Department in respect of its Regulations and By-Laws. It is, consequently, in its official features, virtually a Public Department, a branch of the Civil Service, and like other departments it is bound to render to the Treasury, three or four months before the close of each financial year, a detailed estimate of its calculated expenditure for the ensuing financial year; this appears in the printed (parliamentary) estimates of the year as No. 7 of Class IV.; and no new item can be inserted, and no existing item can be increased, without the express sanction of the Lords of the Treasury. And as it is the business of these gentlemen and their officers to keep down expenditure (except, perhaps, where million after million is squandered by some great spending department), they are more than suspected of not infrequently haggling over the very modest requirements of the University. When the estimate is voted, the Audit Department at Somerset House checks every payment made by the University, to see that no money is diverted to other purposes than those specified in the Estimate, and that no item is exceeded without further express sanction from the Treasury. It should be added that all the income of the University from fees is rigidly claimed by the Government.

For more than forty years by far the larger part of the expenditure of the University was defrayed out of public moneys. So recently as 1878-79, for every pound paid by candidates in fees the Government had to provide two pounds. But during the last ten years the fees have rapidly increased; and, according to statements made at the recent meeting of Convocation, they amounted during 1888-89 to nearly £15,000 (against about £5,500 in 1878-79). This large total has more than covered the amount (over £14,000) of the parliamentary vote; but there

still remain the value of the building, the maintenance thereof, the cost of stationery and printing, and some smaller items (altogether amounting to about £8,000), as charges upon the public purse. However, it may now be said that for every two pounds paid by candidates in fees, the Government has to provide only one.

CAMBRIDGE.

The Master of Trinity has been elected to the Vice-Chancellorship for next year; he will come into office in October. Dr. Peile, Master of Christ's, was also nominated, and will therefore, in all probability, succeed Dr. Butler. The Master of Trinity Hall and the Provost of King's will probably be the next on the list.

The Whewell International Law Scholarships have been awarded as follows:—(1) G. Townsend-Warner, B.A., Scholar of Jesus College; (2) H. S. Mundahl, B.A., LL.B., St. John's College. The electors give notice that the specified period for the study of the foreign relations of the principal civilised states will be the period from the year 1764 A.D. to the year 1815 A.D. inclusive, in the examination for 1890 and subsequent years until further notice.

The Marshall Prize has been awarded to A. W. Flux, B.A., St. John's College.

The Thirlwall Prize for 1889 has been adjudged to Edward Jenks, B.A., LL.B., Fellow of King's College, now Professor of Law at Melbourne University. This is the first time the Prize has been offered for competition. It was instituted in 1884 as a prize for the best dissertation on some historical subject involving original research.

We have to congratulate Professor Stokes on his elevation to a Baronetcy, and Professor Sir Thomas Wade on receiving the Grand Cross of St. Michael and St. George.

The first Tyrwhitt Hebrew Scholarship has not been awarded. The second Scholarship has been awarded to Mr. F. C. Burkitt, Trinity College.

The Mason Prize for Biblical Hebrew has been adjudged to Mr. F. C. Burkitt, Trinity College.

The adjudicators give notice that the subject of the essay for the Le Bas Prize of the ensuing year is, "The history and prospects of Education in India under British rule." The candidates for the prize shall be graduates of the University who are not of more than three years' standing from their first degrees when the essays are sent in. The Essays are to be sent in to the Vice-Chancellor before the end of the Lent Term, 1890, each having some motto prefixed, and accompanied by a paper sealed up, with the same motto and the words, "Le Bas Prize" on the outside, and the candidate's full name with his college, and the date of his first degree written within.

The honorary degree of Doctor of Science has been conferred upon Prof. Mendeleeff, the distinguished chemist of St. Petersburg; Doctor of Literature, upon Mr. A. W. Franks, of the British Museum; and the complete degree of M.A. upon Baron A. von Hügel, Curator of the Museum of Archæology.

Dr. Robertson Smith has been elected Professor of Arabic, and it is understood that he will shortly place his resignation of the University Librarianship in the hands of the Vice-Chancellor.

OXFORD.

Sir John Stainer, M.A., Mus.Doc., Magdalen College, formerly Organist of Magdalen College and of St. Paul's Cathedral, was on Tuesday elected Professor of Music in the place of the late Sir F. A. Gore-Ouseley.

The privileges of affiliation have been extended to the University of Calcutta, so that students from India will be admitted direct to the first public examination, and on passing that will be excused one year's residence.

The Electors to the Waynflete Professorship of Moral and Metaphysical Philosophy will shortly proceed to the election of a Professor.

The Lothian Essay has been awarded to C. R. Beazley, Scholar of Trinity College.

Mansfield College has been advanced so far towards completion that the grounds are being laid out. At present they seem to be mainly a preparation for an elaborate series of Lawn Tennis Courts, designed by an architect who was unaware that all grounds for that game must be of uniform size and shape.

The delegates of the Common University Fund have appointed Mr. Falconer Madan, sub-librarian of the Bodleian, to a Lectureship in Mediæval Palæography.

The library of the late Dr. Edersheim has been presented by his widow to Exeter College.

The thanks of the University have been voted to Lord Brassey for his munificent contributions to the Indian Institute, amounting altogether to nearly £9,000.

Mr. Mowat has been appointed curator of the Bodleian Library in succession to the late Prof. Chandler.

Prof. Rawlinson has resigned the Camden Professorship of Ancient History.

Mr. C. H. Thompson, B.A., of Queen's College, Oxford, has been appointed to a Lectureship in Higher Mathematics at St. David's College, Lampeter.

The rumour that the Master of Balliol intends to resign on the ground of ill-health, and is anxious that he should be succeeded by Lord Justice Bowen is, we understand, quite without foundation. Dr. Jowett is now restored to health, and there seems to be no reason for supposing that Lord Justice Bowen would be willing to exchange his present position for that of an Oxford Mastership.

OTHER UNIVERSITIES, &c.

The Harkness Scholarship for proficiency in Geology and Palæontology has been adjudged to Mr. T. G. Groom, B.A., Scholar of St. John's College.

The Higher Local Examination has been conducted at 20 Centres. The number of candidates was 900.

Mr. J. T. Nicholson, B.Sc., of Edinburgh, has been appointed Demonstrator in Mechanism and Applied Mechanics.

Dr. Crombie, Professor of Biblical Criticism in St. Mary's College, St. Andrews, died on June 19th, after a protracted illness.

EDUCATIONAL NOTES AND SUMMARY.

DR. ABBOTT is to be presented with a testimonial by his old City of London boys on his retirement from the head-mastership of the school. The Common Council seem to have some trouble in finding a suitable successor to Dr. Abbott. They have re-issued the advertisement, relaxing the limit of age.

THE Bishop of Chester, in the course of an address to the boys of King Henry VIII.'s School at Chester, spoke of the undoubted disadvantages boys experienced who were educated under private tuition. He also said that England was proud, and rightly proud, of her public boarding schools, and he, for one, should be utterly ungrateful if he did not render his testimony to their merits. But they had one radical defect—they were all to a very great extent unnatural. Did nature ever mean that boys should be taken away from home as early as twelve, nine, or even eight years of age, and separated altogether from the influences of home-life, and, above all, from the society of their mothers and sisters and girl companions, and put into barrack life? However good that barrack life might be, with all the admirable characteristics of these schools, with all the conscientiousness of the masters, the system had upon it indelibly the stamp of unnaturalness.

THE scheme of the Charity Commissioners for the future management of Christ's Hospital is now under the consideration of the Lords of the Judicial Committee of the Privy Council. There will be two classes of schools, the hospital schools, and the day schools. The former will be boarding schools, and the latter a science school, to be built within three miles of the Royal Exchange. The hospital schools are to take 700 boys and 350 girls, and 120 boarders in a preparatory school. The day schools will be for 600 boys and 400 girls, and until the new buildings are completed the present school is to be used. The religious instruction is to be in accordance with the doctrines of the Church of England. At least a third of the boarders are to be upon the foundation, and will pay nothing; the rest may be required to pay fees varying from £10 to £20 per annum. A certain number of free presentations may be made by the Duke of Cambridge, the Lord Mayor, and seven of the City Companies. The Council of Almoners will have 100 places on the foundation at their disposal, to be allotted to children of persons distinguished in literature, science, or art, in the Civil Service, or for services rendered to the public or to Christ's Hospital. Scholars in public elementary schools will be allowed to compete for 179 places on the foundation, certain schools having a preference. There are to be 300 free places for boys and 200 for girls in the day school, and the other pupils will pay tuition fees varying from £5 to £10 per annum; £1000 a year for boys, and £500 for girls is to be set apart for exhibitions of the yearly value of not more than £40.

THE freedom of classification allowed by the Draft Code was smartly and satisfactorily emphasised in the reply of the Vice-President to Sir John Lubbock on Article 100 (*a*) vi., in the House of Commons the other night. A large number of teachers must have already realised the fact that, under this new provision, a child may be placed in three different standards in the three subjects, at the option of the head teacher; but little or no special notice was taken of this material fact in the detailed comment and analysis which the Draft underwent for the first two or three weeks after it appeared. The paragraph in the Article runs thus:—"The examination of the scholars examined should include the three elementary subjects of reading, writing, and arithmetic, *in a standard in each subject suitable to their capacity.* As a rule the scholars examined in any subject are examined in

the classes in which they are taught." Sir John Lubbock wanted to know if it would be possible "for a scholar to be examined, say, in Standard 4 for arithmetic, Standard 5 for writing, and Standard 6 for reading; and, if so, whether the adoption of any such classification would be at the option of the schoolmaster?" and Sir William Hart Dyke pronounced that to be a correct description of the object contemplated. It would, he said, be at the discretion of the teacher to adopt such a classification or not, according to the number of scholars it might benefit. This is a license which will, in many cases, be of great advantage to teacher and pupil.

The annual meeting of the Corporation of the Royal Naval School, at which the Governing body was strongly represented, has been held at the Royal United Service Institution, when a report from the Council was submitted, containing a statement of the steps which have recently been taken to locate the school at a greater distance from London than New Cross, which the encroachment of buildings has rendered unsuitable. A mansion, with estate of about 17½ acres, has been purchased in West Chislehurst Park, and the former is being enlarged and adapted for a school. It is anticipated that all alterations will be completed during next month, and that the building will be ready for the reception of pupils at the conclusion of the Midsummer vacation. The situation is admirably fitted for its purpose, and the playing fields will be picturesque and spacious. A donation of £100 from the Duke of Edinburgh was announced, and welcomed by a cordial vote of thanks. The hope was expressed that this example would be followed by many others desirous to befriend the naval service.

Nature, in commenting on Sir H. Roscoe's New Technical Education Bill observes:—In the first place, it does nothing for girls—for instruction bearing on domestic economy can hardly be brought under any of the heads enumerated in Clause 2. Till the Government amendments are put on paper, it is hard to give an opinion as to the future chances of the measure. It would, of course, be out of the question to try to revive the clause of the last Government Bill compelling School Boards either to abstain from providing technical instruction altogether, or to make the same provision for Voluntary schools as for schools under their own management. It ought not, however, to be difficult to arrange a satisfactory compromise, and so remove what is undoubtedly a defect in the present measure as it stands, viz., the absence of any provision for the large majority of children who are educated in denominational schools. It would, indeed (adds *Nature*), be pitiable if the settlement of the question were again postponed owing to the endless difficulty of the relation between Board and Voluntary schools. After all, it should be remembered that by far the most important part of technical instruction necessarily falls within the realm of secondary, not of elementary education. The ground may be prepared in the primary school, but that is nearly all. In our opinion, therefore, the most important clauses of the Bill are those dealing with non-elementary schools, and at all costs these must be preserved, and, if possible, extended; for, as we read the Bill, it is doubtful whether they give the local authority the requisite powers to build new technical schools.

Nature also comments on the Bill for Intermediate Education in Wales. On the whole (says *Nature*), the Bill is a most important step in advance, leading, as we may hope, ultimately to the organisation and supervision of Secondary Schools throughout the kingdom. All interested in the advance of scientific and technical teaching know how higher institutions are crippled by want of better teaching in Secondary Schools. The teachers in Technical Schools and Higher Colleges in England constantly complain of the want of preparation of those who come to their institutions from private schools. In Wales much of the work which the University Colleges are now compelled to do ought to be done in Intermediate Schools. We hail the fact that the Bill was read a second time as a sign that the public are waking up to the very great importance of this side of the educational problem.

The Bavarian bishops have addressed a memorial to the Prince Regent embodying their demands, which are based on an old Concordat of 1817. They ask: 1. That the Universities, which they stigmatise as being anti-religious in their present state, be brought again under the influence of the Church. 2. That all professors in theology and teachers of religion in the middle schools be appointed after approval by the bishops. 3. That no one shall be allowed to hold the post of teacher in a school who is a freemason, or who is known to have anti-clerical views. 4. That the middle schools be made more confessional in character. 5. That the school mass be reintroduced. 6. That none but clergy of approved orthodoxy be placed at the head of the training colleges. 7. That the Redemptorists, the Jesuits, etc., be allowed to return. 8. That all students at the seminaries be exempted from military service.

M. Jules Simon and others have sent the following letter to the "Directors of the Schools and Universities of England and America:"—

"During the Exhibition of 1889, in the month of June, a Congress will be held in Paris for studying the aims and advantages of athletic sports and games, and their physical, moral, and social effects on education. We greatly hope that you will be able to attend the Congress, and give us, on this most important question, such information as your experience in educational matters will suggest. At all events, we hope you will be kind enough to write and send us an answer to the following questions:—1. What are the games played in your school or university? (If local games, please to give the chief rules.) 2. How many hours do the boys play a day?—a week? 3. What about riding, gymnastics, fencing, military drill, rowing, bicycling? 4. Are the boys allowed to form sporting associations? 5. Have they a debating society, and of what kind? 6. Do you believe in athletic games improving companionship, morality, temper, work? 7. What are the subscriptions, extra fees . . . paid for the games and sports? *Nota.*—Detailed accounts, books, pamphlets, school-papers will be received with gratitude. All information to be sent to M. Pierre de Coubertin, 20, Rue Oudinot, Paris."

Sir John Stainer has been elected Professor of Music at ~~Cambridge~~ University. Professor Stainer was born in London in 1840, and entered St. Paul's Cathedral as a choir boy seven years later. He was an organist in a City church at thirteen, but from 1856 till 1872, when he was nominated organist at St. Paul's his life was spent in the University town, where he was conductor and organist at Magdalen and Exeter Colleges and organist to the University. On his retirement from St. Paul's last year, Dr. Stainer was knighted. He retained his post as Examiner in Music of Training Colleges under the Educational Department, but otherwise his life has since been spent at Oxford.

Education is compulsory in nearly every European country. Holland and Belgium are exceptions. In Italy it is compulsory only between the ages of eight and nine years; in Bavaria and France between the ages of six and thirteen; in Hungary between six and twelve; in Prussia it begins at five; in Sweden, Neuchatel, Vaud, Wurtemberg, it begins at seven, and in Norway at eight.

"The American Mr. Knowles, has," says the *St. James's Gazette*, "collected the opinions of eighteen educational authorities—nine presidents of universities, one ex-president, five university professors, two chancellors, and the late Commissioner of Education, the Hon. John Eaton. With an agreement, which grows as tedious as a Gregorian chant, these eighteen writers, all save one, state their conviction that competitive examinations are an evil; an unmixed evil, according to the majority; an evil that must be carefully watched and checked, lest it spread and fester, according to the few who are not prepared to extirpate it root and branch. Doubtless something must be discounted for the one-sided document which prompted these utterances. Insensibly these principals and professors may have taken their cue from the *Nineteenth Century*, and fondly believed, like the editor, that the protest represented 'the brightest and best minds of England.' Still, after full allowance has been made for this prejudice, the fact remains that professional opinion in America is strongly opposed to competitive examinations. How strongly the main current of opinion in England sets the other way, in spite of temporary eddies and fluctuations, a single example will show. In pursuance of a resolution passed at the last headmasters' conference on Dr. Warre's motion, the committee have within the last week issued an interrogatory to headmasters, with this preamble:—'Assuming the obvious advantages which have resulted from the system of competitive examinations, have you felt any practical evils?' American professors and English headmasters evidently move in different planes."

We hear that the Russification of the German educational establishments in the Baltic Provinces, which we mentioned in

this Journal some time ago, goes on apace. The University of Dorpat, in particular, is suffering in this respect. Recently the Czar specially sanctioned the Russianizing of the Faculty of Law, within the next few years, and now it is intended to transfer the Theological Faculty from that seat of learning and enlightenment to Moscow or St. Petersburg, in order to deprive it entirely of its "German Protestant" character. German culture evidently seems a dangerous element in the eyes of the Russian Government.

THE Scotch Universities Bill has passed a second reading in the House of Commons, and is, as we write, being considered in Committee. There are a large number of amendments to be moved, Mr. Hunter, Mr. Bryce, and Sir Lyon Playfair contributing the more important ones. There seems to be no disposition on the part of any group of Scotch Members to do other than improve the Bill, and there is every reason to expect that it will become law this session. There is unanimity on one point, at least, in reference to the measure, and that is the desirability of securing an increased endowment for the Universities from the Imperial Exchequer. The Scotch Members have, in fact, presented a memorial to the Chancellor of the Exchequer praying that a material addition may be made in the grant to the Scotch Universities. It is conjectured that the Government will so far accede to the prayer of the memorial as to raise the grant from £42,000, its present amount, to £50,000.

THE South London Polytechnic Institutes' Committee has been so far successful in raising funds, that the three Institutes proposed to be established are now secured, whilst a sum of £55,000 is still needed to complete the scheme. An anonymous gift of £20,000, and an endowment of £1,500 a year have been offered for the Battersea Institute, on condition that a further sum of £40,000 is raised, and an additional endowment of £1,000 a year provided. The measure of success already achieved reflects very great credit on the gentlemen who have worked on the committee. We regret to note that there seems far less activity on the north of the Thames to secure the grants promised by the Charity Commissioners, than on the south. Of course the necessary consequence of this dilatoriness must follow; the Institutes from which so many advantages are to be reaped cannot be brought into existence.

THOSE who anticipated that there would be little difficulty in getting various bodies, such as the Inns of Court, to come into their scheme of a reorganised London University, will feel much disappointed when they read the evidence of the witnesses who appeared before the Commission. Sir Henry James, for example, said that he had considered the question of affording greater opportunities for education to legal students mainly in connexion with what the Inns of Court themselves could do.

"My immediate colleagues," he added, "at the Middle Temple, I know are very conservative, and, I think, that the same feeling pervades the benches of the other Inns of Court too. I doubt wherther they would be disposed to act with bodies other than themselves; so far as I can guage their opinions, I think that there would be great jealousy of any other body acting than the Inns of Court. The direction in which I have rather considered the matter is, whether the Inns of Court acting together as so many Colleges united in one University, could not and ought not to do a great deal more for legal education than has hitherto been done. The Inns of Court have a very large gross income, and their net income might be greater than it is at the present moment; they would have ample funds for the endowment and maintenance of a University; and I can see no reason why they should not take upon themselves the burden of that education."

The evidence of this witness disclosed no sympathy or even knowledge of what educationists want when they ask for a teaching University. His idea is that the Inns of Court might do better by reviving the old functions of the Inns than by joining any new institution whatever.

"I presume," he said, "that in former times the education given by the Inns of Court was much more extensive than that which exists now. No doubt the education given by the Inns of Court was formerly of a general character, and I believe that historically even down to teaching dancing it used to extend."

In fact, we think from the rest of this witness's evidence his belief is, that the Inns of Court should promote legal education far more thoroughly than they now do; and, also, should afford opportunities for general education. The development of this idea would entirely exclude the possibility of the Inns forming the nucleus of a great law faculty in a teaching London University.

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THE EDUCATIONAL TIMES.

LONDON, JULY 1, 1889.

If any of our readers have expected that the "University for London Commission" would propound some heroic solution of the questions referred to it, they will be greatly disappointed with its Report. Exalted expectations, however, were scarcely justified by the nature of the case; for, unless the Commissioners had left things as they are, which would have been tantamount to doing nothing at all, only two courses were open to them—to recommend either the formation of a second University out of the London Colleges, or the union of these Colleges with the existing University; and, in following either course, it was certain that they would go mainly upon the lines already laid down by one or another of the parties interested in the University movement.

On the principle of least disturbance, and for reasons that will be respectfully appreciated, they pronounce for the union; and, as will be seen in our "University Intelligence," they take as the basis of their scheme for effecting that union the original proposals of the Association for promoting a Teaching University, which were afterwards adopted, with very slight modification, by an influential committee of the Convocation of London Graduates. This scheme, apparently, lands us in the situation of four or five years ago; but, in reality, being now backed up by the authoritative conclusions of the Commission, it places us at the parting of the ways; for the authorities of the present University are to be allowed a reasonable time to consider whether they will accept the scheme or not; and, if they reject it, the Commission will no doubt be armed with powers for determining how a second University may best be constituted.

We, for our part, have some reason to be gratified with the leading decisions of the Commission, harmonizing, as they do, with the views expressed from time to time in this journal* (we may mention, in particular, the summary rejection of the application of the medical Colleges for the power to grant degrees in their own faculty, and the adoption of the proposal to give to these and the other Colleges direct representation upon the Senate). But the march of events, and the present relations of the parties, compel us to share to some extent in the misgivings of the three semi-dissentient Commissioners who sign the postscript to the Report, and to look upon the scheme as one to be accepted rather in hope than in confidence that it will succeed. For, not to mention other points, the divergence between the University and the Colleges is much wider now than it was two or three years ago; on the one hand, it was the Senate that dropped from its scheme of reorganisation the provision for direct representation of the leading Colleges upon its own body; on the other

* See especially our numbers for July, 1887, and February, 1888.

hand, the Colleges, without waiting to learn whether or not this action of the Senate was final, struck with some vehemence for a University charter of their own, and appear to have set their minds on obtaining it; hence there is some danger lest union under pressure of a Commission may be felt to be too much like a forced reconciliation to allow of cordial co-operation in working the somewhat cumbrous machinery, with its ample opportunities for friction, contemplated by the Report.

But wisdom and moderation have not yet fled from the earth; and the need for these qualities will become still more urgent when the suggestions of the Commissioners for reducing the difficulty of the examinations, and for the exemption of collegiate students from certain of them, come to be discussed. We are by no means convinced of the absolute necessity of either measure; although, without exemptions from Matriculation at least, it may be difficult, if not impossible, to appease the Colleges. As to making the examinations easier, the bare mention of such a thing in Convocation would probably raise a storm that would endanger any scheme. With the extreme views of some graduates, however, who seem prepared to resist any modification of the University's examinations, we have very little sympathy. We regard it as one of the evils of our time that teaching and study have so often—although sometimes unavoidably—to follow the lines of one examination-system or another. For the solitary or non-collegiate student it is an advantage, or, at any rate, better than nothing, that an examining body should offer, as the University of London does, a rigid curriculum, and bid him prepare just such and so much knowledge. But, in our opinion, wherever possible—and in a Teaching University it will be essential—examinations should follow the lines of the teaching, except when and where the examining body has reason to believe the latter to be defective. By this natural adjustment, a system of examinations, without being of necessity intrinsically easier than a system independent of the teaching, becomes relatively so to the collegiate student, and, at the same time, tends to remove the reasons for his exemption from any of them. It is only in this sense that a modification of the examinations of the University would appear to us unobjectionable, or even advantageous; and this, to the non-collegiate student also, as bringing him, as nearly as his circumstances allow, into the position of the collegiate student with whom he ventures to compete.

With these remarks we dismiss for the present this valuable Report; we will only add that any reader interested in its subject cannot better invest threepence than in procuring a copy from the Queen's printers.

The memorandum recently issued from the India office, on some of the results of Indian administration during the past thirty years, contains striking evidence of the educational progress of British India during this period. The year 1858 begins a new epoch in Indian administration. It was in that year that the transfer of the Government of India from the East India Company to the Crown took place; but it is the year 1854 that marks the true starting point for a review of the educational system now in operation in India. The educational policy dictated by Sir Charles Wood's famous dispatch of that year is the policy which has ever since been pursued. It had begun to take effect when Her Majesty assumed the Government, in 1858. Three universities had been established in 1857, but they then attracted only a few undergraduates. In the larger provinces education departments had been formed, and a system of awarding grants in aid of the schools had been begun.

From the very incomplete educational statistics of 1858 that exist, it appears that there were then about 13 colleges, whilst the number of scholars in schools of all grades known to the Educational Department was about 400,000.

The year 1865 is the earliest for which complete statistics are available, and the comparison of the figures of that year with a recent year will afford a good illustration of the progress that has been achieved in the interval. There were, in 1865, 26 colleges and college departments, with 1,582 undergraduate students. In 1886, the number of colleges and college departments had risen to 110, and the number of undergraduates had increased to 10,538. In 1865, the number of schools of all grades was 19,201, with 619,260 scholars. In 1886, the number of schools had increased to 122,257, with 3,314,542 scholars.

In every province, also, normal schools have been established for the training of men and women teachers, and a staff of inspectors visit and examine all schools on the departmental lists. The proportion of children passing in the several standards continues to increase. Equally satisfactory is the progress attained in secondary schools. In 1886, there were 404,000 boys and 25,000 girls in attendance at such schools. The great disparity in the number of girls is to be attributed to the unhappy social economy which assigns to the Indian woman a position for the due performance of which education is not supposed to be a necessity. Influences are, however, at work which must in no long time greatly increase the number of educated native women.

A career of great promise and usefulness appears to be opening out for them through the agency of an excellent association, founded by the Marchioness of Dufferin, during the viceroyalty of her husband, which is now employing women doctors for work in women's hospitals and in Indian homes, and is imparting the necessary knowledge of medicine, surgery, and nursing to Indian women, to qualify them to undertake such work. The necessity and advantages of education will be brought home to the native mind by the beneficent work of this association in a way that cannot fail to induce Indians of all classes—inveterate prejudices and customs notwithstanding—to participate with greater eagerness than they have hitherto done in the means open to them for the education of their girls.

In reference to what may be called Technical Education, using that term in its widest sense, medical colleges and schools furnish annually a limited number of graduates, and a larger number of certificated practitioners who do duty in the hospitals and dispensaries, or serve in the Army medical department, or find lucrative careers in private practice. Engineering and other technical schools and classes have increased, while a large number of apprentices obtain technical training of the best kind at the workshops attached to the railway lines.

Law is, however, the most popular of the professions with the educated natives, and consequently attracts a larger number of students than any other. There are not a few experienced Anglo-Indian administrators who view with misgiving this

crowding into the legal profession, whilst they are ready to admit that the present generation of trained native lawyers have done much to improve the administration of justice. This drawback to educational progress is but one branch of the difficulty felt not only in India but here, and, indeed, in all countries where the means of education are widespread and efficient. The primary schools, the secondary schools, and the universities in all such countries produce annually a greater number of educated men than can find a livelihood in the public service, or the learned professions, or employment on the newspapers, or in other literary work. And so, undoubtedly, the tendency is to form by increased annual increments a class of discontented, unproductive, educated men. Such a class would be an element of danger in India, and vastly increase the anxieties and difficulties of its rulers. The remedy we are applying here for a similar condition of things is that which the Indian Educational Departments have also adopted, viz., the promotion of the study of science and the extension of technical and art education, so as to fit men to be successful in commerce, in engineering, in handicrafts, or in agriculture.

Whatever may be the outcome of all these our efforts in India, we should unceasingly strive to entitle the Government of the Crown to claim, as the Court of Directors of the East India Company did in 1858, "that their government had been not only one of the purest in intention, but one of the most beneficent in act ever known among mankind."

The subject touched upon by the Bishop of Chester in the course of an address to the boys of King Henry VIII.'s School, at Chester, on the occasion of a recent prize distribution, is one of perennial educational interest. Parents, even more than educationists, are concerned in finding the right answer to the question, Which is the better course—to educate young boys in public boarding-schools, or at home under private tuition? We cannot say that the remarks of the Bishop, as given in the very short newspaper paragraph we have seen, carry us very far towards discovering any rule which might govern the conduct of parents in this most momentous matter. He spoke of the undoubted disadvantages boys experienced who were educated under private tuition. He said England was proud, and rightly proud, of her public boarding-schools; but then, he added, they had one radical defect, they were all to a very great extent unnatural. Did nature, he asked, ever mean that boys should be taken away from home as early as twelve, nine, or even eight years of age, and separated altogether from the influences of home life and, above all, from the society of their mothers and sisters and girl companions, and put into barrack life which, however good that barrack life might be, and with all the admirable characteristics of these schools, with all the conscientiousness of the masters, had upon it indelibly the stamp of unnaturalness.

Let us at once admit that the custom of sending boys from home as early as twelve, nine, or even eight years of age, is "unnatural" in the obvious and familiar sense of that word; but, then, having in mind what the education of an average English boy in this age must be to fit him to discharge the duties of after life effectively and worthily, it is not at all possible to admit so readily that the practice which the Bishop of Chester says bears the stamp of unnaturalness is "unnatural" in the sense of being "disproportionate to nature," the sense which a great Anglican bishop called the "strictest and most proper sense" of the word when applied to human conduct. The illustration that Bishop Butler in his second sermon "Upon Human Nature" gives of this meaning of "unnatural" is in itself a striking one, and pertinent to the matter in hand:—

"Man," he says, "may act according to that principle or inclination which for the present happens to be strongest, and yet act in a way disproportionate to, and violate, his real proper nature. Suppose a brute creature, by any bait, to be allured into a snare, by which he is destroyed: he plainly followed the bent of his nature, leading him to gratify his appetite; there is an entire correspondence between his whole nature and such an action; such action is therefore natural. But suppose a man, foreseeing the same danger of certain ruin, should rush into it for the sake of a present gratification: he in this instance would follow his strongest desire as did the brute creature; but there would be as manifest a disproportion between the nature of man and such an action as between the meanest work of art and the skill of the greatest master in that art; which disproportion arises, not from considering the action singly in *itself*, or in its *consequences*, but from *comparison* of it with the nature of the agent. And, since such an action is utterly disproportionate to the nature of man, it is in the strictest and most proper sense unnatural; this word expressing that disproportion."

Parental affection, then, may gratify itself by keeping boys under the home influences of which the Bishop of Chester speaks, and yet be "unnatural" in that deeper and truer sense of the word which Bishop Butler expounds.

One important aim of education is to prepare a boy for the business of life, to enable him to gain a livelihood, and to make his way in the world as it now is, in all its severe reality. So much else depends on the fair realisation of this all-important aim of education, that all parents capable of giving precedence to what makes for the future welfare of their children over present inclinations must act according to the best judgment they can form on the question whether home influences and a day-school or private tuition, or the comparative hardships and privations of a boarding-school, will be the better preparation for the sphere in life which their sons, so far as they can foresee, are to fill. It may be said that the boarding-school is a miniature world in which the weaknesses of boys stand revealed while there is yet time to apply correctives; that the like weaknesses are apt to be obscured at home, and therefore go uncorrected. It is certain that boys kept at home till they are well on in their teens, and then sent to a boarding-school, find it very awkward to fall in with the sort of life they experience there, and not uncommonly fall into all sorts of trouble. Then, too, there are home influences and home influences. Not every man can look back to his childhood and say, with the Emperor Marcus Aurelius, "To the gods I am indebted for having good grandfathers, good parents, a good sister, good teachers, good associates, good kinsmen and friends—nearly everything good." In fact, the problem of education has to take account of the defects of parents and the retarding effect of home influences, as well as the moral injury likely to be inflicted on boys by subjecting them to what the Bishop of Chester calls the "barrack" life of a large boarding-school.

It is natural that men who follow the profession of schoolmaster, and who have gained experience in the practice of that profession, should on the whole be in a better position for securing the ends of education when they can carry out their methods by means under their own control, than when those methods are apt to be traversed by parental interference, as in the case of private tuition. This is true of the average teacher, but who can measure the gain to a boy

brought within the influence of a school which is governed by an Arnold or a Thring—men with that rare gift, the power of distinguishing the lines of thought and conduct which are ennobling to mind and character, accompanied by the still rarer power of imparting to the young a life-long stimulus to seek what is true and excellent themselves!

The Bill for the Prevention of Cruelty to Children is now passing through Committee, and is receiving the close attention which a measure so important, and at the same time so full of points quite novel to English law, should receive. It is now evident that the expectation of its promoters that it would pass through Committee with little opposition will not be realised. Four hours were given to it last week and five this week, and the Committee have only just reached the fourth clause. With the clauses passed we entirely agree; their effect will be to check child-vagrancy, and will tend to remove children from the demoralising influence of the streets. The restriction of the hours during which children may be employed in hawking small wares is also good. We cannot say, however, that the danger that some of the provisions will be so general and vague as to possibly include school work and discipline has entirely disappeared. Hence we counsel the continuation to the end of the chapter of the watchfulness which has already amended the first three clauses.

REVIEWS, NOTICES, &c.

Grundriss der germanischen Philologie. Herausgegeben von Hermann Paul. I. Lieferung. (Strassburg: K. J. Trübner.)

Brought up on the sweetmeats of Archbishop Trench and Max Müller, the British public expects philological work to be presented to it in a form requiring no effort to assimilate; classical scholars are still capable of thinking that *Whitsun* is derived from *Pfingsten*, or that Latin and Greek as languages are intimately allied.

Our grammars are full of "exceptions"; but, strange as it may seem, the days of exceptions are over. Science has annexed the study of language; parallel to the change that came over chemistry through the labours of Cavendish and Lavoisier at the end of the last century, the time since 1868 has witnessed the rise of philology into an exact science, with fixed principles and a fixed method. This great change has been largely brought about in Germany by a small band, called the "Young Grammarians"; they have had a stormy fight, but their most determined opponents have been compelled to copy their methods. A clear summary of the results won so far has long been a desideratum; the want will be fully satisfied by the work, of which the first part lies before us.

Since the war, an agreeable change has come over the method of writing German books; instead of loading the unfortunate reader with a mass of worthless bibliographical and other details till he almost feels as if he were labelled "Intellectual rubbish shot here," the material is carefully sifted, the best only is presented, with a short characteristic summary, and the work is shared among a group of scholars, each treating his own speciality,

The editor, a professor at Freiburg, is a leading member of the "Young Grammarians"; his chief labours have been directed towards method; they are summed up in his great work, translated recently as *The Principles of Language*. In it the rich mass of isolated facts and details, furnished by the comparative and historic method of investigation, are brought into line with the psychologic bases on which all language must rest.

The *Grundriss* opens with a short article on the meaning of the term *philology*, a favourite point of discussion among the Germans just at present. The famous definition of philology as "The knowledge of what is known," includes too much, and indeed any attempt to sharply limit the meaning must fail, since a word cannot be recalled to scientific strictness after it has once passed into common use, with a shifting sense due to historic development. According to its derivation, philology means the investigation, of literary monuments; in England we have narrowed this still further down to the study of the accidence of the language in which the monuments are composed.

A splendid example of the proverbial thoroughness of German work is shown by the editor in the next section. *The History of Germanic Philology* lays Germany, Scandinavia, England, Holland under contribution.

At the beginning of the seventeenth century some remarkable theories, anticipating in a striking way the labours of Grimm were published by Lambert ten Kate. Like the most modern philologist ten Kate saw rule and order everywhere in language; he found that the "irregular verbs" were most regular, and by his further labours gave for the first time a scientific turn to etymology.

The next great change came through the discovery of Sanskrit. It is now exactly a hundred years ago that Sir William Jones introduced Kalidasa's drama of *Sakuntala* to Europe; had Sanskrit been a new "line" in business we should probably have worked it, but it was only intellectual, so we left it to the Germans. The Englishman Hamilton taught A. W. Schlegel Persian and Sanskrit, in Paris. With the help of his new material, Schlegel divided all languages into inflected and uninflected.

In the former the inflexions, instead of being made by composition, grew in some mysterious manner from the root; this false view still lives in our grammars, through Grimm's division of the verbs and nouns into "strong" and "weak." The way in which his contemporaries acted on Grimm and modified his opinions is excellently shown. Great men, said Emerson, draw a circle around their contemporaries; Grimm's circle lasted for close on half a century. Since our readers know something of this period we will hasten on to the year of division, 1868.

The famous chapter in Grimm's Grammar showing the correspondences of the words in the various Arian languages is headed "On the letters": we should now say "sounds." Without a knowledge of phonetics a deep insight into the nature of language is impossible. Instead of a capricious change of letters, we find a regular development determined by the physiological formation of the human organs of speech. A great advance was made by A. M. Bell in his *Visible Speech* (1867).

We may analyse sounds from the point of view of the speaker or of the hearer; we may make it physiological or acoustic.

The former method was selected by Bell and led to a perfectly new arrangement of the vowels; his views have been adopted and adapted by A. J. Ellis and Henry Sweet. Mainly through the latter a vigorous school of phoneticians has sprung up in Sweden. Sievers introduced his results to Germany, but the influence of Brücke whose analysis was acoustic has caused a lively expression of opposing views.

In 1868 W. Scherer published an important book *On the History of the German Language;* an attempt was made to apply Brücke's phonetics to the problems of Arian philology, while analogy was employed as a principle. Another point of the highest importance was the weight laid on the value of dialects. Ellis in England and Ascoli in Italy, were working independently along the same lines; in a dialect the specific laws of language suffer least perturbation, and their action can be most clearly seen there. The written language is a mixture of various dialects, with portions belonging to different ages; from the purely scientific view it is less beautiful and less valuable.

Everything pointed to a stricter observance of the laws of phonetic change, and at last in 1876 Leskien made the famous declaration that these laws suffer no exception. Why have we a right to say, for example, that the Greek *theos* cannot be the Latin *deus?* *Th* becomes *d*, as in English *death*, and German *Tod?* In Germanic, yes, but not in Latin.

The initial *dh* of Arian is represented in Greek by *th*, in English by *d*, but in Latin by *f*. Compare *ther*, *deer*, and *ferus*; *door* and *forum*: *tithemi*, *facio*, *do*.

A brilliant confirmation of the regularity of the changes of sound was made in 1877, by Karl Verner. At the beginning of a word Arian *p*, *t*, *k* are represented in Gothic by *f*, *th*, and *h*; but in the body of the word we have at one time *f*, *th*, and *h*, at another *b*, *d*, and *g*. The latter change was shown to take place only when the chief accent of the word was not on the vowel immediately preceding.

Again, our *horn*, *kin* are cognate with the Latin *cornu*, *genus*, but for *quattuor* we have the Gothic *fidvor*, our *four*; *vivus* corresponds to *qius* preserved in our *quick*. These changes were shown by Ascoli to be due to two different *k*'s in the Arian language—one *k* pronounced in the front of the mouth, and the

other *k* further back and accompanied by a *w* movement of the lips.

So far we have been concerned only with the consonants. Mainly through the labours of K. Brugmann, the vowels have been shown to be just as regular in their changes. Sanskrit has a peculiar fondness for *a*, the corresponding words in Greek and Latin, showing *e* and *o*; Bopp, apparently quite safe in taking Sanskrit as the oldest known Arian dialect, assumed *a* for the primitive language, and an elaborate scheme of "strengthened" and "weakened" vowels was gradually drawn up to explain the Germanic ablaut; no reason was given for the changes. When, however, we give full weight to the effect of accent we see that the weakening of the vowels is due to their being in an unaccented syllable; compare in English *am—m*, *not—nt*, *day—Monday* (*múndi*). By this means we have a sure criterion for allied forms; the vowels must belong to a certain series and to none other. Our *shire* cannot belong to *shear* because of the *i*.

We now ascribe the vowels *a*, *e*, *i*, *o*, *u* to the parent language; the primitive condition of affairs is best preserved in Greek, but when once we have a few phonetic equations we can plainly see the beautiful and regular formation of our "irregular verbs."

If, however, the sounds were unchecked in their changes, grandfather and grandchildren might not understand one another; the restraining force is analogy. The mind unconsciously forms categories of sound, of inflexion, of syntax, and these afford a conservative base on which new material is modelled.

These then are the two fundamental factors in the history of language; changes of sound rigorously determined by physical necessities and analogy. Whatever seems to contradict needs a fuller investigation. We hope in a future number to consider more in detail the remaining chapters on Method and the Runes.

A History of the Study of Mathematics at Cambridge. By W. W Rouse Ball. (Cambridge University Press.)

This is a book of pleasant and useful reading for both historians. and mathematicians. Mr. Ball's previous researches into this kind of history have already established his reputation as a mathematical antiquarian, and the book before us is worthy of the reputation of its author. It is more than a detailed account of the rise and progress of mathematics, for it involves a very exact history of the University of Cambridge from its foundation. The first seven chapters are devoted to an enumeration of eminent Cambridge mathematicians arranged chronologically. The introductory paragraphs of the chapters describe accurately the general characteristics of the period, and very full foot-notes give the authorities for the facts. Chapter I., on mediæval mathematics, begins with the end of the twelfth century, and ends with the year 1535. The young student of that time came to Cambridge at about twelve, under the charge of a "fetcher," or "bringer of scholars." On his arrival he was handed over to a Master of Arts, who kept a preparatory boarding-house. After some little preparation he entered on a four years' course of study of the subjects of the trivium (Latin grammar, logic, and rhetoric). He then ceased to be a school-boy, and received the title of bachelor (*i.e.*, undergraduate). He was required as a bachelor to spend three years in the study of the quadrivium, comprising mathematics and sciences. The technical term for a student on presentation for the bachelor's degree is still *juvenis*, and the word *vir* is reserved for those who are, at least, full bachelors.

The University, in its corporate capacity, did not concern itself much about its younger members. "Times were rough, and life was hard, and if a student, more or less, died, or otherwise came to grief, no one cared about it, so that a student who got into a bad hostel was in sorry straits." There were, however, in the thirteenth century about a dozen preparatory schools, called glomeral schools, under the supervision of a member of the University known as the *magister glomeriæ*. The "glomerals," under him, held the degree of "master of grammar," which served as a license to teach. It is amusing to note the regulations for the test in practice for this degree; it was a test in the art of flogging. "Then shall the Bedell purvay for every master in grammar a shrewd boy, whom the master in grammar shall beat openly in the grammar schools, and the master in grammar shall give the boy a groat for his labour and another groat to him that provideth the rod." The new master took a solemn oath that he would never teach Latin out of an indecent book, and he was then free to exercise his profession. These glomerals had to yield precedence to bachelors, and there were express statutes that the University should not attend the funeral of one of them.

The course of a student in the fifteenth and sixteenth centuries is sketched in detail from the *statuta antiqua* of the University, and we are able to follow him through his lectures, his "acts" as a "sophist," and his admittance as an incepting bachelor. The official account of the last ceremony is as follows:—On a day shortly before Ash Wednesday, about nine o'clock in the morning, the Bedells, each carrying his silver staff of office, "shall go to the College House, Hall or Hostel where the Questionists be, and at their entry into the said house shall call and give warning in the midst of the Court with these words, '*Alons, alons, goe masters goe*,' and then toll, or cause to be tolled, the bell of the house to gather the Masters, Bachelors, Scholars, and Questionists together. And all the company in their habits and hoods being assembled, the Bedells shall go before the junior Questionist, and so all the rest in their order unto the common schools." The Father is there to propound his questions, the eldest answering first. Then the Bedell took them home in the same order and at the school-door, say the regulations, "the Questionists shall turn them to the Father and the company and give them thanks for coming with them." The regulations add, that, "if the Father shall ask too hard questions or entrap his children into an argument the Bedell shall knock him out," by which was meant knocking at the door so loudly that nothing but his knocking could be heard.

Mr. Ball enables us to continue the picture in this realistic manner through the studies, disputations, and ceremonies of the remaining portion of the seven years, at the end of which, the degree of master was conferred on the second Tuesday in July. On the previous evening certain exercises of inception, known as "Vespers," were performed in the Schools. "The students—by immemorial custom—were permitted to seize the new inceptor as he came out, and whether he liked it or not—and the extant references shew that he usually did not—shave him in preparation for the morrow."

They took time in the making of men in those days, and the whole course of a scholar's education extended over a period of nearly twenty years. The genuine student generally proceeded to the doctor's degree in civil law, canon law, medicine, or theology; and in most colleges it was obligatory on a fellow to do so. No one could obtain the doctorate in any subject who did not really know it as it was then understood. These courses took from eight to ten years.

The first serious attempt to reorganise the studies of the University was embodied in the Edwardian Code of 1549. Mr. Ball fully and fairly describes and discusses these codes, and the Elizabethan statutes which followed. He sketches the rise of the Newtonian School, the later Newtonian School, and the modern Analytical School. He gives us excellent pictures of the tutors and professors of the eighteenth century; and of the rise of the "pupil-monger" or private tutor. The last chapters treat of the exercises in the schools, the mathematical tripos, and a most interesting résumé of the history of the university. There are a few slight inaccuracies and inelegances which may be easily corrected in the second edition. Of the latter we may, in conclusion, quote the following. "The year at which I stop is the first of the Victorian statutes; and is a well-defined date at which I may close this history."

A Century of Continental History: 1780—1880. *By J. H. Rose, M.A. (Mr. Edward Stanford.)*—The primary idea of this book, as Mr. Rose tells us in his preface, is to provide, by means of a connected narrative of continental history during the last hundred years, just that kind of help which many readers of the daily newspapers constantly need, and yet cannot easily get in a handy form. He hopes that it may also prove of use to the upper forms of schools—a hope which we sincerely echo, though we cannot at this moment recollect many schools which are alive to the importance of anything outside the usual meagre allowance of English history. The general plan which Mr. Rose has adopted seems to us a good one. He begins with the French Revolution; leads us forward into the wars of France, and so introduces us to the rest of Europe; describes the break-up of the continental system during the French Empire; relates the overthrow of Napoleon, and so brings us to the most important part of the narrative, the reconstruction of modern Europe. This last theme occupies the greater part of the book, and seems to us to be handled satisfactorily. Indeed, all the book produces a feeling of satisfaction; but we have not felt ourselves roused to any feeling stronger than this, as we rapidly ran through the chapters. Naturally enough, we have towards the end a brief account of the Eastern Question; and the lesser powers,

which, of course, drop into the back-ground in the general narrative, get the last chapter entirely to themselves. Books of this kind do not readily lend themselves to criticism. They are not meant to be models of style, or to broach new ideas. They are intended to be useful. They should be accurate, up to date, and clearly and pleasantly written. In these respects, the book before us is, as we have said, very satisfactory—and, in particular, it is quite free from the tawdry, flippant, and would-be wise style of writing, which some people think the only language fitted for the readers of newspapers. It is clearly printed, neatly bound, contains about 400 pages crown octavo, and (wonder of wonders in an English book!) it actually has some sixteen pages of index.

The Uses and Triumphs of Mathematics. By V. E. Johnson, B.A. (Griffith, Farran, Okeden, and Welsh.)—This essay is an attempt to set forth the beauties and attractions of Mathematics in a popular manner, and in the language of every-day life. The nine chapters treat in succession of the uses, triumphs, limits, beauty, poetry, attractions, metaphysics, &c., of Mathematics. The preface opens with a dialogue: "Ethel, did Mr. A. say he intended to bring a friend with him this evening." "Yes mamma, a mathematician." "Oh dear!" replied the mother, "what a wet blanket he will be." After this introduction the author sets to work to combat the notion that a mathematician is necessarily unsociable, unpoetical, calculating, and without faith in anything which will not admit of a rigid demonstration. He aims at "creating a desire for the study of Mathematics, by showing its intimate and important connection with science, and that it is a subject possessed of a beauty and attraction entirely its own." The work is made up chiefly of very general statements in favour of Mathematics, and we much question whether the author will succeed in his aim by a laudation so general and vague. The nature of the work may be fairly shown by the following typical quotations:—

"So great is the power (*i.e.*, that of the Infinitesimal Analysis) that once having seized on a wandering planet it never relaxes its hold; no matter how complicated its movements, how various the influences to which it may be subjected, how numerous its revolutions, no escape is possible."

"These and other triumphs in every department of science 'have carried us to sublime generalisations,' have affected an imaginative race like poetic inspirations. They have taught us to tread familiarly on giddy heights of thought, and to wont ourselves to daring conjectures.

"'Man,' said Jules Sandeau, 'has been called the plaything of chance, but there is no logic more close or inflexible than that of human life, all is entwined together, and for him who is able to disentangle the premises and patiently wait the conclusion, it is the most correct of syllogisms.

"'Presented rightly to the mind,' says Professor Tyndall, 'the discoveries and generalisations of modern science constitute a poem more sublime than has ever yet addressed the human imagination. The natural philosopher of to-day may dwell amid conceptions which beggar those of Milton. Look at the integrated energies of our world,—the stored power of our coal-fields, our winds and rivers, our fleets, armies, and guns. What are they? They are all generated by a portion of the sun's energy, which does not amount to $\frac{1}{2,300,000,000}$ of the whole."

This is not the teaching of Mathematics, but it must be admitted that the author gives a striking account of the discovery of the missing Asteroid Ceres, and of the planet Neptune, and in the last chapter he rejects the notion of four dimensional space on the ground that it is not possible to conceive a line or direction at one and the same time perpendicular to the sides of a rectangular box, and yet only in one direction. "If this is possible," says the author, "then the whole of Euclid falls to the ground, science becomes of no value, and Chaos is once more triumphant in the world,"—a world may be,

"Where nothing is, and all things seem,
And we are shadows of a dream."

Mathematical analogies are not to be disposed of in this fashion.

Two of the Saxon Chronicles Parallel (787 *to* 1001, A.D.), *with Supplementary Extracts from the others. By Charles Plummer, M.A. (Clarendon Press.)*—Mr. Plummer tells us in his introduction that this small book—of about 80 pages of text and 50 pages of glossary—is only an instalment of the large and complete edition of the Anglo-Saxon Chronicle which he hopes to bring out in a year or two. It is meant to meet the needs of students reading for the London B.A. Examination; and a hope is expressed that it may be found generally useful as a reading-book for beginners in Anglo-Saxon. Inasmuch, however, as the texts are not normalised, but abound in varieties of spelling and grammar, and as there are no notes, we hardly expect that either examination students or beginners will derive much assistance from this edition, notwithstanding the textual skill shown, and the great care that has evidently been bestowed on the glossary. The task of composing the glossary must alone have been no easy one; but the difficulties seem to have been satisfactorily overcome. The texts chosen are the well-known Parker text in the Library of Corpus Christi College, Cambridge, and that of the Laud MS. in the Bodleian Library at Oxford. The supplementary extracts are taken from the five other texts in the Coltonian MSS. at the British Museum. It certainly would be wise for young students to restrict themselves at first to the Parker text solely, and to omit from it the difficult poetical portions, as Mr. Plummer advises. And advanced students—well, perhaps they had better wait for the large and complete edition.

OUR LIBRARY TABLE.

The Pleasures of Life; Part II. By Sir John Lubbock. (Macmillan & Co.)—Sir John Lubbock here completes the series of addresses prepared for the purpose of giving a rosier and healthier tint to the aspects of life. The subjects include Ambition, Wealth, Health, Love, Poetry, Music, Troubles of Life, Religion, &c. The author in his preface has discounted two criticisms which might be made of this as of the preceding volume. The first is that his life has been exceptionally bright and full, and, therefore, that he cannot judge for others. This is not a criticism in which we have any share. We remember a sentence in his former preface: "Being myself naturally prone to suffer from low spirits, I have taken the opportunity of dwelling on the privileges and blessings we enjoy"; and we can well understand that the cheerful and bright tone of these addresses does not necessarily arise from the fact that the author has had a clear and cloudless life, but it may be that, in the presence of sorrows, he has found it necessary to seek relief from blessings which have to be sought. He who knows that "Love is the light and sunshine of life" has probably had to seek out love in order that it might dispel the darkness of sorrow and of trouble. The other criticism is this: "Some have complained that there is too much quotation and too little of my own." With this complaint we sympathize in spite of the fact that Sir John receives the criticism as a compliment. All that is his own is so good as to make us wish we had more of it. But it must be admitted that, if he has collected here many flowers, he has not only selected them from amongst the most beautiful, but has arranged them with excellent taste, and has bound them together by a flowery band which is all his own.

The Girl's Own Outdoor Book. Edited by Charles Peters. (The Religious Tract Society.)—This is a companion volume to the "Indoor Book" which we have recently noticed. The former dealt with needlework, music, and other kinds of indoor work or recreation, the present volume deals with outdoor *work* such as gardening, fowl, and bird-rearing, shopping and marketing, photography and sketching, packing and travelling. These useful matters are intermingled with accounts of outdoor *recreations*; riding, swimming, boating, skating; cricket, tennis, base-ball, and cycling. Such a book for girls would not conform to Miss Prim's notions of propriety without chapters on etiquette and thrift—hence we find articles on etiquette in walking and riding, how to get a week's holiday for ten shillings, how to manage pic-nics and garden parties, musical graces before and after meat, our flower mission, and our Tractarian movement. Most of the articles are collected from the "Girls' Own Annual," and are generally either conversations or narratives. As a guide for outdoor engagements the book is defective, for it does not plan out the games or occupations. Take cricket for instance, there is no information as to the placing of the "men," or the names given to the positions; the chapter is an amusing account of a girls' match with the exclamations likely to proceed from true novices: "Mary, Mary, bring the bat!" "The ball has gone into the brook," "To carry the ball is not the correct way of playing!" "No one ever caught the ball if you did throw it, so it saved time to carry!" This and similar chapters were evidently written by girls, but there are some others evidently written by men. The chapter on riding, for instance, contains evidence of this in such expressions as the following:—"It is that

'Mingled form of gentleness and force.'

which makes the sight of a graceful woman on horseback a pleasant one to see." The first class of articles lack the definite instruction which would make them useful; and the latter class are disfigured by kinds of complimentary comment which are out of place in such a work.

Longmans' Junior School Composition. By David Salmon. (Longmans, Green & Co.)—This, a small primer, begins with the consideration of the subject and predicate of a sentence in their barest forms—gradually enlarges these—gives some practice in the construction of simple sentences—and then proceeds to the combination of sentences in ordinary statements. After this we have a long chapter on punctuation, followed by easy narratives in prose and verse to serve as models, outlines of essays, and letters, a few remarks on grammar, and finally, some sensible "notes to teachers." There is nothing very new in the book, but—except for an unnecessarily hard phrase or two, such as "incomplete predication"—the subject is simply and clearly treated. For our own part, we prefer to begin with analysis—analysis of what the children are accustomed to in

the way of sentences—and to put off the synthetic construction of sentences until later, after we have honestly found out the elements for ourselves. And then would come synthesis, and then analysis again, and so on. But it is quite possible to do good work on the lines which Mr. Salmon follows; and those who prefer these lines will find his little book useful.

Henry the Seventh. By James Gairdner. (*Macmillan & Co.*)—The excellence of the series of short biographies of English statesmen is greatly enhanced by the judicious, thorough, and perfectly lucid manner in which Mr. Gairdner has handled his subject. The early life of the King, his attainment of the crown, the settlement which he effected in the kingdom after such times of trouble, the rebellions, the war with France, the comparative tractability of Ireland, his foreign policy, and the domestic history are naturally the points which the author would endeavour to make prominent. One little anecdote we cannot pass over:—"John de Giglis, Bishop of Worcester, having called him 'pastor' in a Latin poem stuffed full, no doubt, of the elaborate classical compliments then in vogue, the King rejoined impromptu, probably in the very same metre—

'Si me pastorem, te decet esse pecus.'"

Such a reply shows ready wit as well as humour.

(1) *Monographs of the Industrial Education Association* (*of New York*). *Edited by Nicholas Murray Butler, Ph.D.* (2) *Manual Training in Elementary Schools for Boys. By A. Sluys.* (3) *The Slöjd in the Service of the School. By Otto Salomon, Ph.D.* (4) *Educational Monographs published by the New York College for the Training of Teachers.* (5) *The Training of Teachers in Austria. By E. Hannak. Ph.D.* (*London Agent: Mr. Thomas Laurie.*) We can do no more, at present, than just call the attention of our readers to these two series of monographs, which are now being published, and which seem to us to be likely to prove extremely useful. We hope to be able to return to them later on, and to notice them more fully. Meanwhile, we may state, for the benefit of those who do not know, that Mr. A. Sluys is director of the Normal School at Brussels, and that Dr. Hannak is director of the *Pädagogium* at Vienna. Everyone, of course, knows that Dr. Salomon is Director of the Normal School for Slöjd Instruction at Nääs, in Sweden.

An Elementary Treatise on Heat. By H. G. Madan, M.A., F.C.S. (*Rivingtons.*)—This Treatise represents a course of instruction suitable for boys who have already made some acquaintance with physiography and the elementary dynamics of solids and fluids. The treatment of the subject is of an elementary and a practical character. Especial stress is laid upon the results and applications of the general laws of heat to the arts and manufactures, and to the explanation of phenomena of common occurrence. All the numerical problems which we notice are of such a kind as practically occur in scientific work. The illustrations are excellent, and no experiment is described and illustrated which it is impossible to perform. This is one of the respects in which Mr. Madan's book is a distinct advance in the right direction.

A Graduated Course of Natural Science, Part I. By B. Loewy, F.R.A.S. (*Macmillan & Co.*) This volume is a first year's course of work for beginners, and will give the student a thorough insight into some of the most common phenomena of everyday life. There are twenty-five chapters, and each affords a fortnight's work, assuming that not less than two hours weekly are devoted to Science. The experiments present little manual difficulty, so that the pupils can perform them with ease by themselves.

Elementary Mensuration. By Samuel Pedley. (*George Philip & Son.*)—This little work will be found a reliable stepping-stone to a more advanced text-book. The examples are numerous and widely illustrate the principles of Mensuration.

An Elementary Treatise on Mechanics. By Rev. Isaac Warren, M.A. (*Longmans, Green, & Co.*)—This is the first part of a work on Mechanics. We notice that an experimental proof only is given of the Parallelogram of Forces. It is especially rich in exercises, and for this reason we would recommend it to practical teachers.

A First Euclid. By Rev. H. Daman, M.A. (*Swan Sonnenschein & Co.*)—The distinctive features of this "First Euclid" are (i.) the addition to each proposition of Arguments of a very simple kind; (ii.) the special prominence and clearness given to the Principal Argument, or Arguments, in each proposition; and (iii.) the insertion of an Abridged Proof after each proposition. It contains the first twenty propositions of Book I., and is intended chiefly for pupils to whom the subject presents difficulties.

Examination Papers on Arithmetic. By C. Pendlebury, M.A., F.R.A.S. (*George Bell & Sons.*) The Papers are arranged on the same plan as the corresponding portion of Mr. Pendlebury's "Arithmetic for Schools." The book is divided into three parts. The first consists of 140 papers, each containing seven questions; the second, a collection of 357 more difficult problems; the third, copies of the arithmetic papers set at recent examinations.

Teachers' Handbook of Arithmetic. By G. C. Shutts. (*Ginn & Co.*)—This is an outline for a course of nine years of forty weeks each. No examples and no definitions are given. The work is simply a guide to the teacher in presenting the various subjects.

M. Tullii Ciceronis Brutus de Claris Oratoribus. By Martin Kellogg. (*Ginn & Co.*) This edition of the Brutus is intended for early college reading. The Introduction is very complete; and the notes are illustrative of the text in its historical relations and its diction, rather than in the commonplaces of grammar. English renderings are sparingly suggested, the chief assistance being found in parallel passages. There is an Index of names and a General Index of certain words, constructions, topics, etc.

Notes on Shakespeare's Play of the Merchant of Venice. By T. Duff Barnett, B.A. (*George Bell & Sons.*) The Notes contain everything that is necessary for a complete study of the Play. Mr. Barnett has been particularly careful in verifying the derivations.

The Unrivalled Atlas (*W. & A. K. Johnston*) contains about forty excellent maps, including those of the different countries usually found in atlases, physical maps of the British Isles and of Europe, *Imperium Romanum, Orbis Veteribus Notus*, and illustrations of the Solar System and the Seasons.

Chambers's Expressive Readers. Book III. (*W. & R. Chambers.*)—The illustrations in this Reader are somewhat quaint, but on this account will be the more likely to attract the attention of children. The selections are new; and the tests in dictation, grammar, and word-building not too difficult.

The Civil Service Manual. By G. E. Skerry. (*Simpkin, Marshall, & Co.*)—This is a practical guide to examinations for the military and naval services, Home, Indian, and Colonial civil services, and the Banks of England and Ireland. Many examination papers are given, and there is a great deal of useful information for intending competitors.

Five French Hymns. By the Rt. Rev. H. L. Jenner, D.D. (*J. Curwen & Sons.*)—The hymns—with one exception, *Les Alléluias de Noël*—are translated from "Hymns Ancient and Modern." Both the Tonic Sol Fa and the old notation are given.

A Kindergarten Drawing Book. By T. E. Roper. (*Griffith, Farran, Okeden, & Welsh.*) Part I, which we have aleady noticed, dealt with straight lines. Part II, which is now published, deals with curved lines. Children are taught to mark out the course of many striking curves and patterns.

French Life in Letters. By Mrs. Molesworth. (*Macmillan & Co.*) This forms one of the Primary Series of French and German Readings, edited by Eugène Fasnacht. The letters describe a journey to France, and the more notable features of Parisian Life.

A First French Writer. By A. A. Somerville, M.A. (*Rivingtons.*)—One of the chief objects of this book is to provide the beginner from the first with simple connected pieces for translation into French. The pupil is led on by easy stages to the management of a dictionary. Mr. Somerville has taken great pains in his work, especially in the selection of his extracts. His grammatical rules are excellent.

NEW EDITIONS.

Elementary Treatise on Dynamics. By B. Williamson, M.A., F.R.S., and F. A. Tarleton, LL.D. 2nd Edition. (*Longmans, Green, & Co.*)—The new edition of this book contains some changes which we think are decided improvements. The main alterations are in Chapters XII. and XIII. The section on Generalized Co-ordinates and Lagrange's and Hamilton's Equations in the former chapter, is enlarged, and the theory of small oscillations receives a new and fairly simple treatment in the latter. Additions and modifications of a minor character bring the book up to date, and tend to increase its value as a text-book introductory to the larger treatises of Thomson and Tait and of Routh.

Helps's Essays: Written in the Intervals of Business. By F. J. Rowe, M.A. and W. T. Webb, M.A. (*Macmillan & Co.*)—There are only fifteen short essays in this book, but the notes and epitomes of the essays have been carefully prepared. The introduction gives us an account of the life of Arthur Helps and his works, and many characteristic examples of his style.

Cæsar's Commentaries, Book I. By George Long, M.A. Vergil's Aeneid, Book I. By Professor Conington and the Rev. J. G. Sheppard, D.C.L. (*George Bell & Sons.*)—To each of these books, which belong to the Lower Form Series, Mr. Shilleto has added a Vocabulary, which we can heartily recommend on account of the attention bestowed upon the derivations of Latin words. There are two plans in the Cæsar: one explaining the passage in which the lines behind the Rhone are mentioned, and of the great gap in the Jura; the other explaining Cæsar's movement when the Boii and Tulingi attacked his flank.

Cassell's Higher Class Readers. A Ramble round France: by J. Chesney. Chats about Germany: by Maggie Brown. All the Russias: by E. C. Phillips. (*Cassell & Co.*)—This series of readers is now being issued in new and attractive bindings, representing the national colours of each country. The matter is identical with that of the previous editions.

French and German Journal. By J. J. Beuzemaker, B.A., B.Mus. (*Joseph Hughes.*)—The monthly numbers of this Journal, which we have noticed from time to time, are now bound together and published in one volume. In its present form it cannot fail to be of great value to the student of French and German Commercial Correspondence.

Travel, Adventure, and Sport, from Blackwood's Magazine. (*Wm. Blackwood & Sons.*)—No. II. of this series is mainly taken up with General Viscount Wolseley's narrative of the Red River Expedition. It also contains "Remarkable Preservation from Death at Sea," "A Ride to Babylon," and "The King of Tristan d'Acunha; a forgotten Monarch."

Short History of the English People. By John Richard Green. Part III. (*Macmillan & Co.*)—We have already noticed Parts I. and II. of this work. Part III., like the two previous parts, contains numerous Tables and Mr. Tait's Analysis. It brings us down to the year 1689.

Cæsar de Bello Gallico, Books II. and III. By J. H. Merryweather, M.A., and C. C. Tancock, M.A. (*Rivingtons.*)—The Appendices and Notes to this new edition are very complete.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending June 30th, 1889.

Alexander's (Bishop) The Epistles of St. John, cr. 8vo, 7s. 6d. cl. (Expositor's Bible.)
Ball's (W. W. R.) History of the Study of Mathematics at Cambridge, cr. 8vo, 6s. cl.
Beale's (L. S.) The Liver, Lectures on the Principles and Practice of Medicine, 8vo, 5s. cl.
Brooksmith's (E. J.) Woolwich Mathematical Papers for admission into the Royal Military Academy, 1880-88, 6s.
Burchardi (Th.): Elementargrammatik der Sprache d. Neuen Testaments, 2m.
Carter (J. P.) and Radcliffe's (R. C.) Course of Examples in Elementary Arithmetic, cr. 8vo, 3s. cl.
Core's (T. H.) Questions on Stewart's Lessons in Elementary Physics, 12mo, 2s. cl.
Dictionary of Music and Musicians, edited by Sir G. Grove, Vol. 4, 8vo, 21s. cl.
Dummler (F.): Akademika, 6m. 50.
Edgar's (A.) The Bibles of England, 8vo, 7s. 6d. cl.
Euripides' Ion, with an Introduction and Notes by M. A. Bayfield, 12mo, 3s. 6d. cl.
Fiske's (J.) The Beginnings of New England, cr. 8vo, 7s. 6d. cl.
Geffcken's (Dr.) The British Empire, translated by S. J. Macmullan, cr. 8vo, 7s. 6d. cl.
Graham's (R.) Elementary Algebra, cr. 8vo, 5s. cl.
Gremli's (A.) The Flora of Switzerland, translated by L. W. Paitson, 12mo, 7s. 6d. cl.
Hatherley's (S. J.) New Genealogical Scale of the Sovereigns of England, cr. 8vo, 2s. cl.
Johnson's (V. E.) The Uses and Triumphs of Mathematics, cr. 8vo, 2s. 6d. cl.
Kaye and Malleson's History of the Indian Mutiny of 1857-8, Vol. 4, Cabinet Edition, cr. 8vo, 6s. cl.
Macdonald's (Rev. D.) Oceania, Linguistic and Anthropological, 12mo, 6s. swd.
Macgregor's (Rev. J.) Exodus, Part 2, cr. 8vo, 2s. cl. (Handbooks for Bible Classes.)
Mackay's (W. P.) Notes on the Shorter Catechism, 12mo, 2s.
Merriman's (M.) Treatise on Hydraulics, 8vo, 15s. cl.
Millet (R.): La Serbie Economique et Commerciale, 5fr.
Müller's (F. Max) Natural Religion, the Clifford Lectures, Glasgow, 1888, cr. 8vo, 10s. 6d. cl.
Novum Testamentum Domini Nostri Jesu Christi Latine, Bishop of Salisbury's edition of the Vulgate, 12s. 6d. paper.
Œuvres de Molière. Edition de E. Despois et P. Mesnard, Vol. 10. 7fr. 50.
Ovidii Nasonis Carmina: Vol. 2, Metamorphoses, 0m. 90.
Ovidii Nasonis Tristium Libri V., recensuit L. G. Owen, 16s. cl.
Ovid's Tristia, Books 1 to 3, translated by J. Gibson, 2s. 6d. swd.
Pelissier (G.): Le Mouvement Littéraire au XIX. Siècle, 3fr. 50.
Remsen's (I.) Inorganic Chemistry, 8vo, 16s. cl.
Rose's (J. H.) Century of Continental History, 1780-1880, 6s.
Schorlemmer (C.); Der Ursprung der Organischen Chemie, 5m.
Schrader (F.): Atlas de Géographie Moderne, Part 1, 1fr.
Shakespeare's Works, with Life and Glossary by the Editor of the "Chandos Classics," cr. 8vo, 2s. 6d. cl.
Simon (E.): L'Empereur Guillaume II., 3fr. 50.
Smith's (Horace) Poems, 12mo, 5s. cl.
Theal's (G. McC.) History of South Africa, 1854 to 1872, 15s. cl.
Tolstoi's (Count) Childhood, Boyhood, Youth, Translated by I. F. Hopgood, cr. 8vo. 2s. 6d. cl.
Two of the Saxon Chronicles Parallel, 787-1001 A.D., edited by C. Plummer, 8vo, 3s. bds.
Wellington, by G. Hooper, 2s. 6d. cl. (English Men of Action.)
Velasquez's (M.) Dictionary of the Spanish and English Languages, abridged, cr. 8vo, 7s. 6d. cl.
Wiesener (L.); Etudes sur les Pays Bas au XVI. Siècle, 5fr.
Willm (E.) et Hanriot (M.); Traité de Chimie Minérale et Organique, 4 Vols., 50fr.
Wundt (W.): System der Philosophie, 12m.
Zimmern's (H) The Hansa Towns, 5s. (Story of the Nations.)

PROPOSAL FOR A VOLUNTARY EXAMINATION IN SHORTHAND.

In order to encourage the use of Shorthand in the study and practice of Medicine, and especially its acquisition before special studies are commenced, it is proposed to offer a prize or prizes to the most proficient among those Students who, having passed the Preliminary Examination, and beginning professional study at a recognised Medical School, choose to present themselves. For this purpose an examination will be held in the third week of October, at a place and time to be previously announced in the Medical Journals. The examination will only be held if at least five gentlemen intimate their intention to present themselves, by writing to Dr. Coupland, 16 Queen Anne Street, not later than October 7th. The number and value of the prizes, which will consist of books or instruments, will depend on the number of candidates.

In order to encourage the use of Shorthand in a proper manner (mentioned in the Memorandum), it is proposed to offer another prize to those who have been at least one year at a recognised Medical School, if at least five names are sent to Dr. Coupland. For such Students, it is proposed that the examination should include such evidence as is afforded by an epitome of a lecture or notes of a case.

It is proposed that the details of the examinations, prizes, &c., should be in the hands of a Committee consisting of Sir Dyce Duckworth, Mr. Howard Marsh, Dr. Gowers (Hon. Treasurer), and Dr. Coupland (Hon. Sec.). Particulars as to the minimum requirements (in which accuracy in writing and facility in reading will be considered of greater importance than speed) may be obtained after July 15th, on application (or by post, if a stamped and directed envelope is sent) at Lewis's Medical Library, 136 Gower Street, London, W.C.

For the reasons mentioned in the accompanying Memorandum, it is recommended that the system acquired should be Pitman's "Phonography," but if a Student has learned another system, he shall, if possible, be examined in it.

This proposal has been approved by nearly all the leading members of the medical profession, and more than 80 per cent. of those whose opinions were asked.

Dr. Gowers has supplied the accompanying "Memorandum," which has been submitted to each of those who have signed this Proposal, and is based on his own experience of its use during twenty-eight years.

Professor Michael Foster writes:—"I am of opinion that a knowledge of Shorthand would be very valuable to a medical man, and I think the professional corporations would act wisely in giving encouragement to the study of it. I dislike compulsory examinations, and should be very loth to add to them; but something might be done by rewarding an optional examination. The necessity for a uniform system is obvious, and from what is said Pitman's is clearly the one to be adopted."

Dr. Gray has used Shorthand for thirty years, and desires to say he endorses every word of the Memorandum.

Mr. Pugin Thornton has been good enough to ascertain the opinions of eight members of the profession at Canterbury with regard to the proposal, and of these seven approved it. Dr. Lochee, consulting physician to the hospital, has used Shorthand for sixty years.

Mr. Parritt, who has used Phonography in medical work for sixteen years, strongly urged the use of Shorthand by medical students in a paper published in 1882. In the preface to his Fothergillian Prize Essay, published in 1883, he says:—"If intending students were aware of the assistance this useful art can render them during their career, I venture to think few would enter a medical school uninitiated into its principles."

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A Meeting of the Council was held on Saturday the 15th ult. Present—Dr. Wormell, Vice-President, in the Chair; Rev. R. Alliott, Miss Bailey, Mr. Baumann, Mr. Brown, Mr. Chettle, Dr. Dillon, Mr. Eve, Mr. Kimber, Mr. Ogle, Rev. G. P. Pearce, Mr. Pinches, Mr. Reynolds, Mr. Robinson, Rev. Dr. Robson, Mr. Rule, Mr. Stewart, and Mr. Storr.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the Midsummer Certificate Examination had been held on the 4th to 7th of June, at 65 London and Provincial Centres, and 91 schools in all parts of the country. The total number of candidates was 5214.

Saturday, the 20th of July, was fixed as the date of the next General Meeting of the Members of the College.

The Draft Report of the Council to the General Meeting was considered, and referred to the President, Vice-Presidents, and Dean, for final revision.

The following persons were elected members of the College:—

Mr. J. G. Chancellor, M.A. Camb., 80, Petherton Road, N.
Miss E. C. Fullicks, L.C.P., 63, Kensington Gardens Square, W.
Miss F. M. P. Mole, A.C.P., Townley House, Ramsgate.
Miss F. Price, The Uplands, Wylde Green, near Birmingham.
Mr. T. E. J. Spence, Yorkshire Society's School, Westminster Bridge Road, S.E.
Miss E. S. Wood, 13, Marienstrasse, Eisenach, Saxe Weimar, Germany.

The following books have been presented to the Library since the last meeting:—

Ginn & Co. (Boston, U.S.A.)—Doriot's Beginners' Book in French: Part II. Kellogg's Cicero's "Brutus." Perrin's Homer's Odyssey (Books I.—IV.) Seymour's Homeric Vocabulary.

Macmillan.—Cockshott & Walters' Geometrical Conics; Greaves' Statics for Beginners; Postgate's "Sermo Latinus;" Selby's Bacon's Essays; Macmillan's Milton's "Paradise Lost," Book I.

Calendar of University of Edinburgh.

By Rev. R. H. Quick:—De Sacy's "Principles of General Grammar," translated by D. Fosdick.

MATHEMATICS.

8184. (Professor Sylvester, F.R.S.)—Prove that (1) the equations between two corresponding points, in two systems homologically related, may be put under the form

$$x' = \rho x + f(ax + by + cz),\ y' = \rho y + g(ax + by + cz),\ z' = \rho z + h(ax + by + cz);$$

and (2) if two homographic systems of points connected by the equations $x' = Ax$, $y' = By$, $z' = Cz$, are moved into homology, the condition that the pole shall be contained in the axis of homology is expressed by

$$[AB(A-C)(B-C)p^2 + BC(B-A)(C-A)q^2 + CA(C-B)(A-B)r^2]^3$$
$$+ A^2B^2C^2(A-C)(B-C)p^2 + (B-A)(C-A)q^2 + (C-B)(A-B)r^2]^3 = 0,$$

where p, q, r are the lengths of the sides of the fundamental triangle.

Solution by Professor SEBASTIAN SIRCOM.

(1) Evidently the axis is $ax+by+cz$, the pole f, g, h. (2) The absolute values of the corresponding coordinates will be $2\Delta Ax/(Apx+Bqy+Crz)$, &c.

The circular points at infinity ω, ω' being given by $px+qy+rz=0$ and $x^2+y^2+2xy\cos\gamma=0$, the corresponding points o, o' by $Apx+Bqy+Crz=0$, $A^2x^2+B^2y^2+2ABxy\cos\gamma=0$, the lines ω, o; ω', o' intersect in the point

$$\frac{A(B-C)x_1}{p}=\frac{2\Delta ABC(B-A)(C-A)(B-C)}{M}, \text{ \&c.},$$

and the corresponding point will be

$$\frac{(B-C)x_2}{p}=\frac{2\Delta(B-A)(C-A)(B-C)}{N}, \text{ \&c.},$$

where

$$M=BC(B-A)(C-A)p^2+CA(C-B)(A-B)q^2+AB(A-C)(B-C)r^2,$$

$$N=(B-A)(C-A)p^2+(C-B)(A-B)q^2+(A-C)(B-C)r^2.$$

[The rest in Volume.]

3304. (Professor CAYLEY, F.R.S.)—The coordinates x, y, z being proportional to the perpendicular distances from the sides of an equilateral triangle, trace the curve $(y-z)x^{\frac{1}{2}}+(z-x)y^{\frac{1}{2}}+(x-y)z^{\frac{1}{2}}=0$.

Note by J. GRIFFITHS, M.A.

The curve in question is a particular case of that which presents itself in the following theorem, communicated by me to Professor CAYLEY (with a demonstration) several years ago.

The locus of a point (x, y, z) such that its pedal circle (that is, the circle which passes through the feet of the perpendiculars drawn from the point in question upon the sides of the triangle of reference) touches the nine-point circle, is the sextic curve

$$\Sigma\left\{x\cos^2 A\,(y\cos B-z\cos C)\,(y\cos C-z\cos B)\right\}^{\frac{1}{2}}=0,$$

which I have shown (Vol. VIII., p. 35) to consist of two coincident cubic curves given by the common equation $\Sigma x\cos A\,(y^2-z^2)=0$.

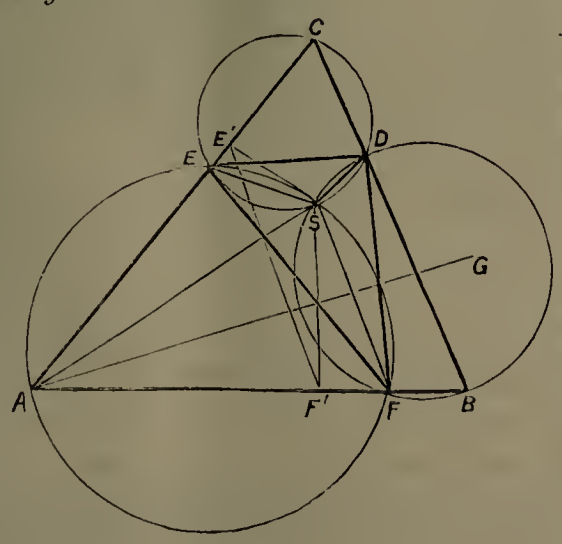
NOTE ON QUESTION 9588. (Vol. XLIX., pp. 101-2) *By the* EDITOR.

We give here in regard to this Question, a *final* rejoinder and counter-rejoinder, as our space, we regret to say, will not allow a word more to either of the antagonists.

1. Professor TANNER states that "in Mr. DODGSON's note he considers two aggregates of points; viz., (I.) the points dividing a given line into two commensurable parts, and (II.) the points that divide the line into two incommensurable parts; and he asserts that a random point in the line must coincide with one of the points of (I.) or of (II.) I take this to mean that every point of the line belongs either to (I.) or to (II.); that is to say, the two aggregates make up the whole line. This is inconsistent with Mr. Dodgson's axiom 2, and I submit that, in his attempt to convict the "opposition" of contradicting one axiom, he has himself contradicted the other. [The rest in Volume.]

10056. (Prof. SYAMADAS MUKHOPÂDHYÂY, B.A.)—A system of triangles of given species are inscribed in a given triangle; prove that (1) the envelope of each side is a parabola which touches the two sides of the given triangle including that side; (2) the three parabolas have a common focus which is the common centre of homology of the system of inscribed triangles; (3) their vertical tangents form the minimum triangle of the system; and (4) that diameters of these parabolas through corresponding vertices of the given triangle meet at a point which is isogonally conjugate to the common centre of homology.

Solution by Professor SCHOUTE.



If the triangle DEF inscribed in triangle ABC is given in species, the point S common to the circles AEF, BFD, CDE is fixed. For this point, be it fixed or not, is a point of the same signification for all the triangles DEF of the series, the point common to the segments of the circles described on EF, FD, DE, and capable of the angles supplementary to A, B, C. But, as $\angle CAS=\angle EFS$, $\angle SFD=\angle SBC$, S is fixed.

[The rest in Volume.]

10119. (HUGH MACCOLL, B.A.)—

To put a question somewhat queer, Suppose the earth an *airless sphere*,
Through which is bored, from pole to pole, A bottomless cylindric hole;
Right o'er the centre let there fall A smooth and polished marble ball.
Dear Reader, may I ask you *when* That marble would come back again?

[See the PROPOSER's amusing story, *Mr. Stranger's Sealed Packet.*]

Solution by D. BIDDLE; J. C. ST. CLAIR; *and others.*

Let the sphere (of radius = 1) be supposed to consist of concentric shells; it is easy to prove that those to which the marble is internal, at a distance $(1-x)$ from the centre, exert no attractive force upon it in one direction more than another (*vide* Professor TAIT's *Properties of Matter*, p. 113). Those to which it is external attract it with a force directly proportional to their mass, and inversely proportional to the square of the distance of the marble from their common centre. Therefore the attractive force varies as $(1-x)^3/(1-x)^2=1-x$. [The rest in Volume.]

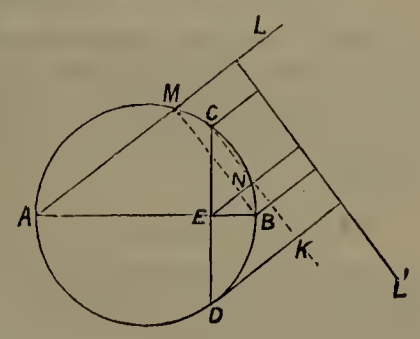
10054. (W. S. M'CAY, M.A.)—Soient AB un diamètre d'une circonférence, et CD une corde perpendiculaire à AB au point E; si a, b, c, d sont les distances des points A, B, C, D à une droite quelconque L et $(\lambda:\mu)$ le rapport des segments BE, AE, (1) démontrer que

$$\lambda a^2+\mu b^2=(\lambda+\mu)[cd+(CE)^2];$$

(2) déduire de là l'enveloppe d'une droite L satisfaisant à la condition

$$\lambda a^2+\mu b^2=\text{const.}$$

Solution by L. WIENER; G. G. STORR, M.A.; *and others.*



Draw CK perpendicular to d, and join B to M, where a meets the circle;

then $\dfrac{CK}{2CE}=\dfrac{am}{AB}=\dfrac{a-b}{AB}$,

therefore $(CK)^2=4(CE)^2\dfrac{(a-b)^2}{(AB)^2}$;

but $(CE)^2=AE.EB$

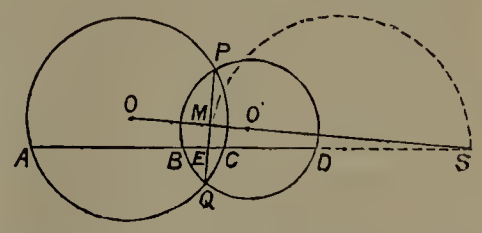
$$=\frac{\mu}{\lambda+\mu}AB\times\frac{\lambda}{\lambda+\mu}AB,$$

hence $(CK)^2=\dfrac{4\lambda\mu}{(\lambda+\mu)^2}(a-b)^2$.

[The rest in Volume.]

10028. (Professor DÉCAMPS.)—On donne sur une droite quatre points A, B, C, D. Sur AC et BD comme cordes, on décrit deux segments capables d'un même angle variable et se coupant en P et Q. Lieu du milieu de corde commune PQ.

Solution by J. C. ST. CLAIR; Professor GENESE; *and others.*



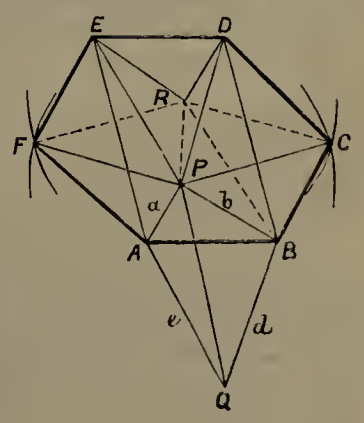
Let O, O' be the centres of a pair of segments, and let AD meet OO' in S and PQ in E. Then S is a fixed point, being the ex-centre of similitude of every pair of circles; and, since

AE.EC = PE.EQ = DE.EB,

the point E is also fixed. Now PQ is bisected at right angles by OO', therefore EMS is a right angle; hence the locus of M is the circle on ES as diameter.

10004. (H. W. SEGAR.) Given the lengths of six lines supposed to be drawn from any point within a six-sided figure, which is such that its opposite sides are equal and parallel, and also the length of any one side, construct the figure.

Solution by H. E. PALLISER; G. G. STORR, M.A.; *and others.*



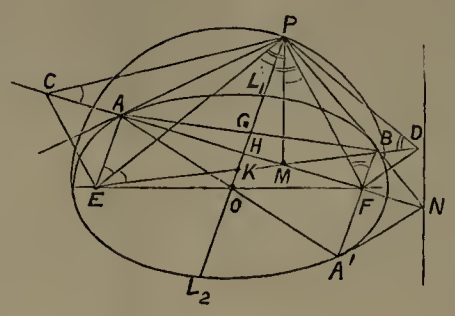
Let a, b, c, d, e, f be the given straight lines which join the point P within the figure to its angular points A, B, C, &c., and AB the given side. On one side of AB construct a triangle PAB having its sides PA, PB respectively equal to a and b, and on the other side of AB construct a triangle QAB having its sides QB, QA respectively equal to d and e (the lines joining P to the extremities of the side of the figure opposite AB). Through A and B draw lines AE, BD equal and parallel to QP. Join ED, PE, PD. Then PE = e, PD = d, and we see that ED is the side of the figure opposite AB.

[The rest in Volume.]

10118. (The EDITOR.)—If from the foci E, F of an ellipse whose centre is O, parallel radii EA, FB be drawn, and tangents AP, BP; prove that (1) OP is parallel to EA; (2) the angles FPA, EPB are right angles; (3) the angle EPF is an arithmetic mean between EAF and EBF; (4) PA . PE : PB . PF = AE : BF; (5) the sum of the reciprocals of EA, FB is constant; (6) the locus of the intersection (M) of the diagonals of

the trapezoid AEBF is an ellipse confocal with the given one, and normal at each position to PM; (7) $MP^2 = ME \cdot MF$; (8) PE, PF bisect the angles AEB, AFB; (9) PE . PF = PM (major axis); (10) If through E and F the two other perpendiculars be drawn on the tangents, the sum of the squares of their reciprocals is constant; also (11) find the locus of P.

Solution by Professor SCHOUTE; G. E. CRAWFORD, B.A.; *and others.*



(1) The diameter OP passes through the mid-point G of the chord AB joining the points where the tangents through P touch the ellipse. Therefore PO is parallel to AE and BF.

(8) This property holds even when A and B are arbitrary points and is generally known (congruency of the triangles CPF and EPD, etc.).

(2) For the mid-point H of AF on OP we have AH = HP = HF, as the angles AFP and PFB or HFP and FPH are equal. This proves APF to be a right angle. And so the mid-point K of EB gives EK = KP = KB, *i.e.*, EPB is a right angle. [The rest in Volume.]

10103. (Professor SYLVESTER, F.R.S.)—A figure composed of two circular plates of equal diameter in contact is thrown upon a ruled sheet of paper; twice the diameter of either circle being supposed less than the distance between contiguous lines, find the chance of the figure falling in such a position that it will be intersected in four points by one of the ruled lines.

Solution by D. BIDDLE; A. W. ROBINSON, B.A.; *and others.*

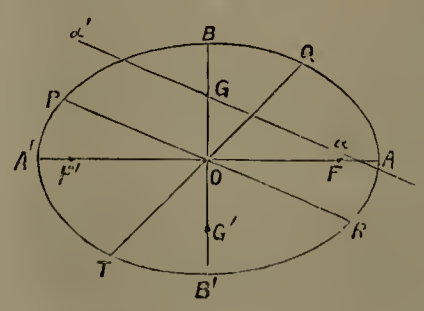
Let radius of circles = unity, and $2a$ = distance between contiguous ruled lines. Also let x = distance of junction of circles from nearest ruled line, and θ = angle formed with such line by the line joining the two centres. Then, in all favourable cases, x lies between 0 and 1, and θ between 0 and $\sin^{-1}(1-x)$. Consequently

$$P = \frac{2}{a\pi}\int_0^1 \sin^{-1}x\,dx = \frac{1}{a}\left(1-\frac{2}{\pi}\right) = (\cdot 3633802)/a.$$

To make the chance exactly one-sixth, the distance between the ruled lines must exceed the combined diameters of the circles in the proportion of about 1·0901407 : 1.

9844. (Professor DE WACHTER.)—Determine a point in the plane of a given ellipse, such that the moment of inertia of the ellipse shall be constant for any *coplanar* axis through that point.

Solution by the PROPOSER; Professor SARKAR; *and others.*



The moment of inertia M about any axis $\alpha\alpha'$ at a distance d from a parallel PR drawn through the centre O of the ellipse (axes $AA' = 2a$ and $BB' = 2b$) is $M = \pi abd^2$ + moment of inertia about PR.

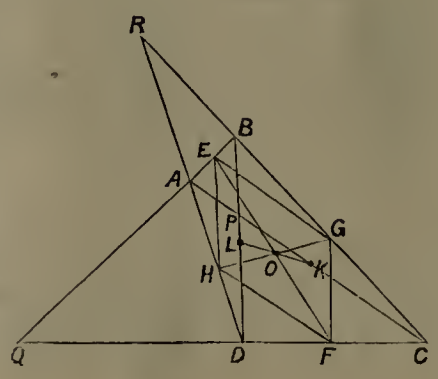
The moment of inertia about PR may be derived from that of another ellipse having PR and its conjugate diameter QT for its *rectangular* axes. If we put $PR = 2a'$, $QT = 2b'$, this moment is expressed by $\frac{1}{4}\pi a'b'^3$, and that of the ellipse, where $\angle QOR = \phi$,

$$= \tfrac{1}{4}\pi a'b'^3 \sin^3\phi = \tfrac{1}{4}\pi ab \,.\, b'^2 \sin^2\phi = \pi a^3b^3/4a'^2.$$

[The rest in Volume.]

10057. (E. CÉSARO.)—Les coniques issues de P, osculant en un point Q une même ligne, ont leurs centres sur une conique dont le centre est aux trois quarts de PQ.

Solution by Professor SCHOUTE; J. C. ST. CLAIR; *and others.*



The locus of the centre of the conics that pass through the four points A, B, C, D is a conic, nine points of which are easily indicated—the mid-points E, F, G, H, K, L, of the six sides, and the diagonal points P, Q, R of the complete quadrangle ABCD. In the case of the equilateral hyperbolas that pass through the vertices of a triangle ABC (and its orthocentre), this conic with the nine points is the classic *circle of the nine points.*

[The rest in Volume.]

9996. (HUGH MACCOLL, B.A.)—Show how to calculate the logarithm of any number to any base in a simple and direct manner without any reference to the Napierian base or any other series.

Solution by Prof. DE WACHTER; J. J. BARNIVILLE; *and others.*

The following method of approximation, based on the properties of the binary system of numeration, is both elementary and practical; it was devised, I think, by Professor SARRUS, of Strassburg. In

$$A^x = N \quad\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (a),$$

where A and N are positive numbers, the index x may be imagined to be written in the binary scale, thus $x = i{\cdot}z_1z_2z_3z_4\ldots$, i being the integer part of x, and $z_1, z_2, z_3, z_4, \ldots$ its binary digits (viz. 0 or 1).

1. The value of i is to be determined empirically, which is usually done at first sight. For instance, if $10^{i{\cdot}z_1z_2z_3z_4\ldots} = 94385$, i is evidently $= 4$.

[The rest in Volume.]

2753. (Professor WOLSTENHOLME, Sc.D.)—If a straight line be divided at random into four parts, prove that (1) the chance that one of the parts shall be greater than half the line is $\frac{1}{2}$; also the respective chances that (2) three times, and (3) four times, the sum of the squares on the parts, shall be less than the square on the whole line, are $\frac{1}{18}\pi\sqrt{3}$ and $\frac{3}{500}\pi^2\sqrt{5}$.

Solution by Professor SCHOUTE.

With reference to a regular tetrahedron, the height of which is equal to the length l of the given line, the four parts x, y, z, t of the line represent the coordinates of a point P situated within the tetrahedron. This point P may be called the image corresponding to the division.

1. When one of the parts is greater than $\frac{1}{2}l$, the image P is situated within one of the four regular tetrahedrons, the vertices of which are formed by the mid-points of three conterminous edges and the point common to these. Each of the four regular tetrahedrons being an eighth part of the tetrahedron of reference, the chance is $\frac{1}{2}$.

[The rest in Volume.]

10072. (Professor EMMERICH, Ph.D.)—Construct a triangle from the symmedian $AK_a = k_a$, and its distances p and q from B and C.

Solution by J. J. BARNIVILLE; Professor SARKAR; *and others.*

Draw the symmedian AK_a, and on it as hypotenuse construct right-angles with p and q as sides. Then, since K_a is the centroid of PQR, P is given; draw BC perpendicular to K_aP.

10109. (Professor MANNHEIM.)—Une droite se déplace de façon que trois de ses points restent sur trois plans parallèles à une même droite. Démontrer qu'un point de la droite mobile se déplace sur un plan.

Solution by Professor SCHOUTE; J. C. ST. CLAIR; *and others.*

Si l'on projette la droite mobile d sur un plan δ perpendiculaire aux trois plans donnés α, β, γ, il est évident que la projection d' rencontre les traces des trois plans donnés sur δ en trois points A, B, C, de manière que AB/BC reste constante. En d'autres termes, d' enveloppe une parabole, et un point quelconque D de d', pour lequel le biquotient (ABCD) est constant, parcourt une tangente de cette parabole. Donc, le point de d, dont D est la projection, reste dans le plan perpendiculaire à δ suivant cette tangente, etc.

10047. (MORGAN BRIERLEY.)—Suppose the number of candidates (say 30) at a School Board election be double the number of places to be filled (viz. 15), which latter is also the number of votes any one elector can give to one, or divide amongst two or more candidates. Find in how many different ways the said elector can give his 15 votes. [This Question is said to have caused some excitement, as two different sets of mathematicians have given different solutions, leading to the respective results 614429671, 229916315790.]

10048. (Dr. TRAILL. Generalisation of Question 10047.)—If the number of candidates at a School Board election be n, and the number of vacancies r, which is also the number of votes belonging to any elector, prove that the number of different ways in which the said elector can give his r votes is $\quad (n+r-1)! \div \{r!\,(n-1)!\}$.

[In the particular case which forms Question 10047, this gives $(44!) \div (15!\,29!)$, which agrees with the *second* result in the Note.]

Solution by ANTHONY TRAILL, LL.D.; H. J. WOODALL; *and others.*

The elector can give r votes to a single candidate in n ways. He can select two candidates in $\frac{1}{2}[n(n-1)]$ ways, and he can divide his votes between these two candidates in $(r-1)$ ways. Therefore he can vote for two candidates in $\frac{1}{2}[n(n-1)](r-1)$ ways. He can select three candidates in $n(n-1)(n-2)/(1\,.\,2\,.\,3)$ ways, and he can divide his votes amongst these three candidates in $\frac{1}{2}(r-1)(r-2)$ ways. Therefore he can vote for three candidates in $n(n-1)(n-2)/(1\,.\,2\,.\,3)\,[\frac{1}{2}(r-1)(r-2)]$ ways, &c.

[The rest in Volume.]

QUESTIONS FOR SOLUTION.

10180. (Professor SYLVESTER, F.R.S.)—n round beads of equal size are arranged in a circular necklace each in contact with its neighbour on either side. i of the beads it is required shall admit of being cut by the same right line. Find the least value of n that will serve to fulfil this condition.

—181. (Professor SYAMADAS MUKHOPADHYAY, B.A.) — Arrange (1) three systems of forces which equilibrate along five intersecting straight lines such that the resultant of each system is along the line of collinearity of the middle points of diagonals of one of the four quadrilaterals formed by the five straight lines; and hence (2) deduce a proof of FOX TALBOT's well known theorem.

—182. (Professor CATALAN.)—Soit $x = 2^{1-n}(C_{n,1} - 3C_{n,3} + 3^2C_{n,5} - \&c.)$ Si l'on fait $n = 1, 2, 3 \ldots$, les valeurs de x sont $+1$, -1, ou zéro.

—183. (Professor RAMASWAMI AIYAR.)—Prove that the centre of gravity of equal particles placed at the vertices of similar polygons of any species whatever, similarly described on the sides of a given polygon, is a fixed point.

—184. (Professor SCHOUTE.)—Find the sum of the series

$$\frac{1}{1} + \frac{1}{2+3} + \frac{1}{4+5+6} + \frac{1}{7+8+9+10} \cdots.$$

—185. (Professor WOLSTENHOLME, D.Sc.)—Prove by Statical principles that, if A, B, C, D be four points on a circle, the poles of AC, BD with respect to the circle lie on the same straight line with the intersections of AB, CD; and of AD, BC.

—186. (Professor IGNACIO BEYENS.)—Si $f(x) = 0$ est une équation algébrique de coefficients entiers, et $f(0)$, $f(1)$ sont des nombres impaires, l'équation n'a pas des racines entiers.

—187. (Professor DÉPREZ.)—On donne le centre O d'une ellipse, un point P de cette courbe et la tangente PQ. Le cercle osculateur à l'ellipse au point P rencontre la courbe au point R. Démontrer (1°) que le lieu du point de rencontre de la corde PR avec un axe de l'ellipse est une strophoïde; (2°) que le lieu de la projection de R sur un axe de l'ellipse est une podaire d'hypocycloïde à trois rebroussements; (3°) que le lieu de la projection de O sur le rayon du cercle osculateur mené par R est un limaçon de Pascal.

—188. (Professor NEUBERG.)—Un angle de grandeur constante tourne autour de son sommet A; ses côtés rencontrent deux axes fixes OX, OY en B, C. Trouver (1°) l'enveloppe de BC, et celles des hauteurs BB′, CC′; (2°) les lieux décrits par les pieds A′, B′, C′ des hauteurs et par l'orthocentre H.

—189. (Professor DE LONGCHAMPS.)—Soit une circonférence Δ; on prend, dans ce cercle, un diamètre fixe AB. Par un point M, mobile sur Δ, on trace une droite rencontrant AB en P et telle que PMB soit un triangle isoscèle:—(1) Démontrer que le lieu des centres des cercles circonscrits à PMB est une strophoïde; (2) Trouver le lieu décrit par le pôle de MP, et construire ce lieu qui est une cubique unicursale; (3) Trouver l'enveloppe de la droite PM.

—190. (Prof. MORLEY, B.A.)—Let a line cut a cubic at ABC, let the tangential of A be α, and let the contacts of tangents from A be O, P, Q, R. Then the following conics (denoting the repetition of a point by a power) pass through the point where $R\alpha$ cuts the cubic

$$R^5,\ R^3BC,\ R^3O^2,\ R^3P^2,\ R^3Q^2,\ R^2OPQ,\ RB^2C^2,\ OPQA\alpha,$$
$$O^3PQ,\ OP^3Q,\ OPQ^3,\ OPQBC.$$

—191. (Prof. THARAUD.)—Étant données deux droites rectangulaires OX, OY, on prend sur OY les points A, B, et sur OX le point C, tels que $OA = mOB = mOC = a$, m étant un nombre positif quelconque et a une longueur donnée. (1) Trouver sur la droite indéfinie BC un point M tel que le rapport de ses distances au point A et à la droite OX ait une valeur donnée λ; (2) discuter en laissant m constant et faisant varier λ: étudier comment sont placés les points trouvés par rapport aux point B et C; (3) il y a en général deux points M et M′ satisfaisant au problème: déterminer λ de manière que ces points se confondent, et chercher entre les coordonnées du point Q correspondant à ce cas, une relation indépendante de m; (4) en partant de la relation précédente, construire le lieu décrit par le point Q lorsque la droite BC se déplace parallèlement à elle-même.

—192. (Prof. DÉCAMPS.)—Si l'on joint les sommets d'un quadrilatère convexe à un point extérieur, pris à volonté dans son plan, le produit des aires des triangles qui ont pour bases les diagonales est égal à la somme des produits des aires des triangles ayant pour bases les côtés opposés. Qu'arrive-t-il si le point est pris à l'intérieur du quadrilatère?

—193. (Prof. MOREAU.)—Trouver le lieu des centres des cercles qui passent par le sommet A d'un triangle donné et coupent les côtés AB, AC respectivement aux points B′, C′ tels que BB′ = CC′.

—194. (The EDITOR.)—A sphere is divided at random into two parts by a plane; find the probability that (1) the surface, or (2) the volume of the one segment will be greater than n times those of the other.

—195. (R. TUCKER, M.A.)—Find the equation, in trilinear coordinates, to the Brocard Circle of the nth medial triangle of ABC (see Question 10101).

10196. (D. BIDDLE.)—Two equal circles, A, B, are described at random within a given circle C. The line joining their centres is produced at each end to meet the particular circumference, and upon the line so produced, as major axis, an ellipse is described having the centres of A and B for its foci. Find the average area of this ellipse.

—197. (CH. HERMITE.)—Démontrer que le nombre de variations de la suite de STURM, pour une équation donnée, lorsqu'on y fait $x = \alpha$, est égal au nombre des racines réelles de cette équation, qui sont supérieures à α, augmenté du nombre des racines imaginaires.

—198. (JOHN GRIFFITHS, M.A.)—The coordinates x, y, z being proportional to the perpendicular distances from the sides of a triangle ABC, prove that (1) the locus of a point (x, y, z) such that its pedal circle (*i.e.*, the circle which passes through the feet of the perpendiculars drawn from the point in question upon the sides of the triangle) touches the nine-point circle, is the cubic $x(y^2-z^2)\cos A + y(z^2-x^2)\cos B + z(x^2-y^2)\cos C = 0$; and (2) trace this curve.

—199. (D. T. GRIFFITHS.)—If circles can both be described about and inscribed in a quadrilateral whose sides are a, b, c, d, and the angle between the diagonals θ, prove that, if $\theta < \frac{1}{2}\pi$,

$$\left(\frac{bd}{c}\right)^{\frac{1}{2}}\theta = 2 - \tfrac{2}{3}\left(\frac{ac}{bd}\right) \times \tfrac{2}{5}\left(\frac{ac}{bd}\right)^2 - \tfrac{2}{7}\left(\frac{ac}{bd}\right)^3 + \&c.$$

—200. (Capitaine DE ROCQUIGNY.)—Neuf nombres entiers consécutifs sont disposés en carré de la manière suivante:

$$\begin{vmatrix} n-4, & n+2, & n-2 \\ n-1, & n, & n+4 \\ n+3, & n-3, & n+1 \end{vmatrix}$$

Le centre est occupé par le nombre du milieu; les autres nombres se succèdent, d'après la loi du cavalier, dans l'ordre de grandeur croissante. Choisir n de manière que la valeur de ce *déterminant* du cavalier soit un carré parfait.

—201. (H. L. ORCHARD, M.A., B.Sc.)—Find the relation between b and c, in order that $x^4 + x^3 + bx^2 + cx + 1 = 0$ may be exhibited as the product of two quadratic factors.

—202. (MAURICE D'OCAGNE.)—Si les cordes AB et AC d'une conique passent par les foyers de cette conique, la normale à la conique en A et ses tangentes en B et en C sont concourantes.

—203. (W. S. M'CAY, M.A.)—Show, from the theory of three similar figures, that the inscribed and nine-point circles of a triangle touch at the intersection of the SIMPSON's lines of the extremities of the diameter of the circumcircle drawn through the incentre.

—204. (J. C. St. CLAIR.)—Through each vertex of a triangle are drawn pairs of lines parallel to two fixed lines OX, OY; prove that (1) the three diagonals of the parallelograms having the sides of the triangle for their other diagonals meet in the same point P; and (2) if the sides of the constant angle XOY vary in direction, find the locus of P.

—205. (F. A. TARLETON, LL.D.)—A billiard player plays full, with a strong top twist, against a ball touching a cushion, which makes a small angle with the line of direction of his blow; find an expression for the greatest distance of the striker's ball from the cushion, after hitting it, and show that approximately the ball runs along the cushion.

[This Question is connected with the admirable Treatise on Dynamics, by Messrs. TARLETON and WILLIAMSON.]

—206. (W. J. GREENSTREET, M.A.)—Triangles of maximum area are inscribed in an ellipse; find (1) the locus of their orthocentres; (2) the locus of their circumcentres; (3) the envelope of the polar of the centre of the ellipse with respect to the circumcircles; also (4) the same in the case of triangles of minimum area circumscribed to an ellipse.

—207. (O. BLIGNICOURT.)—Si les sommets d'un quadrilatère variable $AA_1A_2A_3$ parcourent quatre droites fixes qui concourent en un même point, pendant que trois côtés AA_1, A_1A_2, A_2A_3 tournent autour de trois points fixes O, O_1, O_2, le quatrième côté A_3A et les diagonales AA_2, A_1A_3 passeront par trois autres points fixes O_3, O_4, O_5. Démontrer que ces six points fixes sont les sommets d'un quadrilatère complet.

—208. (J. J. BARNIVILLE.)—Inscribe in a quadrant a square having two angles on the circumference.

—209. (H. J. WOODALL. Arising out of Quest. 10048.)—If a voter may use r, $r-1$, $r-2$, ... 2, 1, 0 of his votes, find in how many ways he may now act.

—210. (E. M. LANGLEY, M.A.) — Use Ptolemy's theorem (Euclid VI., D) to find P within the triangle ABC such that $l\text{AP} + m\text{BP} + n\text{CP}$ is a minimum, l, m, n being any three constants such that two are together greater than the third.

—211. (E. LEMOINE.)—Par les milieux A′, B′, C′ des côtés d'un triangle quelconque ABC, on mène les symétriques de BC, CA, AB par rapport à une direction donnée. Ces trois droites concourent en un point du cercle des neuf points du triangle ABC.

—212. (W. J. C. SHARP, M.A.)—Solve (1) the equation of differences

$$(n+1)P_{n+1} - (2n+1)P_n + nP_{n-1} = 0;$$

find (2) what this solution becomes when $P_1 = P_2 = 1$; and hence (3) show that Legendre's coefficients are each $= 1$, when $x = 1$.

10213. (B. F. Finkel, B.Sc.)—If three points are taken at random in a triangle; find the probability that the triangle formed by joining these three points contains the centre of gravity of the triangle.

—214. (Rev. T. W. Openshaw, M.A.)—The sum of the squares on the tangent to an hyperbola from the foci of the conjugate curve is constant.

—215. (R. Knowles, B.A.)—From a variable point O on the latus rectum of a parabola, whose focus is F, tangents are drawn to meet the curve in P, Q; prove that the locus of the centre of the circle PQF is a semi-cubical parabola.

—216. (R. W. D. Christie.)—If x, y, z be the sides, and a, b, c the medians of any triangle, prove that

$$3^3(x^2+y^2+z^2) \equiv \{2(2a+2b-c)\}^2 + \{2(2b+2c-a)\}^2 + \{2(2c+2a-b)\}^2 \equiv (6a)^2+(6b)^2+(6c)^2.$$

—217. (M. Leroux.)—Dans un trapèze isoscèle, on connaît une base et les côtés égaux. Quelle doit être l'autre base pour que le volume engendré par le trapèze tournant autour de la première base soit maximum?

—218. (E. Cesaro.)—On partage une demi-circonférence en n parties égales, et l'on joint les points de division à l'une des extrémités de la demi-circonférence. Démontrer que la somme des produits p à p des carrés des cordes, ainsi obtenues, égale autant de fois la $2p^{\text{ème}}$ puissance du rayon, qu'il y a de manières de combiner $2n-p-1$ objets p à p.

LONDON MATHEMATICAL SOCIETY.

Thursday, June 13th.—J. J. Walker, F.R.S., President, in the Chair. The President opened the meeting by alluding to the losses sustained by the mathematical world during the past Session through the deaths of Prof. Genocchi of Turin, Prof. Du Bois-Raymond of Berlin, and M. Halphen of Paris. The following communications were made:—"The Square of Euler's Series," Dr. Glaisher, F.R.S.; "A Theorem in the Calculus of Linear Partial Differential Operations," Major MacMahon, R.A.; "On Crystalline Reflection and Refraction," A. B. Basset, F.R.S.; "On some Rings of Circles connected with a Triangle and the Circles (Schoute's system) that cut them at equal Angles," W. W. Taylor, M.A.; "The Figures of the Pippian and Quippian of a Class of Plane Cubics," the President (Sir J. Cockle, F.R.S., in the Chair); "A Generalisation of Buffon's Problem," Dr. Sylvester, F.R.S. (communicated by J. Hammond, M.A.). The following papers were taken as read:—"On the Small Wave Motions of a Heterogeneous Fluid under Gravity," Prof. W. Burnside, M.A.; "On the Uniform Deformation in two Dimensions of a Cylindrical Shell of finite thickness, with applications to the general Theory of Thin Shells," Lord Rayleigh, Sec. R.S.

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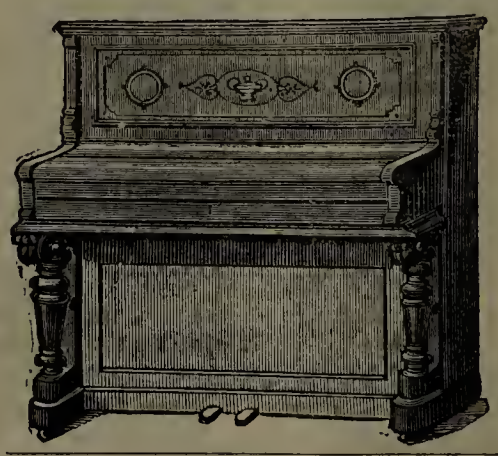

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The Educational Times.

COLLEGE OF PRECEPTORS.—HALF-YEARLY GENERAL MEETING.

The Half-Yearly General Meeting of the Members of the Corporation was held at the College, Bloomsbury Square, on Saturday, the 20th July.

The Secretary having read the advertisement convening the meeting, Dr. Wormell, Vice-President of the Council, was appointed Chairman.

The Report of the Council was laid before the meeting, and was taken as read, a copy having been sent to every member. It was as follows:—

Report of the Council.

The Council beg leave to lay the following Report of the proceedings of the past half-year before the Members of the Corporation:—

1. The Midsummer Examination for Certificates was attended by 5,200 candidates, as compared with 5,400 entered for the corresponding examination last year. The small decrease shown by these figures is no doubt owing to the unusually late falling of Easter, which made it specially inconvenient for schools to send in their lists by the required time. As the plan of division of the scholastic year has gradually been changed, in the case of the great majority of schools, from "quarters" to "terms," the question has arisen whether it would not be advisable to hold the Midsummer Examination at a date nearer the end of the term, and the Council have considered whether anything could be done to meet the convenience of the "term" schools, and at the same time to secure the important object of making known the detailed results in time to enable principals to incorporate them in the school-reports, and to award prizes thereon. They accordingly propose for the future to fix the date of the examination, whenever possible, in the second or third week in June, instead of the first week, as has generally been the case heretofore. The Public Distribution of Prizes and Certificates to the successful candidates at the last Christmas Examination took place at the College on the 18th of February, when the Chair was taken by the Right Hon. the Lord Mayor of London. The forthcoming Distribution will take place on the 24th of July, when the Chair will be taken by the Rev. Henry Wace, D.D., Principal of King's College, London.

2. The question of combining oral with written examinations has recently engaged the earnest attention of the Council, has formed the subject of discussion at conferences of teachers, and has been warmly advocated in papers read at meetings of the members of the College. The value of an oral test, as supplementing the written examination, is generally conceded; but the difficulties of working any comprehensive scheme for the purpose have hitherto been regarded as opposing insuperable objections to the proposal. In the case of the Examinations for Certificates of Proficiency in Mercantile Subjects, colloquial facility in the use of a modern foreign language being held to be essential for the purposes of commerce, dictation and conversation have been made obligatory, and the arrangements for these Examinations accordingly include the appointment of a travelling Examiner, to carry out the oral test at a certain number of local centres. The Council have decided to extend this oral examination to candidates for general certificates, to whom will now be afforded the opportunity of showing their proficiency in conversational French and German, and of having the fact recorded on their certificates. It is hoped that in this way a real want in our examination system will be supplied, and a stimulus afforded to the cultivation of living foreign languages for the purposes of personal intercourse as well as of literary study.

3. Besides the general Examination for Certificates, the Professional Preliminary Examination, for intending medical students and others, was held in the second week in March last, and was attended by 254 candidates.

4. For the forthcoming Examination of Teachers for the College Diplomas, 66 candidates have entered their names. The Examination will be held in London, and at local Centres at Birmingham, Bristol, Leeds, and Manchester.

5. In addition to the above Examinations, and the examination of a number of entire schools by visiting Examiners, the Council have conducted, as usual, during the past half-year, the Preliminary Examinations of the Royal Veterinary College and of the Pharmaceutical Society of Great Britain.

6. The Sixteenth Annual Series of Lectures to Teachers on the Science and Art of Education commenced on the 14th February with a Course of Twelve Lectures on "Mental Science for Teachers," by Dr. James Sully, M.A.; and a Course of Twelve Lectures on the "Practice of Education," by the Rev. Canon Daniel, M.A., Principal of the Battersea Training College, will be delivered in the autumn. In addition to the Lectures on the Theory and Practice of Education, a Course of Six Lectures on "Language and Linguistic Method in the School," by Dr. S. S. Laurie, M.A., Professor of Education in the University of Edinburgh, was delivered at the College in the month of May. The Council propose to arrange for the delivery of a similar Course of Lectures on the Teaching of History or Geography, or a branch of Natural Science, towards the end of the year. These Lectures on particular subjects of instruction are intended to supplement, and give greater definiteness to, the Courses of Lectures on the Principles and Practice of Education which have been delivered at the College for the past fifteen years.

7. The usual Monthly Evening Meetings of the Members have been held, at which the following Papers have been read:—

February 20th.—"On Mental Physiology—A Study of the Growth of Mental Faculty and its Culture in Children," by Dr. Francis Warner, F.R.C.P.

March 19th.—"On the Teaching of Geography," by Prof. H. G. Seeley, F.R.S.

April 17th.—"On Hand-work and Head-work," by J. G. Fitch, M.A., LL.D.

May 15th.—"On Character, Conduct, and Religion; or, Froebel's Views on Moral Training," by H. Courthope Bowen, M.A.

June 12th.—"On Common Faults in Teaching, regarded in the Light of Mental Science," by the Rev. Canon Daniel, M.A.

The Papers, and the discussions on them, have been reported, as usual, in the *Educational Times*.

8. The Council regret that the Government have not yet seen their way to introduce a Bill for the Organization of Secondary Education, which they held out hopes of doing in the course of last year. There are many indications that public opinion has greatly progressed in the direction of placing the secondary education of the country under the control of a representative Educational Council, as proposed in the Bill promoted by the College and introduced by Sir Lyon Playfair in the Session of 1879, and again by Sir John Lubbock in 1881; and the Council propose to take steps to keep the question before the public by the re-introduction of this Bill at the earliest possible date.

9. During the past half-year the Diploma of Licentiate has been conferred on two candidates, and that of Associate on twenty-nine, who had passed the required examination. Thirty-eight new members have been elected, while notice has been received of the withdrawal of eleven. The Council regret to have to report the death of the Rev. Dr. Kennedy, formerly President of the Council, and a life-member of their body; also of the following members:—Mr. C. J. Fenner, L.C.P., Mr. W. S. Grigsby, L.C.P., Mr. F. Tappenden, L.C.P., and Mr. E. K. Baker.

Mr. Southee expressed his approval of what was foreshadowed in paragraph 2, believing it to be a step in the right direction, though doubtless the proposal would take some time to work out satisfactorily.

The Dean thought that it would not be out of place if he gave some idea of the method that was pursued in conducting the oral examination in foreign languages. After the dictation test, the examiner gave the candidate a passage to read, and then questioned him on what he had read. Such conversation was much less embarrassing for the candidate, and more satisfactory to the examiner, than if he began with general questions as to whether he had been at school, or in France, and so on. He hoped that this kind of examination was one that would not be very difficult to prepare for; while it would enable an examiner to fairly test, not only those who talked French or German with great readiness, but those who had made some progress towards using the language conversationally.

Mr. Stewart, referring to the latter part of paragraph 6,

expressed a hope that the supplementary course of lectures would be on history rather than on geography or natural science, as it was evident, from the results of the College examination, that with all the attention bestowed on the subject by candidates and their teachers, a good deal of energy was exerted in a different direction from that of the examiner. If such a course of lectures were given, some light might possibly be thrown on the problem, how to go about to teach history. They had an abundance of text-books which they thought very good, but they found it difficult to get on to the examiner's lines.

Mr. SOUTHEE, in moving the adoption of paragraph 8, referred to the efforts that had been made, outside as well as inside the college, to awake public and professional opinion as to the need of a registration of teachers. The Scholastic Registration Association in the first instance, and afterwards the Teachers' Association, including all grades of the profession, had worked with the greatest energy towards this end; and their action had always been in loyal co-operation with the College, which had initiated the movement. He trusted nothing would arise to create opposition or dissension, and he regretted to observe a tendency in certain quarters to waste strength in isolated efforts, which would be likely to result in defeating or retarding the common object they had in view. He believed that registration would be a blessing both to teachers and to the public, and he trusted that the Council would persist in their efforts to re-introduce the Bill. Some might desire to see more energetic steps taken to promote the training of teachers; but until they had registration it was of little use to urge young men to train, when they could get appointments without. On the other hand, there were not a few who contended that the idea of making a teacher was ridiculous,—that teachers must be endowed with the necessary faculty, which could not be acquired by cultivation; and no doubt that was true to a certain extent. Training would never make a man excel who had no gift for teaching; but in the case of those who had a love for it, great good would result from the study of principles and methods of education. One main reason why teachers should desire to see a Registration Act passed, was that young men, seeing that there was a definite end in view, would be led to train in order that they might qualify themselves for registration.

Mr. MASON thought the wording of the paragraph was calculated to convey the idea that the College approved of the whole education of the country being handed over to the Government, and he was not aware that the members of the College had advanced as far as that. He could remember that at an early stage of the discussion there was a very clear distinction drawn between these two objects, and that many who very strongly objected to placing secondary education under the control of the Government were perfectly willing to accept a proposal for the registration of teachers, and their organisation into a distinct profession; just as those who belonged to the medical profession had been organised and formed into a profession. It would be a step of a much wider character to put the whole of the medical profession under the control of Parliament, and he was apprehensive lest what they proposed in the case of teachers was drifting in that direction.

Mr. SOUTHEE did not gather the same meaning from this paragraph that the last speaker did. The proposed Council would be independent of Government after it had once been appointed. He should be very sorry for it to go forth that he was an advocate for the Government taking entire charge of secondary education. He merely wished the Government to take the initiative in forming the Educational Council.

Mr. BARROW RULE said there seemed to be some misapprehension with respect to the proposed Educational Council. As early as the year 1860, at a special general meeting under the presidency of the late Dr. Kennedy, it was decided to advocate the principle of scholastic registration, and the Committee that was then appointed for the promotion of this object grew into an association which was affiliated to the College, which subsequently again took up and carried on the work. Nevertheless a notion seemed to prevail in some quarters that this work was a new work. He never understood, and he did not think the Council understood, that the whole of secondary education was to be handed over to the proposed Council, as primary education was handed over to the Committee of Council on Education. That had never been proposed. The word "control" was used in a narrow sense, to imply that the Educational Council should have a general power to indicate, to guide, and direct, without controlling or exercising any direct influence over the teachers individually. It was not proposed that the Educational Council should have a right to compel admittance into a school, but the idea was that it should bear the same relation to secondary education which the Medical Council bore to medical education. They asked that Parliament should create a similar influence over secondary education, leaving the schoolmaster as free in the practice of his profession as the surgeon and physician were in theirs. With regard to the constitution of the Council, he was surprised to hear it spoken of as a Government department, for it would have no more direct connection with the Government than the Medical Council had. Parliament had nothing to do with the working of the Medical Council; it gave birth to it, and then ceased to have anything further to do with it. It was suggested that the Educational Council should hold an analogous position, that it should represent the teachers of secondary and higher schools, but not teachers of the public elementary schools. The Council would have nothing to do with the elementary teachers, and it would be absurd to suppose that it should have, for this reason, that if they as a College were to make such an unwise suggestion, they would immediately place themselves in antagonism to the Education Department. The public elementary schools of the country were under the control (using the word in its strictest sense) of the Education Department, which was bound to exercise such control, being entrusted by the State with the payment of money. But there would be no such payment in connection with the secondary schools, as they would be perfectly free. Therefore, so long as the public elementary schools of the country remained under the control of the Education Department, they would have nothing to do with the Council; the Council would have nothing to do with them, and it would be absurd to propose that the teachers in those schools should be represented on a council constituted for the control of other schools than their own.

The DEAN said he might be allowed to quote in this connection a little story of what happened to a Browning Society. That society discussed for many meetings one of Mr. Browning's most obscure poems, and thought they found in it several hidden meanings, but were much puzzled as to which was the right one. At last they summoned up courage and sent a deputation to ask Mr. Browning which it was, and he said there was no meaning in it at all. He thought Mr. Mason was perfectly right in objecting to the phraseology of the paragraph referring to the proposed Bill, but he did not think the Council in framing it meant anything more than what had been already constantly before them — viz., a Bill for the registration of secondary teachers, and the organisation of secondary education.

The Dean presented his Report, which had been printed and distributed among the members present, and which was as follows:—

THE DEAN'S REPORT.

IN addition to the general statement of the Examination work of the College during the past half-year, which has been given in the Report of the Council, I have now to submit to you, in detail, the statistics and results of the various Examinations.

The Midsummer Examination of Candidates for Certificates took place on the 4th to 7th of June, at 56 Local Centres and 91 Schools in all parts of the country. The total number of Candidates examined was 5,129, of whom 1,482 sat at the London Centres, 2,192 at Provincial Centres, and 1,455 were examined at their own Schools. The Local Centres besides London (where there were 8 Sub-centres), were Barnstaple, Belfast, Birmingham, Blackpool, Bournemouth, Brighton, Bristol, Broxbourne, Cardiff, Carmarthen, Cheltenham, Durham, Eastbourne, Exeter, Eye, Gainsborough, Grimsby, Harleston, Hastings, Herne Bay, Honiton, Huddersfield, Hull, Jersey, Leamington, Leeds, Leicester, Liverpool, Manchester, Margate, Newcastle-on-Tyne, Norwich, Nottingham, Oswestry, Peterborough, Plymouth, Portsea, Salisbury, Sheffield, Southampton, Southend, Southport, Spilsby, St. Asaph, Stroud, Sunderland, Taunton, Thame, Thirsk, Truro, Tunbridge Wells, Weston, Windsor, Whitchurch, Yeovil, and York.

Of the 5,129 Candidates examined, 3,040 were boys and 2,089 were girls. Of these there were examined:—

	Boys.	Girls.
At the London Centres	780	702
At Provincial Centres	1,136	1,056
At their own Schools	1,124	331
Total	3,040	2,089

Taking the Midsummer and Christmas Examinations together, the total number of Candidates examined during the year ending Midsummer 1888 (not including those who attended the Supplementary Examinations in March and September) has been 14,566.

The following table shows the number of Candidates presented at the

Pupils' Examinations during the past five years, with the proportion of those who obtained Certificates :—

Year ending	Candidates entered.	Candidates passed.	Percentage.
Midsummer, 1885	13,628	10,247	75·2
,, 1886	13,996	10,834	77·6
,, 1887	14,671	11,477	79·6
,, 1888	14,932	11,225	75·2
,, 1889	14,566	11,165	76·7

The number of passes in the above table includes a considerable number of Candidates who failed to pass in the Class for which they were entered, but who, under our rules, were entitled to receive Certificates of a lower class. The following table shows the proportion of the Candidates at the recent Midsummer Examination who passed in the Class for which each candidate was entered:—

		Passed.	Percentage.
Entered for First Class...	385	198	51·4
,, Second Class	1,903	972	51·1
,, Third Class	2,841	1,957	68·9

At the Professional Preliminary Examination for First and Second Class Certificates, which was held on the 5th to 7th of March, in London and at four Provincial Centres, viz., Birmingham, Bristol, Leeds, and Liverpool, 256 Candidates presented themselves, of whom 80 obtained Certificates qualifying for registration as medical students.

The Examination of Teachers for the College Diplomas took place on the 3rd of July and three following days in London and at the following Local Centres—Birmingham, Bristol, Leeds, and Manchester. It was attended by 62 Candidates, of whom 32 were men and 30 women. The subjects of Examination included the Theory and Practice of Education, Scripture History, English Language, English History, Geography, Arithmetic, Algebra, Euclid, Trigonometry, Analytical Geometry, Latin, Greek, French, German, Natural Philosophy, Experimental Physics, Animal Physiology, Geology, Chemistry, Drawing, and Music. On the results of this Examination, 2 Candidates have obtained the Diploma of Licentiate, and 23 that of Associate.

The Preliminary Literary Examinations of the Royal Veterinary College and of the Pharmaceutical Society have been held, as usual, at the times appointed by those bodies. For the Royal Veterinary College 9 candidates have been examined during the past half-year; and for the Pharmaceutical Society, 752.

The Report was adopted.

A vote of thanks to the Chairman concluded the proceedings.

COLLEGE OF PRECEPTORS.—DISTRIBUTION OF PRIZES AND CERTIFICATES.

The Public Distribution of Prizes and Certificates to the successful candidates at the Midsummer Examination took place at the College, Bloomsbury Square, on Wednesday, the 24th of July.

The Chair was occupied by the Rev. Dr. Wace, Principal of King's College, who was supported on the platform by Mr. H. W. Eve, Dean of the College; the Rev. Canon Daniel and Mr. J. Stewart, Vice-Presidents; Mr. Atkinson, Mr. Baumann, Mr. Bidlake, Mr. Brown, Professor Buchheim, Mr. Chettle, Dr. Dillon, Dr. Fitch, Mr. Hagreen, Dr. Kemshead, Mr. Langler, Mr. Reynolds, Mr. Robinson, Mr. Armitage Smith, Mr. Stièvenard, Mr. Storr, Mr. Swift, the Rev. R. O. T. Thorpe, and others.

The Chairman, in opening the proceedings, said,—In accepting the honour which your Council have conferred upon me of distributing the prizes on this occasion, I must begin by congratulating this institution on the continued success, and the increasing importance, of the work which it is doing throughout the country. Its most important work, I suppose, although not its only work, is that of which we see some of the results on this occasion, I mean the examination of schools and students throughout the country. The other work which it does is perhaps of equal importance in itself, though I believe of less extent, and that is the instruction and examination of teachers—a work that is likely to grow, both in extent and importance, as time goes on. But for the present, at all events, the most conspicuous work of the College consists in the examination of schools and students throughout the country.

Now every one must be aware that this is a time at which there is a general reaction, or an appearance of reaction, against the system of examinations, and it is probable that, as with all good human institutions at the outset, they have been pushed a little too far. It appears to be a characteristic of the human mind and of human nature, that it is quite incapable of going forward in a straight line, but necessarily advances by zigzags—going a little too far to the right, and then a little too far to the left, but making a little advance at each movement, and we are passing through a phase of that in certain quarters where doubts are raised as to the advantages of examination. But everybody concurs in this truism, that, whether you like it or not, examinations are necessary, and therefore the only thing you have to do, as practical people, is to conduct them in the best way, and restrict them within the proper limits. There is one consideration with respect to that point which it appears to me is not so often borne in mind as is desirable. The chief mischief of examination appears to come in when you have to deal with the more original and independent faculties of the mind; when you get young men and women, at the age when they ought to begin thinking for themselves, put in the strict and arbitrary trammels of a system of rules arranged for them by an external authority; so that the teachers in the first instance, and those whom they teach in the second instance, are unable to develop their thoughts and their mode of instruction with sufficient freedom. But there is a certain age and a certain class of study to which that objection does not and cannot apply. There are certain branches of study, there are certain stages of every study, in which one may say it is a matter of mechanical necessity that people should know certain matters of fact, that you can ascertain as a simple matter of fact whether they do know them, and if they do not know them they are not qualified to proceed further. Take for example the simplest and lowest of all education. Whether a person knows the multiplication table or not, is a mere matter of fact, and, until he does know it, it is not the least use advancing any further in the study of arithmetic. In the same way with respect to the study of languages, there are some primary and elementary points with respect to the study of any language, which the student must have at his fingers' ends before he can advance any further with advantage. There are different opinions as to how you should teach language, but by whatever means you approach it, it is certain that no one can be qualified to study the literature of a foreign language with advantage who does not at all events know the conjugation of a verb, and how to deal with the elementary parts of speech. I am giving some very simple illustrations, and by no means wish to imply that what I say about the work of examination applies only to them. There is a point up to which it ought to be ascertained, and it is possible to ascertain as a fact, whether a requisite amount of knowledge, as distinguished from thought, has been attained. When you pass that line, and get into the region where you are testing thought and not mere information, then the question of examination becomes a very much more difficult one. Consequently I do not myself see that any reasonable objection can be raised to the examination of pupils of schools, provided of course that too large a range of knowledge is not exacted, and that the questions asked are reasonable; and you have the best possible security for this in the examinations conducted by this Institution, because they are in the hands of experienced teachers themselves. Much anxiety and difficulty has been felt in London with respect to examinations at the University of London. A great part of the difficulty arises from this fact, that the determination of the nature of the examinations, and the control of the examinations, in the University of London is not, to any appreciable extent, in the hands of teachers. That, in our judgment, is the source of a great deal of the difficulty. Here, on the contrary, you have the inestimable advantage of a large body of able and experienced teachers from all parts of the country exercising control over the examinations, and directing their character; and the value of such a combination of the experience of teachers in reflecting back that experience upon every part of the country, and so fixing, raising, and maintaining the general standard of school education, can hardly, I think, be exaggerated.

We have had within the last year what I think is a remarkable illustration of the services which this Institution is capable of rendering to education throughout the country. The London Chamber of Commerce, and the Associated Chambers of Commerce, following its example, determined to prepare a scheme of the kind of education which, in their judgment, was desirable for the great commercial classes of this country; not, I may say—because there has been some little misapprehension on this point—of that second-rate education which used to be associated with what were called in former days commercial academies, but the sort of liberal education that is necessary for people who are

to engage in commercial pursuits in a liberal and intelligent spirit. That scheme was drawn up by the London Chamber of Commerce, and then the question arose by whom was it to be administered. Who was to see that the students who presented themselves for these examinations reached the required standard, and who were to control the application of that standard? I was associated a good deal with the Chamber of Commerce in doing that, and I happened fortunately to enter into consultation with your Dean, with the result that the London Chamber of Commerce not only asked your institution to undertake those examinations, but they did what is in some respects equally valuable—they have had the advice of your Council with respect to some modifications of that scheme, so that your experience has contributed to the important result which has been obtained. That result may best be explained by reading this letter which I received this morning from the Secretary of the Chamber of Commerce, who tells me that "the scheme as originally drafted by the London Chamber has been amended slightly in conference with the College of Preceptors, and the Oxford and Cambridge Examination Board. At the same time the Oxford and Cambridge Examination Board have amended their scheme in order to place it in harmony with that of the London Chamber, so that from next year forward only one scheme of commercial education will be before the country." Oxford and Cambridge and the London Chamber of Commerce all combine to state what is desirable for this class of education. I will read what follows because it is of interest about education in the present day. "The principal alterations are that in both schemes Latin is, or will be, withdrawn from the junior section, but it is placed as an optional subject in the senior. A second main alteration is that temporarily only one modern language is made compulsory, and the addition of other languages is optional, but an understanding exists that as soon as it is likely that a sufficient number of youths possess the necessary knowledge, two modern languages will be required, both in the London and in the Oxford and Cambridge Boards curriculum."

That is part of a general movement which has been going on for some time. Looking back at some of the addresses of occupants of this chair, I notice that Sir Philip Magnus expressed a strong conviction that, for the purpose of ordinary middle-class education, Latin, with other dead languages, would have to be surrendered, and the Lord Mayor expressed an even stronger opinion at the beginning of this year. Now, the omission of Latin from the scheme of the Chamber of Commerce arose, as I can assure you (having gone through the discussion, which was a very long and anxious one), from the mere question of time. There was a general desire in the London Chamber of Commerce to retain it; but we were told by experienced men that if you had to teach two modern languages, you cannot teach Latin as well—to use a famous illustration, as you cannot drive six omnibuses abreast through Temple Bar, so you cannot drive more than two new languages abreast through an average boy's mind, and so Latin would have to be surrendered. I fear an impression prevails, and, if I may say so with the respect due to so distinguished an authority, I am not sure there was not some kind of impression in the Lord Mayor's mind, that this involved a subordination of literary influences to those of commercial life. If it involved that, I should very deeply regret it, because up to the time at which men who have to engage in the active work of life have to take their places in the ranks, nothing is more important than that their intellectual faculties and sympathies should be developed to the utmost. It is a very high privilege indeed to have an opportunity of encouraging that development. But I own I cannot see any reason whatever why the same degree of mental cultivation—for all practical purposes, at all events—I will not speak of philosophical purposes, which come afterwards—why the same amount of mental intelligence cannot be evolved by the study of modern languages, and in particular by the study of the English language, as by the dead languages. I hope the time is coming when not only will modern languages be used for the purposes of that intellectual drill which is connected with the careful study of grammatical form and syntax, but when the great masterpieces of English and modern languages will be systematically studied in the same way as that in which the masterpieces of Greece and Rome are studied in the Universities, for the purpose of bringing out the intellectual sympathies and intelligence of the students. I speak not entirely without experience in this matter. When I was a student at King's College at the age of 16, I had the privilege, among one or two available teachers, of studying under one man whose name will be familiar to and honoured by many of those here—I mean the late Professor Brewer; and nothing was more valuable, nothing more influential at King's College, than the manner in which Professor Brewer would use a great English classic, like Dryden or Pope, or Hooker or Hume, to develop the whole mind—the whole intellectual capacity and sympathies of those with whom he talked. He did so by applying to the study of those English masterpieces the same sort of methods which we have been accustomed to apply for centuries to the study of the masterpieces of the dead languages. I am somewhat apprehensive that in the study bestowed on English there has been something rather too technical in the methods employed. People have laid great stress on knowing what were the Anglo-Saxon roots, and the other roots of the language, and all its ancient history of the language. With respect to the dead languages, it would have been much the same kind of thing as if students at Oxford and Cambridge had been set to spend a great deal of time on the Sanscrit roots of the Greek and Latin languages, or if they had been set to study the obscurest Greek poets. But the course of education in the dead languages at the Universities has been that you have selected a few great masterpieces, and made the minds of students thoroughly familiar with them, and by means of the contact of the thought of the students with the greatest thoughts of the greatest minds of the past, you have had their intellectual sympathies and faculties developed. If due use is to be made of the English language and literature, we must pursue the same method, and not confuse young men's minds with the whole vast range of English literature, from Anglo-Saxon beginnings down to the present time—though of course some general geography of the language may be known—but to take a few writers, and make them understood "up hill and down dale," as an old tutor at Oxford once said to me. When you have done that I think you will find the English language, and your great English writers, will do a great deal more, I will not hesitate to say, for the intellectual development of English youths than you can gain by that comparatively small amount of knowledge of the dead languages which can be acquired to the age of 16. It was a very happy saying of a French minister—I believe M. Jules Ferry—when this question of the dead languages was argued in France. He begged it might be understood he had no hostility to the dead languages, but the only question he wanted answered was this, Whether it is necessary for a boy to spend ten years of his life in *not* learning Latin? For that is practically what, to a very large extent, is done at the present time; but before the age of 15 or 16 you might give a boy some grasp of the leading elements of English thought.

I will not presume to occupy your attention further on any general points of education, and I turn to offer my congratulations to those who have won prizes on this occasion, and my best wishes to those who have not. I do not for a single moment offer them my condolence, because in all competitions some must win and some must lose, and we take our chance. I hope that the same sort of feeling is increasing more and more with respect to these prize-givings, for success in the intellectual work of schools, which is fostered by that which I will own I regard as the salvation of English education, I mean athletic sports of all kinds. When I say that, I mean that those athletic sports encourage in young men's minds more than anything else the principle of its being an honourable thing in itself to develop whatever faculties you possess to their highest possible point. That is really the sole meaning of it. One sometimes wonders why boys should be particularly proud and pleased at excelling in physical pursuits, and not be equally proud and pleased in excelling in mental pursuits. This competition in intellectual pursuits may have its danger when it is pursued merely for the sake of some advantages which are got from it—advantages, even, in scholarships and things of that sort. There are many who think the rewards of learning have been carried too far. A change has been coming over them which reminds me of a similar change in connection with athletic pursuits. When I had the honour of a seat in my College boat the highest reward I got was a pewter pot, but now no one is contented with anything but a silver pot, or a silver fish-knife at the very least, and in proportion as you get people fighting for things in that spirit, you spoil the whole charm of the sport. There is a line of Homer which lays it down as a principle for a man to follow—"always to develop the highest excellence and be superior to others." I do not quite like the last half of the verse. The true principle is simply to do your best, whatever it may be. As long as that spirit animates those who compete for the prizes, those who win and those who lose are equally happy, because they have equally had the delight of free and fair competition, and the best

man has won. In that spirit I will now proceed to distribute the prizes to the successful competitors.

The Prizes and Certificates were then distributed, after which the Dean of the College, Mr. H. W. Eve, said it was his very pleasant duty to ask the meeting to thank Dr. Wace for his presence there that day, and for the very interesting address he had given them. That address touched on two or three very important educational subjects, and touched upon them with, he thought, supreme common-sense. They could not steer clear of examinations, and Dr. Wace had pointed out their proper functions, and the extent as well as the limitations of their usefulness. It was clear that certain things could be examined in, and it was equally clear, though not equally recognised, that certain things could not. He was very glad to hear the Chairman coming back to a subject which had been again and again discussed on that platform, viz., the question as to the necessity of teaching Latin in schools where boys left at a comparatively early age. His own feeling, which he had expressed more than once in this place, was that the study of either Latin or Greek, if not carried to a fair extent, was largely, though not entirely, a waste of time. He was not quite sure whether they always did better with the subjects that were taken as substitutes. It was possible to teach English and to teach modern languages with as little good result as was got from the ten years spent in not learning Latin. He thought what schoolmasters and schoolmistresses had yet to learn was how to bring in some element of quantity into their teaching. The system of reading English authors, which was very much encouraged by our own examination, as well as by the Oxford and Cambridge examinations, was good in its way, it was minute and careful, but he did not think that it was all that was wanted in teaching English. He wished he could see his way to something that would induce boys at school to read rather more in quantity, and he thought that the same remark exactly applied to modern languages. A good deal of good discipline could be got from reading very carefully a German book, but this was not all that was wanted. It was a problem for teachers themselves, and those from whom teachers can sometimes gather hints, to see how a wider interest in literature could be brought into education somewhere about the age of 15 or 16. The great majority of boys and girls at school by the age of 16 had never read more than very small quantities either of Latin, English, French, or German. Was it possible, without throwing away the advantages of that habit of reading, to teach them how to read greater quantities, and to get some profit from it? He trusted he should be pardoned for having dwelt for a few moments on a subject which he thought was of great interest in education, and which the Chairman's speech naturally suggested. He trusted that the teachers' scholarships would become more and more of a boon to teachers. It was found that the ladies have the facilities for holding them, under conditions that could not but be approved by the Council; but the difficulty was greater in the case of the men. He hoped, however, they might succeed year by year in encouraging institutions giving exactly the kind of instruction that was wanted for teachers.

The Rev. Canon Daniel, in seconding the vote of thanks, said there were two points which the Chairman had touched upon in the address upon which he would like to say one or two words. First with regard to the matter of examinations. Undoubtedly they had been at times abused. The subjects set for examination had been, perhaps, unwisely chosen. The questions put to the pupils had been unwisely cast, and perhaps the principle upon which marks had been awarded had not been the best. Even the framers of syllabuses and examiners were fallible. Everything human was liable to this kind of criticism. Nothing was perfect. Whilst he recognised the errors which had been committed in days gone by in the matter of examinations, he had a strong belief in their value. They were of great value to the teachers, to the pupils, to the parents, and to the public at large. If the syllabus was wisely framed it called the teachers' attention to the most important points to which their efforts should be directed. He thought, too, that the examinations were of great educative value to the pupils. He did not believe in storing up knowledge unless it was occasionally reproduced; his own experience having been that knowledge which was not reproduced very rapidly disappeared altogether. Examinations were of great value to parents and the general public, as affording some sort of gauge of the work done in the schools to which their children were sent. The other point upon which Dr. Wace had touched was of very great importance indeed, and that was the value of the study of literature. Two things which were quite distinct were perpetually being confounded—language and literature. Languages were learned as keys to literature, but the value of languages as languages might be very small. In case of modern languages they might have an important commercial value, but as a rule dead languages were learned not for their own sake, but as keys to the literature which they commanded. Too much stress was, perhaps, laid on mere grammar and composition, and on such matter as derivation, to which Dr. Wace had referred, and too little on the study of literature. At one time he had taught a class Latin, and also read Shakespeare with them, and had never been able to discover that the Latin produced higher results upon them than Shakespeare. As literature, Shakespeare stood higher than any Latin author, and contact of the young mind with Shakespeare was more likely to be productive of valuable results than the contact of the same mind with the inferior authors of Latin literature. He was rejoiced to hear Dr. Wace speak so strongly of the great value of the study of classical authors of our own and modern languages. He had great pleasure in seconding the resolution.

The resolution having been carried by acclamation,

The Chairman said: I thank you very heartily for your kind acknowledgments. It gives me great pleasure to be here to-day, and I am much relieved to find that the observations which I ventured to make commend themselves to such authorities as the Dean and Canon Daniel. I agree with everything they have said in correction or in supplement of the observations I ventured to use. I will not add more, except to say one word to those who have received the prizes, which may be a useful supplement to what has been said about examinations. Examinations have one danger, that they are apt to make those who gain prizes a little too proud of them. That old master of mine to whom I have referred, said of a certain school which perhaps I had better not name, that he liked the boys who came from that school—they did not know much, and did not think they did. I hope none of those who have gained prizes to-day will think they know much.

ADJOURNED MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

An adjourned meeting of the Council was held at the College on Saturday, the 20th ult. Present—Dr. R. Wormell, Vice-President, in the Chair; Mr. Brown, Dr. Buchheim, Rev. Dr. Conder, Dr. Dillon, Mr. Eve, Rev. Dr. Hiron, Rev. W. T. Jones, Mr. Kimber, Mr. Mason, Mr. Pinches, Mr. Robinson, Rev. Dr. Robson, Rev. W. J. Savell, and Mr. Stewart.

Diplomas were granted to the following, who had completed their subjects at the Midsummer Examination of Teachers:—Licentiateship—A. T. Bott, J. Lockey; Associateship—W. G. A. Kam, G. Burge, R. D. Chalke, Miss H. L. Chandler, P. E. Evans, J. Haigh, J. T. Hindmarch, Miss E. Holmden, J. A. Humphris, A. J. H. Marshall, F. W. Mathews, R. C. Minton, J. C. Mullins, W. O. Payne, P. L. Roberts, J. Robinson, Miss C. E. Rogers, C. Sims, Miss E. J. Sowter, Miss J. H. Tabor, F. W. Watson, S. T. Whitaker, A. Young. The prize of £10 for Theory and Practice of Education, the prize of £5 for Classics, and the prize of £5 for Mathematics, were awarded to Mr. J. Lockey.

THE TECHNICAL EDUCATION OF WOMEN.

By H.R.H. Princess Christian.

(From the *Queen*.)

I was asked some months ago to write something for this paper, and I have been thinking a great deal about what I should write. It has struck me that a few words about women's technical education would not be out of place. It is a subject, I am glad to find, which is beginning to occupy a good deal of attention. Far be it from my intention to say one word in disparagement of the higher education of women, which must raise the tone of women's minds and develop their mental faculties; but I do feel that there is a tendency to carry such education too far, and to think no knowledge worth having which does not vie with that of men. I have always held that there is a great danger in this, first of all because I think it is a short-sighted policy. Those women who are forced by circumstances to earn their daily bread, seem to think that there is no field open to them but in competing with men on own their ground, with the disastrous effect adding to the overcrowded market, and thereby necessarily lowering the rate of remuneration. Secondly, I feel most strongly all that we women lose by attempting rivalry with men. We lose sight of all we might be, and of the very high position we could and should hold in this world, by struggling to be a weaker imitation of them. Exceptions only prove the rule. That small section of women whose minds are pre-eminently adapted for classical and mathematical learning, to them every facility ought to be given to train their best faculties, and enable them to reap their due reward.

There is a view of technical education which I should like to mention, as I think it is often overlooked, that is, the reason why home teaching, which in former days used to be handed down from mother to daughter, can now be taught to so much greater advantage in schools. Knowledge has so much increased, and the art of imparting it, that experts are needed to teach it accurately and well. For example, hygiene has become a modern science, absolutely necessary for every woman to study, in order that her house may be a healthy habitation. Gastronomy in its widest sense is a science. The choice and preparation of food suitable to climates and seasons, ages and constitutions, should be carefully studied and known. These subjects were but very imperfectly, if at all, understood by our ancestors. Much domestic work which was formerly learnt and practised at home is now handed over to special workers, and has come to be considered as a separate trade; for instance, laundry work, &c.

There is no doubt that farmers' wives and daughters of to-day are quite different from those of fifty years ago; they no longer manage their own dairy and poultry, nor do they educate their daughters to take part in these domestic arts. It is the age we live in which is partly to blame for these changes; it is impossible, nor could one wish, to stem the current, the true wisdom lies in directing it wisely, and not shutting one's eyes to the attendant evils. Progress is inevitable, and therefore desirable. Let women be duly qualified, and let them choose discreetly their paths of usefulness.

This idea of sound technical training is no longer a mere dream, for a college has come under my own personal notice of which I am president, and in which I am much interested, which was founded for this purpose. I believe this is not the only instance of such an institution. This scheme was set on foot by Miss Forsyth, daughter of Sir Douglas Forsyth. She began it on a very small scale, feeling her way, and only enlarging it as she saw it succeed. Her wish has not been to revolutionise the existing systems of female education, or to supplant any of them; but, on the contrary, to supplement them, intending the teaching in her school to be a course which girls should go through after they have passed the higher examinations, and the groundwork is laid for the duties of practical life. Miss Forsyth is most anxious that her school should not become a mere fashionable novelty, and her object is to give real solid training. To use her own words: "To combine thoroughness of teaching with speed in learning, and so concede as far as possible to the convenience of an economical and hurry-loving public. My original idea was to start a school where every girl when she leaves the high or ordinary boarding school might for six months learn those things which would best fit her for her home life before she is called upon to plunge into society or a profession or marriage, and where her brain would have that true recreation which exists best in change of occupation and not in mere idleness."

I quite agree with Miss Forsyth that the advocates for brain culture have rather too much faith in the power of book learning, and in the theory that a highly educated woman ought to be able to turn her hand to anything. "I am willing to grant the *ought;* but what I fail to see is that she *does*."

In addition to this technical school, in which millinery, upholstery, dressmaking, cooking, household management, and fine laundry work are thoroughly taught, very efficient lectures on hygiene and finance are given, Miss Forsyth has in contemplation a further development which must prove of even greater influence. It is a training which aims at fitting women to go forth to the colonies properly qualified; so that, instead of meriting the reproach that only the useless women emigrate for whom no employment can be found here, the object is that those who go out should be capable of helping in the development of the colonies.

There are many other subjects which must be taught if this further idea is to be carried out—for instance, poultry and dairy farming, bee-keeping, type-writing, and other occupations which women can do well. This school should be in its widest sense a technical college, for it would exist for the purpose of bringing out each woman's strong point in "technical" matters. It will enable her to make her life independent of circumstances by earning better salaries if going out to earn her livelihood, or, if called upon to be a wife and a mistress of a household, she will be saved all the wearing discomforts of the little daily details of domestic life which press so heavily on those who are devoid of such training and knowledge.

Miss Forsyth has lately been called upon to give attention to the immediate formation of country branches, both at Bedford and Birmingham; it may be hoped that she will have an opportunity there to start this wider scheme, which, to be thoroughly successful, should afford training for all classes, not only for ladies.

The education of women in this present day is of such momentous interest, and stretches over such a wide field, that I feel very diffident in giving my own opinion about it; it is only because I do feel *so* strongly how much women may and can do without stepping out of their own sphere that I have ventured to touch upon the subject. Miss Forsyth has taken for her motto, and hung up in her class-room, the following words: "Be not simply good, but be good for something"; and I should like to add a sentence I found in a German book the other day: "Do thoroughly whatever is given you to do, love thoroughly that which is given to you for your own, and help to work out the future according to God's will." And who can doubt the great future that women have before them? It rests with them alone.

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

The Examiners' Report on the M.A. Examination, Branch III., shows that only three candidates have passed, out of a total of eleven; and neither the gold medal nor the Gerstenberg Prize is awarded. The first of the three candidates is a lady (Miss C. A. Foley, prepared at University College, and by the Correspondence Classes).

In Branch IV., five candidates have passed; and here both the first and the second candidates are ladies, namely, Miss E. A. S. Dawes and Miss Minnie A. Brewer; both are private students, and both took up French and German. Miss Dawes was already M.A.; and having now passed in another branch, she is, so far, qualified to present a Thesis for the degree of D.Lit.

At the D.Sc. Examination three candidates have passed (in addition to the three mentioned by us last month); they all presented Theses in Chemistry.

At the Matriculation Examination it appears that the exact number of candidates was 1,546, against 1,773 in the June of last year. The total of passes is 912, or 59 per cent. (about ·3 per cent. last year). There are 52 in the Honours Division, the standard for which has been raised this time, and for the future by 100 marks; there are 653 in the First Division, and 207 in the Second. It is said that the girls present numbered 280, and we find 164 (58·6) in the pass list; there are 4 in the Honours Division, 124 in the First, and 36 in the Second. Of the 4 in Honours, however, one, Miss Blanche Hewett, a private student, stands first; but, by being over twenty years of age, is disqualified for holding the First Exhibition, which is passed on to the second candidate, Mr. J. W. Cott, from the Boys' Modern School, Leeds. The third candidate in Honours is also a lady, Miss Minne Baldwin, of the Sheffield High School; and to her the Second Exhibition is awarded. The Third Exhibition goes to Mr. H. J. Monahan, of Beaumont College. The first prize is awarded to Mr. A. O. Allen, of Walthamstow and Monaux Grammar Schools; the second to Mr. H. M. Schröder, of Tollington Park College; and the third is divided between Mr. Guy Attfield, of University College School, and Mr. G. F. A. Osborn, of Royal Mount School, Colwyn Bay.

The Intermediate Examinations in Arts and in Science, and the Preliminary and Intermediate Examinations in Medicine, have been held during July; but the Reports thereupon will not appear until August.

Cambridge.

The annual grant of £100 by the University to the Teachers' Training Syndicate, for the purpose of providing lectures on the theory, history, or practice of teaching, has been renewed for a further period of five years.

During the coming term a course of twelve lectures on the Theory of Education will be delivered before the University by Mr. H. Courthope Bowen, M.A. The first lecture will be given on Saturday, October 26th. All information may be obtained from Mr. Oscar Browning, King's College, Secretary to the Training Syndicate.

The candidates for the office of Librarian to the University, which will be vacant next term by the resignation of Prof. Robertson Smith, are Mr. J. W. Clark, of Trinity, and Mr. F. J. H. Jenkinson, also of Trinity. Both candidates are influentially supported.

The Hopkins Prize for the period 1877—1880 has been awarded by the Philological Society to Prof. George Darwin.

Prof. J. W. Hales, of King's College, London, has been appointed Clark Lecturer in English Literature at Trinity, in succession to Mr. Edmund Gosse.

Oxford.

Mr. Watson, Principal of Brasenose, has announced his attention of resigning his post as head of that college.

Mr. R. G. Plumptre, B.A., has been appointed Vice-Principal of St. Edmund's Hall, in the place of the Rev. G. F. Lovell, B.D., resigned.

Other Universities, &c.

The Council have elected Mr. C. W. Bourne, M.A., of St. John's College, Cambridge, Headmaster of King's College School, about to be vacated by Dr. Stokes. Mr. Bourne is now Headmaster of the College, Inverness, and was formerly Senior Mathematical Master of Marlborough College, and then Headmaster of Bedford County School. In all the masterships he has held, Mr. Bourne has, it is said, been a most successful administrator and teacher.

Mr. R. E. Leach, M.A., of Magdalene College, Second Master of the Fauconberge School, Beccles, has been appointed Headmaster of the Henry Smith School, Hartlepool.

Miss Lilian Faithfull, Assistant Mistress of the Oxford High School, has been appointed Professor of English Literature at the Royal Holloway College.

The Bishop has appointed the Rev. Herbert Kynaston, D.D., lately Headmaster of Cheltenham College, to the vacant Professorship of Greek in the University of Durham.

The Queen has appointed Prof. A. C. Bradley, of University College, Liverpool, to the Professorship of English Language and Literature in the University of Glasgow.

Local examinations in Music will in future be undertaken by the Royal College of Music and the Royal Academy of Music, acting in conjunction for that purpose under the presidency of the Prince of Wales.

Mr. T. Hodson Beare has been appointed Professor of Engineering and Mechanical Technology in University College, London.

The University of Durham will henceforth confer degrees in Music, after examination, upon students who have previously passed certain examinations in general education.

The Committee of the British School at Athens have offered a Studentship of £50 for one year, open to all members of the University of Oxford.

Mr. G. A. H. Murray, of St. John's, Oxford, has been elected Professor of Greek, of the University of Glasgow, in succession to Prof. Jebb. Mr. Murray is twenty-five years old. He was a pupil of Merchant Taylors' School five years ago.

EDUCATIONAL NOTES AND SUMMARY.

A CLAUSE has been inserted in the Cruelty to Children Prevention Bill, on the motion of Sir Richard Temple, providing that nothing in the measure should take away the right of a parent or other person or teacher having the lawful control or charge of a child to administer punishment.

IN connection with the visit to Oxford of the University Extension Students, the lecturers, in addition to those whose names have been already mentioned, are Sir Robert Ball, Astronomer Royal of Ireland; Mr. Henry Morley, Professor Herkomer, and Professor Stuart, M.P., to whose initiative so much is due in regard to university extension work in England; Mr. Murray Butler, head of the Association for Technical Education in America; the Rev. H. D. Rawnsley, whose name is so well known in connection with the encouragement of Art in Keswick; Professor Pritchard, who will lecture on astronomy; Professor McCunn, who will deliver an address on English Literature and English History; Mr. Arthur Sidgwick, Mr. Poulton, the Rev. W. H. Shaw, Mr. Price, and the Rev. H. B. George. It is hoped that the name of Professor Henry Roscoe may be added to the list.

THE Annual Conference of Head Mistresses was held this year in Birmingham, at the High School for Girls, under the presidency of Miss Cooper. It is the largest gathering of the kind that has ever been held, and the meetings were most animated and interesting. The various Head Mistresses expressed themselves much gratified at the hospitable entertainment given them by Birmingham residents. Amongst other matters of interest to teachers, pension schemes were discussed. It appears that in some of the leading schools of the country, both boys' and girls', contributions from Masters or Mistresses are supplemented by contributions from the Governors, and the sum total with interest is received by the teacher at the end of a given term of service. In the evening Miss Cooper entertained the Head Mistress and a large number of friends at a *conversazione* at the school-house. There were present about 400. On the following morning business began again, and various reports were read, which had been prepared by a Committee appointed last year for the purpose of collecting and tabulating information concerning the work done in Secondary Schools for girls. The morning's work was followed by an elaborate lunch at the school-house, which Miss Cooper announced to have been prepared by pupils of the Birmingham Cookery School.

IN reviewing the debate on the employment of children in theatres, *The Times* points out that the paramount reason against exempting the managers of theatres from restrictions which are enforced against other employers of labour is that the conditions under which the work must be done can hardly fail to be injurious to the delicate organisations of very young children. The dazzle and the bustle of the stage, the highly wrought excitement of dramatic representation, and still more the emotional contact with a crowded audience, the applause, the late hours, combine to create a strain which is severely felt even by adults, and to which children, though they may seem to take delight in life so novel and stirring, ought not to be subjected. There is hardly a Member of the House of Commons who would think of exposing his own children to such an ordeal, looking at the physiological side of it only, even for a few days, or who, if he tried the experiment, would not, in all probability, have reason to repent his rashness.

A LARGE number of the old pupils and friends of Professor Henry Morley assembled in the University College to present him with an address on the occasion of his resigning the Chair of English Language and Literature at that College. Mr. Justice Charles, who presided, appropriately gave utterance to the feelings of the past and present students and of the governing body regarding the great services which have been rendered by Professor Morley. He then read the address, which he wished were even more emphatic. In it the students expressed their esteem and regard for Professor Morley's character and their "admiration of the noble work which he has accomplished." "Professor Morley," it continued, "has laboured unweariedly for University College for nearly a quarter of a century, and the high position now occupied by the Chair of English and the College generally is largely due to his genius and industry." Professor Arber bore testimony to Professor Morley's great influence as a teacher, instancing his own work in reference to the writings of Sir Philip Sydney in support of this. Miss Day heartily acknowledged Professor Morley's work on behalf of women students at the College. That women were admitted at all was due to his support, and she should never forget his unselfish sympathy.

ON the afternoon of July 10th, an influential meeting was held at the Mansion House on the subject of the necessity for the training of teachers for the higher-grade schools in this country, with especial reference to the Maria Grey Training College for Teachers, which was established in 1878 by the Teachers' Training and Registration Society. The Lord Mayor presided. The Lord Mayor, in opening the proceedings, said he was deeply impressed with the conviction of the necessity for the training of teachers for the higher-grade schools in this country. A benevolent lady had, under certain conditions, promised £2,000, and had collected £1,000 among her friends, and the Drapers' Company had given £500, and Mr. W. Mather, M.P., £100, and they were, therefore, starting with a nucleus of £3,600 in an attempt to raise £20,000, which sum, with the fees paid by pupils, would make the proposed institution self-supporting. It was proposed, looking to the great interest taken by the Empress Frederick in the Maria Grey College, to call the new branch of the institution after her deeply lamented husband, and he believed the Empress would give and obtain for the scheme very powerful aid. On the motion of the Master of Trinity, seconded by Sir Philip Magnus, and supported by Mr. A. Sidgwick, it was resolved unanimously, "That this meeting affirms the great importance of professional training for teachers in higher-grade schools on the principles of Froebel from the Kindergarten upwards." Sir Mountstuart Grant-Duff moved the appointment of a committee to formulate a scheme with a view to an appeal to the public for funds for the establishment of a permanent training college. He read an extract from a letter from Her Imperial Majesty the Empress Frederick to the Princess Christian, viz.: "I am in sympathy with the excellent work, and deeply interested in and anxious for its success. To establish a thoroughly good Kindergarten in connection with the college for the special training of teachers for the Kindergarten and the succeeding schools, where also William Ellis's lessons on conduct may be taught, thus forming a 'Froebel and William Ellis institution,' which leads up to the existing Maria Grey Training College for teachers of higher-grade schools, would be to complete a work which would be an organic whole and embrace all that one would wish to see taught logically developed step by step." In seconding this resolution, Dr. Abbott said that he did so on the principle that half a loaf was better than no bread. What was most wanted was a law requiring of every one who undertook the work of teaching a diploma or certificate, guaranteeing that he or she was fitted to do the work. From his own long experience as a schoolmaster he most emphatically asserted that the loss due to an absence of proper training could hardly be calculated. The resolution was carried.

IT would be well (says Sir Morell Mackenzie in an article in the *Contemporary Review*) if every school in the land had a Master of Elocution attached to it, and if the art of delivery were taught to every boy as part of the regular course of education. As long as it is only an "accomplishment," a luxury, there will always be a certain contempt for it among English schoolboys. In the excellent system of education which Rabelais sketched out, the development of the voice is expressly mentioned as part of Gargantua's Athletic Training. In the middle of a detailed description of his swimming and climbing exercises and practice

in the use of weapons of all kinds, we are told that "pour s'exercer le thorax et poulmons crioit comme tous les diables. Je l'ouy une fois appellant Eudemon depuis la porte Sainct Victor jusques à Montmartre. Stentor n'eut onques telle voix à la bataille de Troye." There is a hint for schoolmasters of the present day. The "young barbarians" under their charge might by degree be made to look on strength and beauty of voice, and skill in using it, as an *athletic* distinction; this would at once ennoble the subject in their eyes, and make elocution a matter of keen competition. "Throwing the voice" might become a recognised "event" in their sports, like throwing the cricket ball, and Brown major of Harrow might win deathless fame by "beating the record" of Smith minor of Eton.

Sir Edmund Currie, the Chairman of the Trustees of the People's Palace Technical Schools, is about to make a new departure by establishing a Residential Technical School for the sons of gentlemen at Folkestone. Having been greatly impressed by the benefits conferred upon the poorer classes by the institution of the Technical Schools at the People's Palace, he is desirous of placing the like advantages at the disposal of gentlemen's sons. The Residential School, over which Lady Currie and he are to preside, is to be conducted in the manner of the best public schools, but is to provide a scientific and technical training for its pupils, adapted to the different requirements of their destined after-life in place of the ordinary general and classical education. The school is primarily intended for gentlemen's sons who require instruction which will fit them for a profession needing special scientific knowledge, as, for example, that of a civil, electrical, or mechanical engineer; and there will also be a course specially suited to those who intend entering business in the colonies.

A fire broke out at Wellington College on July 12th, resulting in the destruction of the house of the Rev. P. H. Kempthorne, one of the masters, and a considerable quantity of property belonging to the students and servants. The Broadmoor Asylum and Wokingham Brigades were in attendance, and the boarders and servants worked very hard to check the flames, but they could not save the building. The cause of the fire, which originated in the roof, is unknown.

The public, as a body, is probably not aware (says the *Globe*) that the playgrounds of the London Board Schools are closed on Saturdays. Saturday is the children's whole holiday, and it is apparently thought by the Board that, this being so, the proper thing is to shut up the playgrounds. The Rev. Edward Canney, who writes to us on the subject, thinks otherwise, and most people, we fancy, will agree with him. The fact that Saturday is a holiday is the best of all reasons why the playgrounds should be open to the children. Where else are the little ones to play? As Mr. Canney points out, the last day of the week is a busy one with the parents, and to get the youngsters out of the way they send them into the streets. Obviously, nothing could be worse for them. Apart from the risks they run of accident through passing traffic, there is the danger of their associating with undesirable companions, to say nothing of their proving a nuisance to the passers-by. And all this while the playgrounds are closed to them, because, forsooth, the caretakers have work to do in the schools on Saturdays, and it would be expensive to appoint special caretakers for the purpose. Mr. Canney is justified in saying that this excuse is not worthy of consideration. The ratepayers having provided playgrounds for the children, cannot but desire that they should be fully utilised, even if a small additional expense should be incurred. There is, as Mr. Canney suggests, something absurd, as well as wrong, in the spectacle of children running wild about the streets while these excellent playplaces are standing empty and absolutely inviting use. Schools would have less than its usual terrors for the young if they were able to associate with it the pleasures of Saturday holidays spent within its precincts. Parents, again, would have the comfort of knowing that their children were enjoying themselves in safety.

The Russians have recently improved on the sleeping coaches of the railway and the perambulating schoolmaster of the rural regions. They have provided a school-waggon which is furnished with a room for the teacher, a class-room or study, and a library, all suitably supplied with the necessary material. This waggon will be on the line of the Trans-Caspian Railway all round the year, remaining as long as may be deemed necessary at districts which are not provided with a school.

On Mr. W. H. Smith's statement in the House of Commons on July 22nd, that the Government had failed to find a solution of the difficulty which surrounds the question of Technical Education in regard to Elementary Schools (vide *Times*, July 23rd), Mr. Arthur Acland said: I beg to give notice that in consequence of the complete breakdown of the efforts which the Government has been making for three years in reference to that part of the question which deals with Elementary Schools, though two years ago the Government declared the question to be urgent, I shall at the earliest opportunity next Session move the following motion:—"That in the opinion of this House, only by the establishment of universal School Boards throughout England and Wales, with areas of adequate size under their control, can this country hope to obtain in a thoroughly satisfactory form, for the more intelligent and capable children of the working classes, that higher elementary education, general and technical, which is so essential to their welfare, and so vital to the progress of the United Kingdom in its industrial and commercial struggle with other countries."

In its half-yearly report on the public schools for 1889, the *Athenæum* refers to two losses of the first magnitude to the educational world. The *doyen* of ex-headmasters—who renewed his youth at an age when most people have almost forgotten it—who was Professor of Greek at Cambridge after more than thirty years of active work as Headmaster of Shrewsbury—Dr. Kennedy, died in April last, before his natural force was abated, if not before his eyes were dim. If, as we said last year, of the teachers of this generation, Mr. Thring sowed most freely the seed of new ideas, Dr. Kennedy did more than any one else to foster pure scholarship, and to hew new paths through, and shed fresh illumination upon, the bewildering jungle of classical grammar. If ere his death the educational world had come to desire that those paths should be shorter and clearer still, it was bound to remember that Dr. Kennedy was almost the first to make any paths, properly so called, at all—*χθόνα ἀνήμερον τιθεὶς ἡμερωμένην*. In the statistics of academical success there is, we believe, no record that can rival that of Dr. Kennedy's pupils, transmitted by him from Shrewsbury to the Universities, and especially to Cambridge. The second loss is of another kind. It was foreshadowed last summer, made certain by Dr. Abbott's farewell to the Conference of Headmasters at Christmas, and will be an accomplished fact within a few days from the appearance of these words. It is difficult to overrate the loss inflicted on the educational profession by the resignation of Dr. Abbott. What he has been to his pupils we shall hear by their own testimony: to the educational world outside his own school he has shown the rare example of being not only an admirable teacher, but a great deal besides. The tendency of Headmasters is to be timid theologians—Dr. Abbott has been a courageous one: they are apt to let the reading of their youth suffice for their maturity—Dr. Abbott has been at work on Shakespeare and Bacon. He has adorned what he has touched: the note of distinction is upon all his work.

In the same report reference is made to the progress of the great day schools in public estimation. Dulwich, we hear, has reached the coveted 600. A striking letter in the *Standard*, signed "A Public School Master," has recently ascribed this growing favour towards day schools to a cause which we have never before heard so confidently alleged. He considers that at the great boarding schools the time allowed for and spent in preparation is altogether scanty and inadequate; while at the homes, where day school preparation goes on, not only more time, but more encouragement, is given, with a result which might well be envied elsewhere. It is a view worthy of all consideration: to us it seems forgetful of the disparity of homes, and also of the fact that at a boarding school preparation is not necessarily all crammed into the preparation hour. It is well that the great boarding schools should take this and the other warnings to heart; deafness and undue self-admiration have always been their foible. But, as a matter of fact, it is scarcely a question of rivalry, but of multiplication. Whether we want more great boarding schools may be uncertain, but more really good day schools are certainly needed.

Without waiting to learn whether the University of London is likely to adopt the scheme of the recent Royal Commission,

University and King's Colleges have made an opportunity of expressing their antipathy to the proposed incorporation of themselves into the University. Or possibly they may have reason for suspecting, and are afraid, that the University will adopt it; otherwise they would surely have waited until the University had declared itself in the opposite sense. Anyhow, a deputation on their behalf, headed by the Bishop of London and Sir George Young, waited on the Lord President of the Council on July 25th, to urge anew "the desirability of granting them a charter for establishing a Teaching University for London." The Bishop acted as Mercurius; and after charging the Commission with having "ignored the main purpose of the petition presented to them" by the colleges, he repeated the substance of the evidence he gave before the Commissioners. Lord Cranbrook's answer was, in substance, that nothing could be done until the University had put its final decisions in form (which could hardly be before next spring); and that any question of a new University would thereafter be referred to the same Commission. The deputation had perhaps already seen something like this answer in the Commissioners' Report. What could be more whimsical than a deputation from University College being ushered in by the Bishop of London? But a few years ago, this would have been the last college to give its brief into episcopate hands.

The students of the Bareilly College, in Upper India, have started a Physical Club. The *Pioneer* quotes the following account of the movement, from a native paper, written in English as she is spoke by the educated Hindoo:—"The hygenic status of the members is highly satisfactory," we are told, "and the daily evening exercises, under a European soldier appointed by the Principal, have developed a manual dexterity, as well as a fair play of organic juncture; acuteness of optic nerve and a free capacity, and a reactionary digestinity has served to render every man with might a trencher man; a redemption from arthmatic proximity has saved many from couching their own knell; and many darkling inquests of prophylactics have become believers of the virtues of physical creed."

"Now, children," said a teacher, after reading the old story of Washington's exploit with his hatchet, "write me all you can remember of that pretty story I have just read to you." *The Result.*—Slate I. (Teddy, 8 years old)—George Washington is our father did he tell a lie no he never did he did with hatchit. Slate II. (Ethel, 7)—george washington was the father of is countre hes father sed did you do it he sed i wud not lie i did it with my Hathit and then he busted in tears. Slate III. (Georgie, 9)—George Washington is the father of our country and he did it with his hatchit and he sed father I did it did the boy deny it o no did he try to put it on some other feller No He did not tell no lie he burst into tears.

We are glad to hear that the copyright of several works of Dr. Daniel Sanders have been purchased by the publisher, Hans Lüstenröder, at Berlin, and will in future be sold at a considerably reduced price. Thus his *Ergänzungs-Wörterbuch*, which formerly cost £2. 10s., will in future be sold at £1. 10s. Several other grammatical and philological publications of the great Germanist have undergone a corresponding reduction in price.

The delegates of the Clarendon Press have in preparation for early publication an Intermediate Greek-English Dictionary, newly abridged from the seventh edition of Liddell and Scott's large Greek-English Lexicon. It differs from the present school abridgment in the facts that the matter contained is greatly increased by fuller explanations of the words, by inserting more fully the irregular forms of moods and tenses, by citing the leading authorities for the different usages, and by adding characteristic phrases. Care has been taken to insert all words usually formed from Homer downwards to the close of Attic Greek.

At a meeting held lately it was resolved that Merchant Taylors' School should take some definite part in the Home Missionary work of the Church of England. A further resolution was to the effect that the efforts of the school should be directed, in the first instance, towards raising an annual sum of not less than £250 for the maintenance and general assistance for five years of a curate or curates in the North-West of London, or other locality within a reasonable distance of the school.

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THE EDUCATIONAL TIMES.

LONDON, AUGUST 1, 1889.

THE judgment recently delivered by the Court of Appeal in the case of Allbutt *v.* The General Council of Medical Education and Registration of the United Kingdom is one of great importance to members of the medical profession and the public, and is particularly instructive at the present time for schoolmasters. Many members of the latter body think that the interests of education would be promoted, and the status of the scholastic profession raised, if teachers were registered, and being registered were placed under a Council having authority to act in matters relating to professional conduct, as the Medical Council does in respect to the professional conduct of medical practitioners. Teachers who hold these views will find very fully and forcibly illustrated, in the various stages through which this litigation has passed, the nature and extent of the powers and privileges with which such a Council must be clothed in order to discharge effectively the duties towards the public and the profession that would devolve on it.

The facts of this case, so far as they are material to our present purpose, are these. The plaintiff, a medical practitioner in Leeds, published in 1887 a cheap pamphlet, which was brought under the notice of the Medical Council. They referred the pamphlet to a committee of inquiry for examination. It was next considered by the Branch Council for England, and finally the plaintiff was summoned to appear before the General Medical Council in November, 1887. He did appear and was defended by Counsel, and the result was that the Medical Council passed three resolutions, the first to the effect that Mr. Allbutt had committed the offence charged against him; the second, "that the offence is, in the opinion of the Council, infamous conduct in a professional respect"; and the third, "that the Registrar be directed to erase the name of Mr. Henry Arthur Allbutt from the Medical Register."

Mr. Allbutt appealed from this decision of the Medical Council to the courts of law. Two important issues were raised by this appeal, viz.—Is a medical man whose name has been erased from the Register by order of the General Council entitled to have this order reviewed by a court of law on an application for a *mandamus* to restore his name on the Register? and further, can he maintain an action for libel and recover damages against the Council for printing and publishing in the minutes of their proceedings the fact that his name had been erased from the Register, with a statement of the cause which led to such erasure?

Mr. Baron Pollock, the judge before whom the case was tried in the first instance, held that the plaintiff could not proceed either by way of *mandamus* to restore his name or

by action for damages for libel, and gave judgment for the defendants. Mr. Allbutt then carried his case to the Court of Appeal, where it was argued before Lord Chief Justice Coleridge and Lords Justices Lindley and Lopes, who took time to consider their judgment. The considered judgment of the Court was given in favour of the Medical Council, thus affirming the decision of Mr. Baron Pollock. The authority of the Medical Council is thus declared practically unassailable when exercised within the limits defined by the Medical Acts. The Court holding that in striking the plaintiff's name off the Register the Council were acting lawfully in the exercise of a jurisdiction conferred upon them by Act of Parliament, and that as they had jurisdiction to enter on an inquiry in respect of the plaintiff's conduct they are constituted by the legislature the sole judges of what was done during the inquiry which they had jurisdiction to initiate.

Having so decided in respect to jurisdiction, it was to be expected that the Court of Appeal would hold, as in fact it did, that the publication in the minutes of Council of the erasure of the plaintiff's name from the Register was privileged, and that the Council were fully justified in stating the cause of the erasure.

If schoolmasters really want a tribunal similar to the Medical Council, they could not do better than incorporate in their contemplated Registration Bill the section in the Medical Act under which the Council proceeded in this case, with the necessary verbal substitutions. The section is the 29th of 21 and 22 Vict., chap. 90, which says:—"If any registered medical practitioner shall be convicted, in England or Ireland, of any felony or misdemeanour, or in Scotland of any crime or offence, or shall after due inquiry be judged by the General Council to have been guilty of infamous conduct in any professional respect, the General Council may, if they see fit, direct the Registrar to erase the name of such medical practitioner from the Register."

It will be necessary also to provide that striking the name of a teacher off the Register shall carry with it some adequate penalties. Here, again, something may be learned from what obtains in the medical profession.

In Section 10 of the Act already quoted, the Medical Council is empowered to appoint registrars who are to keep correct registers, and in every year to cause to be printed, published, and sold, a correct Register, a copy of which is made evidence in all courts. Sub-sections 31 and 32 of this section deal with the privileges of registered persons enabling those registered to sue, and disentitling those not registered from suing for their charges. By Section 34 of the same Act, a "legally qualified medical practitioner" is to be construed to mean a person registered under the Act. Section 36 disqualifies unregistered persons from holding a large number of appointments. Section 37 declares that no certificate required from any medical practitioner shall be valid if the person signing it is not registered.

If scholastic registration is to be as effective for its purpose as medical registration is, it is clear that some such disqualifications as those just enumerated, as far as applicable to teachers, must be created by statute.

To allow an unregistered teacher to pursue his vocation as if no registration existed would be to render registration nugatory, if not ridiculous. Again, if the profession is not to be vexed and scandalised by litigation, the new Educational Council must be one from whose decisions in matters pertaining to the professional conduct of registered teachers there will be no appeal. It is needless to say that a Council charged with such great responsibility and authority should not be exposed to the danger of having that responsibility frittered away, its initiative hampered, and its authority paralysed by the possibility of its decisions being questioned and reversed in a court of law.

On the other hand, a Council from which there would be no appeal, when acting within its jurisdiction, should be as nearly infallible as possible.

The International College, Spring Grove, which twenty-five years ago was much talked about and seemed to be full of promise, ceases to exist at the end of this month. It offers another example of the

> "Hopes that were angels in their birth,
> But perished young like things of earth."

The college was brought into existence through a suggestion of the late Richard Cobden, made soon after the French Treaty of Commerce was concluded in 1860. The intention of the promoters was to found three proprietary colleges, one in England, one in France, and a third in Germany, which should follow the same curriculum, so that students could spend part of their time in each of the colleges, the change of residence being effected without any break of continuity in their studies.

There was probably involved in the notion a dream that the international intimacies which such a system would necessarily bring about would tend to put an end to wars and rumours of wars. Indeed, we find it suggested in one of the earlier prospectuses of the college that, "if the boys of these nations were taught each other's languages in these colleges, when they became men the connection would be made still closer; and it was hoped that, if this principle were extended to other nations, it might in time have the effect of lessening the number of wars."

The Continental members of the triangle were never fairly started, but Mr. Cobden and his friends succeeded in establishing the English College. The eminent physician, Sir James Clarke, was consulted, and he recommended Spring Grove, Isleworth, as a healthy and suitable situation for such a college.

The site chosen is a level and nearly square plot of about eight acres, between Brentford and Hounslow, about two-and-a-half miles from Kew Gardens, three-quarters of a mile from the Thames, and 90 feet above high-water mark. It is within a few minutes' walk of the "Spring Grove and Isleworth" station of the South-Western Railway, where trains may be readily obtained to Waterloo, Willesden, and the City and West-end stations of the Metropolitan Railway.

The grounds are tastefully laid out with shrubs, trees, &c., and supply ample space for cricket, football, tennis, &c. The building is Gothic, in the style of the thirteenth century, consisting of a façade of three stories, and was originally intended to have "a central tower, with angle turrets and a dwarf spire rising from within a parapet, and supporting a lantern and projecting wings, with reflexed gables, each flanked in rear by a subordinate tower with pyramidal crested roof, and the attic in the roof lighted by a continuous line of gabled dormer windows." The central tower and east wing are not yet built, but a large gymnasium has been erected in the grounds.

Dr. Schmitz, formerly Rector of the High School at Edinburgh, was appointed the first Headmaster, and the college was opened on July 10th, 1867, by the Prince of Wales. For a few years the institution flourished, but difficulties of discipline occurred and the number of the students suddenly dropped. In May, 1874, Dr. Schmitz was succeeded by Mr. H. R. Ladell, and during the fifteen years of his Mastership much good work has been done and a long list of honours secured.

Seeing that the College had such an auspicious commencement, and possessed such advantages of position, it may be asked how it is that we are so soon found writing the obituary account of the International College. The cause of its decease was an inherent weakness of constitution often to be found in schools and colleges founded on a proprietary plan. There was not enough contributed in the first instance to establish it on a firm basis. £20,000 was lent towards the cost on interest by the late William Ellis, and the charge for this was a heavy rent (£1,000 per annum). It is this continual charge which has crippled Mr. Ladell, and we cannot help sympathising with him. He has struggled on bravely with much self-denial, contributing occasionally from his own means to keep the college afloat. In the prosperous years from 1876 to 1879, he was able to lay by a reserve fund and to pay off £2,000 of the advances; but two or three years of depression followed, and the reserve was absorbed. At last, seeing that they could not meet the heavy expenses, and that no means of obtaining external help presented themselves, the Directors and the Master resolved to close.

Fortunately, the site and building will not be lost to education. The British and Foreign School Society have purchased the property, and are about to complete the building and to move their Training College for Men from the Borough Road to Spring Grove. It is an admirable site for such a purpose, and the students will be able readily, while in residence, to make visits of observation to the best schools of the metropolis. If this plan of remedying the disadvantage of having but a small practising school be adopted, the Spring Grove College may soon be one of the best equipped training colleges of the country.

A Parliamentary return has recently been issued giving some interesting particulars in respect to the aid that it is proposed to give next year to University Colleges in England. The Government decided, as early as March last, to put down in the estimates of the year 1889–90 a sum of £15,000 to be distributed as grants in aid to University Colleges in Great Britain.

These colleges are all of recent origin, and have sprung up to meet the demand for higher education in great centres of population, among those who cannot afford to spend two or three years at the old Universities. The characteristic feature of the institutions is, that they give teaching of a University standard in Arts and Science, and are located in populous districts.

Another characteristic, we fear, of the institutions is, that they cannot live and thrive on the amount of fees received from students and local subscriptions. "All of them," says the memorandum of the Lord President of the Council and Chancellor of the Exchequer, "with the possible exception of Owens College, Manchester, are in pecuniary straits; some of them are on the verge of financial collapse, and that though they are doing an educational work of some value, and have been founded and hitherto maintained by considerable local efforts."

The selection of the colleges entitled to aid, and the sum to be allotted to each, were determined by a small but well chosen committee, of which Sir John Lubbock was the chairman, and Sir Henry Roscoe and the Headmaster of Rugby members. Of the twelve claimants for grants, only the Hartley Institution, Southampton, failed to make good its claim, as the Committee were of opinion that it has not "a professorial staff adequate for the complete teaching of University subjects; moreover, there does not appear to be a proper representative governing body." Dundee College the Committee consider should form a part of the Scotch educational system, and should be dealt with in connection with the University of St. Andrews; but they proposed to treat this college exceptionally this year, and so recommended a grant of £500.

The Lords of the Treasury adopted all of the recommendations of the Committee in respect to the distribution of the grants. They also approved of a very important suggestion made by the Committee, viz., that "a person representing the Government should visit each college from time to time, not with a view of examining the students, but to inspect the buildings and laboratories and to become personally acquainted with the extent of the different courses of study." Further, they also themselves express the opinion that each college, so long as it receives State assistance, should furnish annually to the Education Department a statement showing the result of the last academic year's work, the state of the college finances, together with such other information as might supply a general view of the academic achievements and financial position of the college. The colleges are emphatically warned that continued participation of any particular college in the grant must depend upon the evidence forthcoming of its continuing adequately to discharge the duties which the title "University College" implies. That no college is to be regarded as having a vested right to share even for a limited number of years in the sums voted by Parliament. "On the contrary," says the Treasury Minute, "each college should be considered as liable to be excluded at any time from further participation in the grant, if it should appear to the Treasury and the Education Department that, owing to inadequacy of educational equipment, to a great falling off in the number of its students, or to any other cause, it had ceased to be deserving of support from the national exchequer."

No reasonable person can find fault with the stringency of these conditions. We confess that we would like to see some more guarantees exacted than are here laid down that these colleges discharge "the duties which the title University College implies."

It has come to our knowledge that some of the weaker colleges admitted students without applying any adequate test to find out whether they were sufficiently advanced to enter on a course of higher study in Science or Arts: so that in fact the instruction given could not be any higher than that given in an ordinary secondary school.

We do not think that State-aided University Colleges should be competitors with secondary schools for pupils, and

we therefore regret that the Government have not seen fit to impose on these colleges the condition that a matriculation examination of a sufficiently high standard should be passed by every student of the colleges. Such examination ought not to be held by the professors of the particular colleges, but there should be one uniform examination for all, conducted by a joint board or by outside examiners. We cannot see, either, how the comparative merits of the colleges can be adequately tested without subjecting the students to an annual joint examination with a view of determining to what extent a particular college is to share in the annual grant.

We gladly acknowledge, however, that this £15,000, although a small sum compared with the £12,000 allotted to the four Welsh colleges, will greatly help the higher education of England, and will do, we trust, what it is intended to do, viz., (1) "to appreciably strengthen the financial position, especially of the newer and poorer colleges, in the beginning of their struggle for existence, and (2) to stimulate local munificence to renewed and greater efforts in view of the national recognition of the importance of the institutions which it is called upon to support."

REVIEWS, NOTICES, &c.

Essays by the late Mark Pattison, sometime Rector of Lincoln College. Collected and arranged by Henry Nettleship, M.A., Corpus Professor of Latin in the University of Oxford. (*Oxford: At the Clarendon Press.* 1889.)

The essays in these volumes are a selection of the most generally interesting and valuable among the many papers and articles published by Mr. Pattison between the years 1845 and 1882. When we remember that these two large volumes contain but a selection of his fugitive contributions to current literature, we see how fertile was his pen. Although theology was the principal subject of these writings, educational questions are frequently discussed incidentally. Those essays which treat of the history of philology and education have been printed together, and form the bulk of the first volume. In the same way those which deal with the history of religious thought succeed each other in the second volume. In all cases the date of the essay, and the name of the book or periodical in which it was first given to the world, are printed at the foot of the left-hand page. Mr. Pattison's views on the selection and training of teachers, on the history of education, and on the need for University reform are pronounced and clear.

The first of these subjects is dealt with in his essay on Wolf. He asks—

"How are well-prepared schoolmasters to be got for our schools? How, that is, are able young men to be got to take the trouble of educating themselves as schoolmasters? Partly by exterior inducements, by better payment, and higher distinction, *honor et præmium*, not only by raising the stipends generally, but by occasional presents to deserving men."

He then points out that inadequate payment was, and still is, a Prussian schoolmaster's first grievance, and discusses Wolf's half-ironical instructions to schoolmasters: "Be always in good health, and know how to fast courageously whenever necessary." By exterior rewards, then, but not by them only, are we to expect to get good schoolmasters. The first condition of a good teacher is that he should be a teacher, and nothing else; that he should be trained as a teacher, and not brought up to some other profession.

"In a word," says Pattison, "the schools will never be better as long as the schoolmasters are theologians by profession. The theological course in a University, with its smattering of classics, is about as good a preparation for a classical master as a course of feudal law would be. Examinations may be better than no test of fitness at all, but they are insufficient tests of fitness for office."

Again, he tells the heads of schools that they must train their masters under their own eyes. No regulations can make good schools; we must have men. Even training cannot do all. No man should dedicate himself to the profession who does not feel a special vocation to it. "A zeal for his occupation, a love for youth, a genuine, deeply-seated religious devotion to the service of the young, can alone make the toilsome occupation of school-teacher endurable."

In the same spirit he discusses the conflict of the old and new knowledge in education in the eighteenth century. The innovators were of that school of which Locke was the philosopher, and Rousseau the prophet. They loudly denounced the waste of youthful years and freshness on the pedantic methods of the grammar schools, the confinement of instruction within the narrow orbit of the dead languages and theology, and called for a modern education for modern life. On the other hand, the schools and universities were in possession, and, in the name of orthodoxy, clung with fierce tenacity to Latin and Greek. The modern party had the advantage of having with them the sympathies of the age, the power of the press, and the penetrative propaganda of French literature. The call for school reform had spread widely over the North of Europe, but nowhere had it met with a readier response than in North Germany. Its representatives here were that advanced section of reformers of whom Basedow is the best known. Their programme was a radical reform of the methods hitherto used, and their chief principles were as follows:—

"Education was no longer to bear the stamp of the convent. We must follow nature, and let the child grow. Education of the head is everything, for the road to the heart is through the head. What is taught must be realities. Languages are only to be learnt for the matters to which they are the key. There is so much in the modern world worth knowing, that all superfluities must be retrenched from our course to find room for the essential. All dead languages, however curious their literature, belong to the superfluous. All teaching should be by intuition. Learning should be made agreeable to the child. Man is by nature good. God, the Almighty Father, loves all His children. The love of man is natural to man; children should be trained through love. They should regard themselves as citizens of the world."

Turning now to the third subject we have mentioned, namely, University reform, he points out that the subjects of philology and philosophy have, since the establishment of the examination system, acquired such dimensions that we cannot pack both of them into a space of time formerly filled by the mere shadow, the bare image, of one of them.

"Look back on the golden days when the student, an honour student even, his 'Little-go' past, had an endless vista of time to lounge through his eight or ten books in. How much better they could be read! When we had nothing to do, we did it well; now *in opes nos copia fecit*. Two vast and inexhaustible subjects have risen among us, just discovered in all their wonderful proportions, and we are obliged to shut up our study of each just at the moment when we are beginning to appropriate and substantiate them."

He suggests that a solution of the dilemma may be found in an enlargement of the time: that, in order to ripen the golden fruit, an additional year may be added to the academic course, and the present nominal four years may become really four. We know, indeed, that the current of opinion appears at present to set strongly the other way; and that even three years is grudged as too much to be wasted on useless studies. Merchants, solicitors, fathers of the middle class in general, who design their sons for business, want them away at twenty years of age, and would not like that they should "lose any more time" before beginning life. Now, so far from complaining of this state of public opinion as erroneous, Mark Pattison saw in it hopes for the future of liberal University education.

"Under the old Oxford system, while nothing, or nothing but Greek and Latin, was taught, while the only habits acquired or encouraged by the authorities were those most adverse to success in practical or professional life, viz., idle, dissipated, dandified habits, and the peculiar incapacities for business or action which were supposed to constitute the gentleman, this aversion for Oxford was not only natural, but right and wise. But let it once be felt that Oxford can teach something more than Latin writing and the gentlemanly vices—that a real, palpable, and practical superiority of character and intellect can be acquired here—and the same well-judging class who withheld their sons from the contamination of rakish gentlemen commoners, and the scandalous neglect of classical tutors, will grudge neither time nor cost for the purchase of such superiorities."

It must be borne in mind that this was written twenty years ago, and much that Mark Pattison then recommended has been adopted by the University. In the concluding essay we find him in one of his pessimistic moods as regards the ultimate triumph of education. He warns us that we must not blind ourselves to the fact that our own country contains elements of ignorance and fanaticism, on which education has yet exercised no dissolving force.

"When we think of our aristocracy in possession of half the property, and the whole of the government of tho country, of the servility and timidity of our middle classes, of their Scripture worship, Sabbatarianism, and intolerance, we see that a persecution of knowledge is possible at any moment. There has never been a time in the history of Europe when the ignorant classes, whether they stand at the top or the bottom of the social scale, have not vastly outnumbered the instructed. If ever they have let knowledge grow in peace, it has been becausc they are little alarmed at it, are not aware of its hostility to their tenure of powcr. Let them but become awarc of this, and they can at any moment seizc a club, and dash its vaunted fabric to the ground."

The Life of Sir William Siemens, F.R.S., LL.D. By William Pole, F.R.S. (*John Murray.* 1888.)

Dr. Pole here tells the story of a very remarkable career in a way which will make it interesting and instructive to many readers. Among England's scientific worthies of the nineteenth century "there are few who have served the people better than this her adopted son; few, if any, whose life's record will show so long a list of useful labours." The biography is interesting to us as educators, because of thc clear account of the training which developed the natural gifts of this remarkable man, and because of his own very lucid educational statements and addresses.

Sir William Siemens' career is an example of the advantages of a sound and reasonable technical training. He was the youngest of four brothers, all of whom became distinguished as inventors. William was born in 1823 at Leuthe, in Hanover. His childhood gave no promise of his future eminence, a point in which he resembled many notable men, and which should be suggestive to teachers. As a schoolboy he was backward, and did not even redeem his apparent dulness by any signs of a liking for mechanical pursuits. In 1838 he entered the Trade School at Magdeburg, where, along with mechanics and elementary physics, he studied the ordinary branches of a commercial education, including modern languages and mathematics. The mother of the Siemens dying in 1838, and their father in 1840, Werner, the eldest of the brothers, though only twenty-three years old, acted henceforward as guardian of the family, and as William grew up, Werner, who was seven years older than William, took a great interest in his education and general welfare. Werner had entered the engineer service of the Prussian army, but this did not prevent him from indulging that intensely inventive propensity which ultimately led him and his brothers to fame and fortune. Although, as we have mentioned, William showed no special bent when a boy, yet Werner during his occasional visits to the paternal home noticed the bright intelligence of his brother, and thought it a pity he should devote himself to the business career in a banking house, for which his parents intended him.

In 1841 William left the Trade School and went for a year to the University of Göttingen, where his brother-in-law, Herr Hemly, was Professor of Chemistry. Here he worked hard at science, and on leaving received a certificate stating that he had been extraordinarily industrious. In his evidence before the Royal Commission on Technical Education he said:

"By an act of rebellion, as I may call it, against my guardians, my parents having died, I went to Göttingen with scanty means to get a more general education, and I there got a love of science and a determination to make my own way."

He left the University at nineteen and went to a machine factory at Magdeburg, where it was intended he should remain for two years; but he learned the business so quickly that one year was found sufficient. He then came, in 1843, to England to dispose of an invention in electro-gilding, a subject to which both he and Werner had given much attention. The fact that these brothers belonged to a family of inventors makes it rather difficult to say what was the precise personal share each had in the many inventions for which the world is indebted to them. The details of the construction of the Siemens machines and the various improvements by which it has been brought to its present form, or rather forms (for there are, of course, several varieties), are due alike to the younger and the elder brother. And the same may be said of the various inventions connected with telegraphy and the electric light, which emanated from the great firm of Siemens Brothers. Some of these were entirely worked out by one, some by the other brother; but no attempt was made to separate or discriminate between them. William had to meet with many disappointments and partial failures in the earlier days of his residence in England, but he never failed through careless work or want of perseverance. In this respect his biography is full of encouragement and suggestion to all young and aspiring engineers. He was a man of vigorous constitution, and singularly healthy mind. He possessed an even temper and kindly disposition, and was always on good terms with all the best men of his time.

In his later years Sir William rendered good service to education in many ways, particularly by his connection with the City and Guilds of London Institute. He differed from some of his colleagues on the Council, by having a clear and definite notion of the right province and purpose of technical education; hence his influence tended to correct the serious mistakes which a want of knowledge of education caused some of the members of the Institute to fall into. Probably the mistakes would have been fewer if the Institute had had the benefit of his advice earlier. He was an extremely lucid speaker and writer on this subject. In April, 1883, Dr. Siemens received the honour of knighthood, in recognition of his scientific discoveries, and on November 18th, 1883, he died of heart disease.

Tales of the Birds. By W. Warde Fowler. With Illustrations by Bryan Hook. Second Edition. (*Macmillan & Co.*)—These tales by a lover of birds are written in a simple, pure, and fascinating style, which will commend them to readers of all ages. The first, "A Winter's Tale," is one of disaster and danger to the birds in winter—a story of "adventure and struggle for life and death." It is well placed for awakening interest. "Out of Tune" is a story of a poor musician whose despondency was dispelled by the song of a nightingale. The composer, not the bird, was out of tune; the bird was the physician and magician that restored him to health and prosperity. All the stories have a good purpose, the last, "The Owl's Revenge," being in reality a plea for their preservation. We will quote this at some length as an illustration. Four men visit a country fair, two, a Scotch gamekeeper, McNab, and a woodman, Oliver, being friendly to the birds, the other two, Pogson and Weekes, besotted pig-dealers, incapable of love for anything so innocent. At the fair they hear of the fashion of decorating ladies' bonnets with birds' wings, and read an advertisement, "Wanted at once by a London firm *one thousand owls.*" All think of an oak which contains owls' nests. Oliver and McNab hurry off to protect the owls, the latter buying cord to make a "boody trap" around the tree. Then Weekes follows to get his gun, and finally Pogson, "after purchasing some fine porkers and a bottle of brandy to help him in getting them home." Pogson and his pigs slowly reached the wood, when, "whether it were a badger in the path or a prowling fox that had frightened the pigs, certain it is that at this moment they all faced about and vanished in a general stampede."

"Mr. Pogson stood aghast, and leant against a tree-trunk for support. The noise of the pigs died away, and he was alone—alone in blank darkness. Even pigs are company, and now he would have given a good deal for the companionship of a single one of his victims. There was a singing in his ears, a cold sweat on his hard brow; he felt quite unable to go further; his head swam.

"Suddenly he heard a voice from overhead—a gentle voice, reproachful and somewhat hollow and ghostly.

"'Whoo? Tu-whoo?'

"Mr. Pogson felt a creepy sensation, and would have cast himself to the ground and hidden his face in the bluebells, but again the voice asked—

"'Whoo? Tu-whoo?'

"'Pogson o' Highfield, pig-dealer,' cried tho wretched man in stuttering accents; 'a man as never did no harm to nothing in all his life!'

"'Whoo? Whoo?' said the voice, seeming to retreat, and urged to follow it by some mysterious influence, Mr. Pogson staggered forward a few paces. But he had hardly left his tree for more than half a minute when something caught him on the shins and tripped him up; at the same moment he received a violent blow on the head which, added to the effects of the brandy, stretched him quite unconscious on the ground. There he lay in the darkness, with the bottle slipping out of his pocket, while the mysterious voice continued to question him in vain from the old oak tree overhead.

"And now, but for the voice, all is silent again for a few minutes. Stay, who is this coming down the 'light,' betraying his presence by the crackling of a dry twig beneath his boot? It is Mr. Weekes, bent on further profitable destruction; who would not have ventured himself in the wood after dark for fear of ghosts and other terrors, but is now urged to unwonted courage by the hope of gain, and by the companionship of his old gun. He is making for the tree where he saw the owl at sunset.

"As he advanced deeper into the dead blackness of the wood, Mr. Weekes began to feel a slight uneasiness, which was soon uncomfortably increased by strange noises on his right hand, as of weird creatures making towards him through the underwood. But he was now close to his trees and he could hear the hooting of the owls that were to be his prey. He was in

the act of raising his gun, ready to fire when an owl should cross the bit of sky line open above him, when the noises increased to his right, and with a terrific crackling and confusion an army of terrible creatures burst out upon him into the ride. All his courage fled. With a yell of fear he discharged his gun at the advancing foes, and then throwing it at them as a last resource, took to his heels and ran from them. But he had not run many yards when he tripped first over a heavy body, and then over a tightened cord, and losing at once his balance and his senses, Mr. Weekes swooned outright.

"'Did ye hear the gun then?' said the keeper to Oliver, as they met a few minutes later at the entrance of the wood. 'There's mischief *here*, forbye at the barber's. Tak' yon big stick, mon, and gang ye on wi' the lantern.'

"They went softly down the ride together, neither speaking again. Presently the keeper stumbled over some solid body lying in the grass, and Oliver, applying the lantern to it, discovered the corpse of a pig. The keeper whistled softly, and turned it over with his foot. 'Lawfu' spoil,' he whispered, 'lawfu' spoil. Ye shall taste Pogson's bacon yet afore ye die, Oliver!'

"Then they found the gun, which Mr. McNab, now in his element, seized as further spoil, and gave to Oliver to carry instead of the big stick. And now he turned aside for a few yards to see what other sport his lairn's tricks of that day might have brought him. Oliver followed close at his heels with the lantern.

"'Whoo! Tu-whoo!' said the owl overhead. 'Ay, ye may weel hoot at 'em,' said the keeper, as the lantern revealed the prostrate forms of Mr. Pogson and Mr. Weekes."

Oliver, in urging the keeper to protect the birds, adds—

"'The fine ladies wants their feathers, but they don't know what they're doing—they don't *think* what they do, Mr. McNab. 'Tis fashion, I take it, only fashion, and it'll blow over in a bit if you'll but stop 'em now.'"

Characters and Episodes of the Great Rebellion. Selected from The History and Autobiography of Edward, Earl of Clarendon, and edited, with short Notes, by the Very Rev. G. D. Boyle, M.A., Dean of Salisbury. (*Oxford: Clarendon Press.*)—Clarendon has in the past received from many historical writers concentrated attention, but it is probable that the reaction in favour of a respectful study of the great Oliver Cromwell, started by Mr. Carlyle's great historical work, has brought Clarendon's book into unearned disuse, and contempt. We are all democrats now; why then read Clarendon? There are several excellent reasons, and these are, for the most part, carefully pointed out by Mr. Boyle. Firstly, Clarendon is a great English classic. His descriptions of famous persons of the Civil War, *e.g.*, of Lord Falkland, are rich gems of English prose. Secondly, it is only while reading the enthusiastic eulogiums heaped upon his friends that we democrats duly recognise and appreciate the point of view of the old royalists. The chivalry, the devotion, the self-sacrificing faithfulness to a royal chief stand out, distinctly and irresistibly. It may be a sentimental reason, but we think it is one not without its weight, that while reading the stately periods of Clarendon, we somehow feel ourselves in the presence of a gentleman. It is, indeed, one thing to maintain that Clarendon should be studied closely still, although his point of view and his conclusions are no longer felt to be satisfactory, but it is quite a different thing to demand of the elementary student of history that he should wade through the whole of Clarendon. "The half is sometimes greater than the whole," may not be an axiom in mathematics, but it is undoubtedly true in literature. Mr. Boyle evidently thinks Clarendon is a case in point. Once admit that the pruner's knife may be applied to a work of literature, and few, we believe, will be found hardy and rash enough to find fault with the delightful edition Dean Boyle has prepared. It is precisely what its title represents it as being. It is a transcript of all the good things of Clarendon. It is handsome in appearance, good covers, good paper, good print—a worthy companion volume to Dr. Birkbeck Hill's Selections from Samuel Johnson.

Days with Industrials: Adventures and Experiences among Curious Industries. By Alexander H. Japp, LL.D. (*Trübner & Co.*)—This book—of some 300 crown 8vo pages—consists of a somewhat heterogeneous collection of sixteen articles, some of which have already appeared in *Good Words, All the Year Round*, and other periodicals. They are somewhat slight, but are pleasantly written, and contain a good deal of odd and end information. Here are some of the subjects:—Quinine, canaries, rice, pearls, Burton ale, electric telegraphs, historical bedsteads, knives and forks, postage stamps. When a writer in this way takes all knowledge for his province, we must, of course, expect inequalities of treatment—and the articles in this book (whose title rather jars upon us) are certainly very unequal. The subject most elaborately dealt with is "Quinine and its Romance"—the search for plants, attempts to naturalise them, nature of chinchona trees, preparation of quinine, &c.—and the result is a magazine article pleasantly written, and not uninteresting in itself. The description of the petroleum wells at Baku, on the Caspian Sea, is also extremely well done. On the whole we can recommend the book as one affording the means of agreeably, and not unprofitably, filling more than one spare half-hour; and boys and girls might very well do worse than carry off such a book with them for the holidays.

OUR LIBRARY TABLE.

New York College for the Training of Teachers. Circular of Information. (*The College, 9 University Place, New York City.*)—This is a pamphlet which gives a clear and concise account of the methods, curriculum, &c. of a college which aims distinctly at giving a strictly professional training for teachers, and not merely a general education, with a slight flavour of pedagogics. The information given will be found useful by those interested in a subject the recognition of the importance of which is steadily, though somewhat slowly, growing amongst educationists in England.

Bureau of Education. Circular of Education, No. 5, 1888. *Industrial Education in the South. By Rev. A. D. Mayo.* (*Washington, U.S.A.*)—This is one of the many valuable circulars of education issued from time to time by the Education Department of the United States, which always fills us with envy when we remember how impossible it is in England to obtain any information on educational matters outside the primary school. Probably the most valuable, and certainly the most interesting, of the many appendices in this circular is that which gives an account (with 14 illustrations) of the industrial training adopted at the Tulane University in Louisiana. But the whole circular is instructive, and should prove of particular value to us at the present time.

Publications of the American Economic Association. Vol. IV., No. 2. *Socialism in England. By Sidney Webb, LL.B.* (*Baltimore, Ma.*)—This is a pamphlet on the development of the Socialist Ideal, and the rise and organisation of Socialist movements in England. The subject is not quite in our line, but Mr. Webb, a lecturer on Economics at the City of London College, seems to have treated it with care and good judgment. Within the 67 octavo pages there is certainly a very large amount of information given, and what is given is well arranged.

New Verse in Old Vesture. By J. C. Grant. (*Messrs. E. W. Allen & Co.*)—This is an interesting little volume, in pamphlet form, in which Mr. Grant gives us many examples of English poems written in old-fashioned and obsolete (or nearly obsolete) verse-forms, such as the *Chaunt Royal*, the *Gloze, Kyrielle, Rondeau, Triolet, Villannelle*, &c. We cannot say that Mr. Grant has persuaded us to wish for the renewal of the "old vesture"—except perhaps in the cases of the *Ballade*, the *Chaunt Royal*, and the *Rondeau*—but many of his poems are undoubtedly delicate and pretty. Of the longer poems, "Vivian" strikes us as possessing much beauty, both of language and treatment.

Shakespeare: der Autor seiner Dramen. By Dr. K. H. Schaible. (*Aug. Siegle, 30 Lime Street, E.C.*)—This is a pamphlet on the question of the authorship of Shakespeare's plays, in connection with the Donnelly controversy, and on such kindred matters as the contemporary recognition of the dramatist, the way to spell his name, &c. Readable and learned as his pamphlet may be, we think it is a pity that Dr. Schaible should condescend to notice so impudent a farrago of nonsense as Donnelly's book, and so to aid him in his desire to advertise himself.

The Power of the Will. By Tom Robinson, M.D. (*Messrs. Gilbert & Rivington.*)—This is a small pamphlet of some thirty pages, being a lecture delivered at the Working Men and Working Women's College, Queen's Square. It deals in a bright and popular way with the value of a well-developed and well-directed will, and the danger which constantly arises from the bad training and misuse of this most important faculty. The examples given are well chosen and well put, and the lecture affords both pleasant and profitable reading.

Bacon's Essays. Edited, with Introductions and Notes, by F. G. Selby, M.A. (*Macmillan & Co.*)—To editions of Bacon's Essays, as to the making of books, there is, we suppose, no end. Yet it is clear that each new editor has the advantage of all his predecessors, and, by a process of eclecticism, should find little difficulty in producing a useful set of notes. Mr. Selby, indeed, claims little in the way of originality. He is well aware that Spedding, Gardner, Wright, and others have said pretty well all that can be said on the subject. Yet few elementary students can possess the critical works of all these writers; hence the pains Mr. Selby has taken in preparing these notes, drawn as they often are from these learned critics, is by no means fruitless. Moreover, we hold it a distinct gain that many of Mr. Selby's notes, intended as they were in the first instance for Indian students, are very simple. The book has not the delightful appearance and elegant printing of the "Golden Treasury" edition; but for school purposes it is satisfactory, being neat, clearly printed, fully annotated.

The Harpur Euclid, Books III. and IV. By Edward M. Langley, M.A., and W. Leys Phillips, M.A. (*Rivingtons.*)—The Harpur Euclid, the first and second books of which we have noticed, it will be remembered, is an edition of Euclid's Elements, revised in accordance with the Reports of the Cambridge Board of Mathematical Studies, and the Oxford Board of the Faculty of Natural Science.

C. Julii Cæsaris De Bello Gallico, Books III., IV., and V. By Rev. Charles E. Moberly, M.A. (*Oxford: The Clarendon Press.*)—Two cases are given by the author in his introduction analogous to the way in which Cæsar managed the German war, viz., that of Sir C. Napier in 1843, and a still more strikingly illustrative parallel, the English attack on Copenhagen in 1807. There are hints on the mode of translating Cæsar; five maps, representing the repulse at Martigny, the British expeditions, the invasion of Usipetes, Aquitania, and Armorica; a well-printed text, with notes and appendices.

Elementary Algebra. By Robert Graham, M.A., T.C.D. (*Longmans, Green, & Co.*)—The student is led in this book through the simple stages of Algebra to the study of the Binomial Theorem and Notation. We can commend it on account of the special prominence given to the subject of Factors, and the treatment of Equations of the second degree in one and more variables. The symbols, however, might with advantage have been printed in a larger and more distinct type.

Woolwich Mathematical Papers for admission into the Royal Military Academy, for the years 1880-1888. *By E. J. Brooksmith, B.A., LL.M.* (*Macmillan & Co.*)—The title of this book fully explains its contents. Its usefulness is increased by the answers to all the papers.

Systematic Word-Building and Spelling. (*Blackie & Son.*)—This book is intended for use in conjunction with ordinary primers, and reading-books for Standard I. It gives a series of systematically arranged exercises in word-building and spelling.

The Century Readers, No. VI. (*Blackie & Son.*)—The Century Reader VI. follows the general plan of the Century Series, as laid down in the preface to Reader I., namely, to supply selections fitted to attract the attention of the pupils, "and hereby excite an interest in the daily tasks." The prose readings have been selected from Scott, Dickens, Fenimore Cooper, Charles Reade, and Samuel Smiles; and the poetry from Shakespeare, Milton, Scott, Goldsmith, Byron, Coleridge, Mrs. Hemans, &c. The Grammar Appendix, containing a great variety of exercises, is specially complete, and includes a section on Prefixes and Affixes, and Greek and Latin Roots.

The Annotated Liturgy. By Rupert Garry. (*Hatchards.*)—Mr. Garry is an authority upon elocution, and in this book the Order for Morning and Evening Prayer, the Litany, Prayers, and Thanksgiving, Collect, the Holy Communion, and the Burial Service, are annotated, with full instructions for their proper reading. To clergymen the book cannot but be a great assistance, when we consider that elocution is most frequently neglected in seminaries of education.

The Beginners' Book in German. By Sophie Doriot. (*London & Boston, U.S.A.: Ginn & Co.*)—This book is well printed in large type on good paper, and is an admirable text-book for children. The illustrations are numerous and humorous in Part I., but there are none in Part II. The exercises are short, and bear directly upon the illustration which precede each. We feel confident that this method will please children and greatly stimulate their interest.

Sermo Latinus. By J. P. Postgate, M.A., Litt.D. (*Macmillan & Co.*)—This is a Key to the selected passages for translation in Part II. of Mr. Postgate's *Sermo Latinus.* Each translated passage is printed on a separate page, and, with a view to facilitating the observance of quantity, all vowels in Latin words and classical proper names which are known to be long have been marked as such.

A Catechism of Music. By John Towers. (*John Heywood.*)—The catechism is easy and well suited to beginners. There are three appendices on musical terms, musical signs, and a long list of the principal composers and vocalists arranged in alphabetical order.

Atlas de Géographie Moderne. Par F. Schrader, F. Prudent, et E. Anthorne. (*Hachette & Cie.*)—This Atlas is published in 21 parts, and also as a whole, bound. Each part contains 3 maps, 6 pages of letterpress, with numerous statistics, diagrams, detailed plans. Messrs. Hachette & Co. have sent us a part containing maps of the British Isles, Switzerland, and the Russian Empire. Of these three, that of the British Isles is the least valuable. There is a great deal too much colouring, and names do not stand out clearly. On the other hand, the map of Switzerland, considering the difficulties to be overcome, is wonderfully graphic and clear. The mountains, rivers, lakes are indicated so distinctly that they are seen at a glance, and their relative importance is evident. The map of the Russian Empire is also very good. The carefulness, clearness, and fulness of these picture-like maps are worthy of ready recognition from English as well as from French readers.

New Editions.

Algebra for the Use of Schools and Colleges. By W. Thompson, M.A., B.Sc. (*Sampson Low, Marston, Searle, & Rivington.*)—A second edition of Part I. of this work is now published. It contains the elementary subjects in Algebra, reaching to Simultaneous Equations which are not of the First Degree.

Everybody's Pocket Cyclopædia. (*Saxon & Co.*)—The fourth edition of this Cyclopædia has been revised and enlarged. A great deal of new matter has been added.

Le Jeune Parisien. By P. Delecourt, B.-ès-L. (*John Heywood.*)—This contains a succession of carefully graduated conversations—simple and suitable to beginners who know very few of the idioms of the French language.

English Men of Letters: Sterne. By H. D. Traill. Macaulay: By J. Cotter Morison. (*Macmillan & Co.*)—The first editions appeared in 1882, and the essay on Macaulay was reprinted in 1884, and again in 1885.

We have also received—

The Cornhill and *English Illustrated Magazines; St. Nicholas; The Boy's* and *Girl's Own Papers*, and the Summer Numbers; *Cassell's Technical Educator, Part* 17, and the *Old Testament Commentary, Part* 58; *The Sunday at Home* and *Leisure Hour*, of the Religious Tract Society.

LANGUAGE AND LINGUISTIC METHOD IN THE SCHOOL.*

By S. S. Laurie, M.A., LL.D.,
Professor of Education in the University of Edinburgh.

Lecture II.

The Distinction between Discipline and Training.—Language as Substance of Thought.—Method.

In my first Lecture I have indicated the threefold claim of language to a supreme place in education: first, as a formal or abstract study, that is to say, as the logical and historical analysis of words, forms, and sentences; secondly, as a real study conveying the substance of thought; and, thirdly, as literature in which are presented to us the forms of the ideal in Art.

I mean now to speak first of Language as a Real Study, as conveying the substance of thought, but before doing so I must make a few preliminary remarks.

I have said that formal study disciplines the intelligence more than the study of the real. Why is it that the study of the formal specially disciplines? For two reasons: first, because the spontaneous effort demanded of the pupil is greater than in other kinds of study; and, secondly, because the formal is only another name for the abstract, and as the abstract is removed to a certain distance, so to speak, from the substance or matter from which it is abstracted, dealing with the abstract is a purer exercise of the intellectual processes, simply as such, than the concrete or real possibly can be. Occupation with the abstract thus tends to give power to our intellectual processes—a power which, inasmuch as these processes are always the same, is of universal application. The exercise approaches in its character the exercise of mind simply as mind. For example, in mathematics, instruction in practical mensuration doubtless trains and disciplines the mind, but the abstract study of geometry, just because it is formal or abstract, disciplines the mind more effectually.

The logical study of language I shall henceforth, for shortness, call by the traditionary name, grammar. It stands, as we have seen, midway between language as a real subject, conveying substance of thought, and logic. It is thus logic in a concrete form, and it is language in its abstract form. As such it disciplines; and where there is discipline there is necessarily also *training* of the intelligence.

The question now arises—and it is of great significance in education—Can I not *train* the intelligence without disciplining it by means of the formal or abstract? Is there any distinction between training and discipline which can justify me in saying that I can train without disciplining? I think there is, and the question is so important in its general educational bearings, as well as its linguistic, that I shall here introduce you to what I believe to be the true distinction between these words, which are almost always used as equivalent; and, in doing so, I shall necessarily make clearer what I have said about the formal or abstract.

Language studied as the substance of thought is *food* for the mind; but it is so only in so far as it is comprehended. Now, this act of comprehension carries the intelligence through a mental process. This process is necessarily the grammatical and logical process in the concrete, for language is the reflex not merely of thought but of the thinking process. But there are various stages of comprehension, rising from the vague and indefinite feeling that something has been said to the partial and fragmentary understanding of what has been said (and this stage again has many degrees), and to the final grasping of the thought in all its particularity and fulness. When a piece of language is so grasped that the thought it conveys is reduced in the mind of the reader to that order and relative subordination of parts which it had when it first took complete shape in words, the reader has manifestly carried his mind through the mental processes which

* A Course of Six Lectures delivered at the University of Cambridge and at the College of Preceptors during the month of May, 1889.

orginally produced the thought and its word-vestment. Now, to the extent to which any mind is carried through such processes of thinking, it is, I hold, being *trained* as well as fed. This is training: let us now restate by way of contrast the nature of discipline.

It is only in so far as we look at the *relations* of the word-vestment apart from the concrete thought that we deal with the formal in thought and language—the abstract—the logical and grammatical. It is this occupation of the mind with form which, as I have tried to show, gives *discipline* to the intelligence as distinct from *training* (though it necessarily also comprehends training).

The fixing of the mind on the formal or the abstract, on thinking deprived of the support of the concrete, is a difficult exercise of mind, and rightly not attempted till boys have left school. It is formal logic. The fixing of mind on the generalised character of words and their inter-relations in a sentence is also a difficult exercise; but this, which is grammar and grammatical analysis, is not beyond the reach of the schoolboy, because his mind is supported by the symbols which we call words, and these are presented to his senses. It is by such exercises that we give what is to be distinctively called discipline. We thus strengthen reason for all particular exercises of whatsoever kind. For the subject-matter of formal exercises is not necessarily this or that *particular* thought or reasoned statement, but thinking, and reasoning, and the conditions of rational expression through words as such. Formal exercises are thus universal in their relations and extend the range of mental power simply as power, and, while extending, also intensify the power.

The distinction between training and discipline is, I hope, made clear. I would wish to press on your attention next, that training has constantly been assumed to be identical with, or at least to be included in, discipline. It certainly is contained in discipline; but I would point out that it *also* lies outside it, as is apparent from what I have said. To the neglect of the distinction which I have drawn between these two educational notions is due the corresponding neglect of a whole side of education. Had schoolmasters seen that mental training can be given by the study of language as the concrete embodiment of thought, and that accordingly you could give food to the mind, while, *at the same time*, securing the training of it, I think school would have been a pleasanter place, and the results of school work, both intellectual and moral, would have been much more satisfactory.

It is manifest that when a schoolmaster realises that he can truly *train* the mind by getting it merely to understand literature, he will be the more ready to believe in the real or substance of language in education than if he regards reading as giving merely the matter of thought. He will see that the organism of words as making sentences has not to be studied with his pupils as an organism in order to secure training, but simply as substance or reality. And in this there will be a great gain for his pupils. The most real of all "things" are the thoughts of man. Food is what the hungry want, drink is what the thirsty want, and all human beings hunger and thirst more or less. One true thought, take it whence you will, once fairly rooted in the mind of a boy, will do more for him whether he is to be a shoemaker or statesman, than grammar or the calculus or the syllogism will do. So subtle are the secret relations of the material of feeling and the suggestions of experience which are always flowing into our consciousness, that one such rooted thought quickly finds some worthy mate, and is the father of a whole tribe. Nay, even a partial thought which fails to sustain itself, but dies where it took root, is not wholly lost; it enriches the soil and stimulates future productivity. Mind is not the machinery of thinking only, but it is a complex of substantial thought, and you nourish thought in the young only by thought.

Let us conclude, then, that by the study of language as a concrete study, as substance, as reality, we both feed and train the mind; we enrich the blood of mind, so to speak, and we teach it its courses.

Now, it will be apparent that, if I had to choose between the formal or grammatical, and the real or substance of language in educating youth, I should unquestionably prefer the latter, and leave grammar out altogether. For more than 2000 years the formal has in all subjects been too much with us. Definition, precept, dogma can be easily set down in propositions, and prescribed for a boy's learning. The work is memory work. The progress of the pupil thus seems to be something measurable in respect of quantity, and the master's task is easy; whereas, as a matter of fact, the true process of education is a matter of quality, and is not measurable.

You will not conclude, I hope, from this that I am disposed to set aside the formal in language—grammar. I have shown its bearing on the discipline and strengthening of the mind in all its relations, including the conduct of life. But I very decidedly hold that in the education of a boy or girl, language is to be regarded mainly as a concrete study, and that, as the medium of all thought, it is to be assigned a much more dominant place in the school than has hitherto been assigned to it.

What is the actual state of things? The technical arts of reading and spelling being acquired with more or less success, the teacher's work is thereafter largely restricted by himself to the formal or grammatical. As I have pointed out, you certainly discipline the mind in this way, but you cannot so best educate it. The growth of mind, and the growth of language in the mind, go together. There has to be built up in the boy the language of his inner life, so that the language may grow with the life and the life may grow with the language. Now, this great object can only be attained by the pupil's reading and re-reading, and comprehending the thoughts of others as expressed in fitting words, and by his expressing his own observations and thoughts—native or borrowed—in fitting words. Both those intellectual occupations must be carried on together.

Method.

As I know that those who intend to be teachers desire to have placed before them, not only the aim of their work and the leading principles which should guide them, but the details of method, I shall now go into these details with reference to language in its three aspects. I. Language as substance of thought. II. Language as form of thought or grammar. III. Language as art; or literature.

I. *Language as Substance of Thought.*

I shall take here for consideration the different stages of language-teaching as these are fairly enough indicated by the external division of school work—the Infant, the Lower Primary, the Upper Primary, and the Secondary.

(*a.*) *Infant Stage of Language Teaching in Relation to Thought.*

In the child up to the eighth year the range of language is very small; he probably confines himself to not more than 150 words. Our business as educators is to give to these words definite and clear significations, and to help the child in adding to his stock. For in adding to his stock of *understood* words we add to his stock of understood things, and, consequently, to his material for thought and the growth of mind.

In doing this we must follow the method which nature is itself pursuing:—the pupil is daily and almost unconsciously adding to his store in conversing with others and in hearing the names of the common objects which pass daily and hourly before his eyes. The infant teacher, then, will not only respect—taking care that they are clarified, so to speak, and used in a determinate sense—the store of vocables already acquired, but will add to the stock in seven ways and so promote the parallel mental growth.

1. By conversing with the class on any subject suggested by the incidents of the day or of the class-room in such language as, while it may be in advance slightly of that which the children themselves use, is yet within their comprehension if they make a slight effort.

2. By telling them simple stories and narrating or reading fairy tales. Some educationalists have objected to fairy stories for children because of their fictitious character. I shall not discuss this question here, but merely point out that the imagination of little children is very active in the sphere of the possible and impossible, that this abnormal activity of the imagination contributes largely to the growth, culture, and enrichment of mind, and that it has to be taken advantage of by the educator who respects law wherever he finds it. Where would Homer and Sophocles have been had they not imbibed mythological lore with their mothers' milk? Even the genius of Shakespeare would have perished in the thirsty desert of a childhood of bare facts. I would further say, in passing, that what applies to children applies *a fortiori* to the adult; and that fiction, the drama, and art ought, in consistency, to be excluded from all life by those who would deny the unreal to children. It might also be shown, were this the place to do so, that in the active imaginations of children and the fairy stories which they greedily seize we see at work the capacity for art and religion.

3. By means—and this, at the earliest stage, chiefly—of object-

lessons. Here words are learnt in close connection with the sensible things they denote.

4. By means of the reading-lessons and examination on them, or rather observations about them. You will see the importance of the kind of reading-books which should at this early period be preferred. They must contain all the ordinary words of child-life; they ought also to contain a gradual and graduated extension of the child's vocabulary; and give expression and shape to his infant thoughts and growing conceptions of the world and man.

5. By means of verses—*e.g.*, nursery rhymes first, and thereafter verses regarding incidents of child-life and descriptive of simple moral and religious story. These should be learnt by heart for repetition and singing.

6. By calling on the children to give an account in their own words of lessons they have read or stories that have been told to them.

7. By means of writing in the later stage. The writing of words, and simple sentences consisting of a few words, does much to lay the foundation of accurate expression—even though such exercises be only transcriptions from the book or blackboard.

(*b.*) *Primary and Upper Primary School Stage.*
(7 *or* 8 *to* 14.)

When the pupil has left the infant-stage behind him, that is to say, when he has got his second teeth, and can take a firmer bite of the outer world, so to speak, and his fingers a firmer hold of all that comes within reach of his sense-tentacles, his instruction in language, as the highway to thought, as the gateway of the humanities, is, so far as the school is concerned, generally regulated by the reading-books used. These language lessons constitute for the boy (except among the wealthier classes) his whole literary curriculum. How important it is then, that they should be so construed as to fulfil the requirements of a literary course. By means of a good collection of prose and poetry we extend the range of thought and language. This is not to be done by reading one book devoted to one subject. Accordingly, I advocate collections of good pieces.

The question of method at this stage resolves itself very much into this—How shall we best use the reading-lesson as a lesson in language, and through language in the humanities? Here, more than anywhere else, the cultivation, the knowledge, the sympathy, the imagination, the educative skill of a teacher reveal themselves. The reading-lesson is the common ground on which the true *mind* of master and pupil meet.

I take it for granted that object-lessons, including nature-lessons, are always going on, and that, by means of these, the words of the pupils are gradually increasing in number, and in exactness of application. But this is a small matter compared with the training in language, as the vehicle of that which is not sense, but the human spirit at work on the things of sense and the facts of human life and conduct.

We must here bear in mind that every pupil has, as yet, technical difficulties to encounter in reading the lesson prescribed. The lesson is, in fact, not merely a lesson of thought, or feeling, or imagination to him, but also a lesson in the deciphering of words, and in intelligent utterance.

The lesson (we shall say) is on "Courage," or "Truthfulness," presumably well written as regards form, and illustrated by examples.

To begin with:—What is the subject before me as a subject of instruction and education? Manifestly the lesson, as a whole, that is to say, the thought, the moral teaching of the lesson in its totality. And next, what are the units of the lesson on which I must base my detailed examination? Not the individual words, but the sentences.

Accordingly, I should proceed thus:—

1. On giving out the lesson, I should tell the subject of it; I should try to bring the children's minds *en rapport* with the subject by conversing with them briefly about it; all in a very informal and easy-going style. This I do in order that I may bring what they *already* know to bear on the fresh thought or information which they are about to receive. Thereby the unknown lesson grows out of the known, and is an organic, and not a mere mechanical, extension of the thought of the pupil. "This, now," I say, "is what the lesson you are going to prepare speaks about, and you have now to go and make out the sentences, and find what the writer has to say about the subject, and how he says it."

2. I then see whether there are in the lesson any words wholly new, and to these I direct the attention of the class by means of the blackboard, and give their meanings.

The pupils are then expected to prepare the lesson for the following day.

A purely *narrative* lesson is easily disposed of. We do not need in such a case to follow the above mode of procedure; unless there be some special point, moral or other, which the writer desires to bring into prominence. To this I would cursorily allude, and that would suffice: but I would not allude to it in such a way as to deprive the lesson of its novelty or its surprises.

3. On the following day the lesson is read with due regard to the rules of reading, and the master then proceeds to examine on the *general* scope and import of the lesson *as a whole*. What is it all about? What does it mean to tell us or to teach us? This is the totality of the reality before him, just as, *e.g.*, the *whole* apple is the totality of the object in an object-lesson on the apple.

The idea (pray, mark!) at the bottom of the examination on the lesson as a whole, is, that it is a quiet and rational conversation between an instructed mind and less instructed minds. And this idea must run through all examinations on the *whole* of a lesson, from the infant school up to the age of 17. When this is lost sight of, the art of examination is lost.

4. The next step is to take the units of language (which I have said are the sentences) in their order *with the book open;* just as in an object-lesson I give the total object to perception first, and thereafter proceed to look at the units which make up the total object—which units are qualities. Each sentence is read again, and, after being read, the master asks such questions as will bring into view its various parts and relations, as well as the significance of the individual words. This is the preliminary stage of what, as an abstract study, we know as analysis, *i.e.*, it is analysis in relation to the synthetic or concrete, which must always precede the abstract and formal in thought.

5. The lesson should now again be viewed *as a whole*, having a beginning, a middle, and an end; and the children should be asked to give an account of it in their own words. One or two of the more fluent attempting this, the rest will be too happy to lie in wait for omissions and errors, with a view to supply and correct them. In this way, the lesson, whether it be descriptive, narrative, or didactic, will be reproduced by the combined efforts of the class. The master will then read the lesson to the pupils himself, as it ought to be read, they having their books shut.

7. He may now and further, at this stage, enter on the familiar and colloquial illustration, and extension of the subject of the lesson, in more or less detail, according to the time at his disposal. He will now, also, call on the pupils for voluntary contributions to the subject, in the form of facts or thoughtful suggestions. Thus is the lesson turned to use by being made productive of many deductive or collateral lessons. It is at this stage that the practical application of the lesson, if it be a moral one, comes in. Do not dwell too emphatically on this, however, as if children were so constituted that they naturally resented moral and spiritual ideas. Take for granted that they are children of God.

It may not be possible ever to do all that I have suggested, for want of time; but I have stated in detail what should be aimed at, if you are to do for a complex literary lesson what is done for a complex object of sense, when you give an object-lesson.

So much for the lesson as a whole, and in its individual sentences; but addressing, as I do, those who mean to be teachers, I would go now more into detail with the fourth step in the examination process—that in which we deal with sentences. By so doing I shall make clear what is meant by the teaching of words in relation to thought. I shall here presume that the boy is at the end of his primary instruction, or about 14 years of age.

Take the following passage as illustrating how much training as well as instruction, which is the *building up* of knowledge in the mind, may be extracted from a few lines, bearing in mind that the questions and answers are merely the skeleton of a prolonged conversation. (The book is, of course, open.)

"*Every student who enters on a scientific pursuit, especially if at a somewhat advanced period of life, will find not only that he has much to learn, but much also to unlearn. Familiar objects and events are far from presenting themselves to our senses in that aspect, and with those connections, under which science requires them to be viewed, and which constitute their rational explanation.*"

Q. What kind of student is referred to here?
A. The student who enters on a scientific pursuit.

Q. What is said of such a student?

A. That he has much to learn.

Q. Is anything else said of him?

A. That he has much to unlearn.

Q. The author says that every student of a science has much to learn and unlearn; but he says that this is more particularly true of a certain class of students; what class?

A. Those who begin at an advanced period of life.

Q. What is meant by the word "student"?

A. One who studies.

Q. And what do you mean by studying any subject?

A. Reading about it, and thinking about it.

Q. The student referred to is, you have told me, the student "who enters on a scientific pursuit"—pursuit here means subject: what is meant by a *scientific* "pursuit or subject"?

A. A subject carefully arranged, so as to show its facts, causes, and reasons.*

Q. This explanation is difficult for you to understand; you will best explain it by an example.

A. Astronomy, Geology, &c., are "scientific subjects" or sciences; that is to say, the real facts about the stars, not merely what seem to be the facts at first sight, arranged so as to show their connections and causes, is the science of the stars, or Astronomy (and so of Geology).*

Q. Can any of you now, looking carefully at the sentence, shut the book, and give me the substance of it in your own words?

A. A person beginning to study a science will find that he has much to learn as well as to unlearn, and this all the more if he is grown up before he begins.

Teacher. We shall now take the second sentence.

(*The teacher here reads it slowly, while the pupils follow with the eye.*)

Q. What is here said about "familiar objects and events"?

A. That they are far from presenting themselves, etc.

Q. What things are "far from presenting themselves," etc.?

A. "Familiar objects and events."

Q. In the science of Astronomy, for example, what would the "familiar objects and events" be?

A. The heavenly bodies and their motions.

Q. Which are the *objects*, and which the *events*?

A. The bodies are the *objects*, and their motions are the *events*.

Q. Now the author says that these objects and events are "far from presenting themselves in a certain aspect and connection:" What do you mean by "aspect"?

A. Appearance.

Q. What by "connection"?

A. Their union with each other, or other things, or their relation to these things.

Q. What kind of appearance and connections do they fail to present themselves to our senses in?

A. The appearance and connections under which science requires them to be viewed.

Q. Does the author say anything else about that "appearance" and "connection"?

A. Yes. He says that they constitute their rational explanation.

Q. *What* "constitutes the rational explanation" of *what*?

A. A certain aspect and certain connections of objects and events constitute the rational explanation of these objects and events.*

Q. Can we accurately say that an aspect or appearance and certain connections constitute an explanation of anything?

A. No. What is meant is that the presentation of them to the mind in a certain light, and with certain connections, "constitutes their rational explanation."

Q. What is meant by "constitute their rational explanation"?

A. That the kind of presentation referred to is such an explanation as satisfies the reason of a man.

Q. Now, can any of you, looking carefully at this sentence, shut your book and give me the substance of it in your own words?

A. The author says, that "things to which we are accustomed, are not always seen in such a way as science requires them to be looked at, and that the way of looking which science requires gives us an explanation of these things which satisfies our minds."

Teacher. Now, take your slates and go to your seats. Your composition lesson to-day will be putting these two sentences in your own words. In doing this you may make as many sentences of them as you please.

select the above sentence from Herschell, because it is representative of the kind of prose reading suited to the age of 14—the transition from the upper primary to the secondary stage of education.

Of this secondary stage all that can be said is, that you go on as you have begun, and so, meanwhile, I dismiss it.

I have made an important distinction between training and discipline—a most important distinction in its practical bearings on the growth of the child as a moral being also (if this were the place to speak of that) as well as an intellectual being. You will now see that you cannot carry a boy through such a passage as that from which I have taken a sentence, without giving him intellectual *training*, as well as substance of instruction. He is induced to accompany the writer step by step, in his thought, and so, without being aware of it, he is being exercised in the processes of thought, by identifying his own thought-activity with that of another and more mature mind. If there is intellectual training (as distinct from discipline) to be got anywhere, it is surely to be got here.

* Of course an answer of this sort is worked out by the help of the master, and must be the result of many leading questions.

TEACHERS' DIPLOMA EXAMINATION.—PASS LIST.

MIDSUMMER, 1889.

Theory and Practice of Education.

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Lockey, J.

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Clarke, S. L. (*hon.*)
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Hinchliffe, Miss L.
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Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending July 31st, 1889.

About's (E.) Récits et Nouvelles, edited by A. P. Huguenet, cr. 8vo, 2s. cl.
Allen's (T. W.) Notes on Abbreviations in Greek Manuscripts, roy. 8vo, 5s. swd.
Bowick's (J.) School and College Examination Arithmetic, cr. 8vo, 3s. 6d. cl.
Chaucer's The Legend of Good Women, edited by Rev. W. W. Skeat, cr. 8vo, 6s. cl.
Cicero's De Amicitia and Pro Balbo, translated by J. Gibson, 8vo, 2s. 6d. swd. (Gibson's Interlinear Keys.)
Collar's (W. C.) Practical Latin Composition, cr. 8vo, 3s. 6d. cl.
Essays on Men and Books, from Earlier Writings of Lord Macaulay, Introduction, &c., by A. H. Japp, post 8vo, 3s. 6d.
Gibson's (J.) Key to Gibson's Handbook of Translations, 3s. 6d.
Grammar of French Language of Business, edited from German of Dr. R. Thum by E. E. Whitfield, 8vo, 3s. 6d. cl.
Hall (H. S.) and Knight's (S. R.) Solutions of Examples in Higher Algebra, cr. 8vo, 10s. 6d. cl.
Harte's (B.) Cressy, cr. 8vo, 3s. 6d. cl.
Heatley's (H. R.) Selection from Pliny's Letters, with Notes, &c., 12mo, 3s. cl.
Livy, Book 5, with Notes, &c., by A. R. Cluer, 12mo, 2s. 6d. cl.
Livy, Book 21, with Notes, &c., by M. T. Tatham, 12mo, 2s. 6d.
Lodge's (O. J.) Modern Views of Electricity, cr. 8vo, 6s. 6d. cl.
McCormick's (W. S.) Three Lectures on English Literature, 12mo, 3s. 6d. cl.
Merguet (H.): Lexikon zu Cicero, Section 2, Part 4, 8m.
Meusel (H.): Lexicon Cæsarianum, Parts 11-13, 7m. 20.
Millington's (H.) Translation into Latin Verse, 12mo, 2s. 6d.
Mill's (H. R.) Elementary Class-Book of General Geography, cr. 8vo, 3s. 6d. cl.
Morris's (Rev. S. S. O.) Short Course of Elementary Navigation, 8vo, 2s. cl.
Petit (J. A.): Histoire Contemporaine de la France, Vol. 12, 6fr.
Polybius, Histories of, translated from the Text of F. B. Hultsch by E. S. Shuckburgh, 2 vols., cr. 8vo, 24s. cl.
Roney's (T.) Student's Plane Trigonometry, cr. 8vo, 7s. 6d. cl.
Rust's (A.) Electricity Theoretically and Practically Considered by Aid of Thermo-Electricity, 8vo, 2s. cl.
Scott's (Sir W.) Marmion, edited, with Notes, by T. Bayne, 12mo, 3s. 6d. cl.
Scott's (Sir W.) Works of John Dryden, with Notes, &c., by G. Saintsbury, Vol. 14, cr. 8vo, 10s. 6d. cl.
Shakespeare's Life of King Henry V., with Introduction and Notes by K. Deighton, M.A., 12mo, 2s. cl.
Theocritus, Bion, and Moschus, rendered into English Prose by A. Lang, Large-Paper Edition, 8vo, 9s. cl.
Warburton's (G. E.) Names and Synonyms of British Plants, 12mo, 3s. 6d. cl.
Watson (H. W.) and Burby's (S. H.) The Mathematical Theory of Electricity and Magnetism, Vol. 2, 8vo, 10s. 6d.
Xenophon's Hellenics, Book 2, translated by A. J. Prout, 18mo, 2s. swd. (Cornish's Interlinear Keys.)

MATHEMATICS.

9977. (Professor LAMPE.)—Investigate formulæ for the sums of the powers of the rational numbers, and, with the notation $S_k(x) = 1^k + 2^k + \ldots + x^k$, prove, from general expressions, that

$$16S_1^5 = S_5 + 10S_7 + 5S_9, \quad 12S_2^3 = S_4 + 7S_6 + 4S_8, \quad 12S_1S_5 = -S_3 + 5S_5 + 8S_7,$$

$$30S_2S_4 = -S_3 + 15S_5 + 16S_7, \quad 72S_1S_2S_3 = 3S_4 + 42S_6 + 27S_8.$$

Solution by (1) J. D. H. DICKSON *and* J. J. BARNIVILLE; (2) *the* PROPOSER.

1. In Vol. XLIX., p. 179, the following equations are given as examples of a general formula there quoted, viz.:

$$5S_4 = 3S_2\left\{2S_1 - \tfrac{1}{3}\right\}, \qquad 8S_7 = 4S_3\left\{4S_3 - \tfrac{8}{3}S_1 + \tfrac{2}{3}\right\},$$
$$6S_5 = 4S_3\left\{2S_1 - \tfrac{1}{2}\right\}, \qquad 9S_8 = 3S_2\left\{6S_5 - 6S_3 + \tfrac{18}{5}S_1 - \tfrac{3}{5}\right\},$$
$$7S_6 = 3S_2\left\{4S_3 - 2S_1 + \tfrac{1}{3}\right\}, \qquad 10S_9 = 4S_3\left\{6S_5 - 8S_3 + 6S_1 - \tfrac{3}{2}\right\}.$$

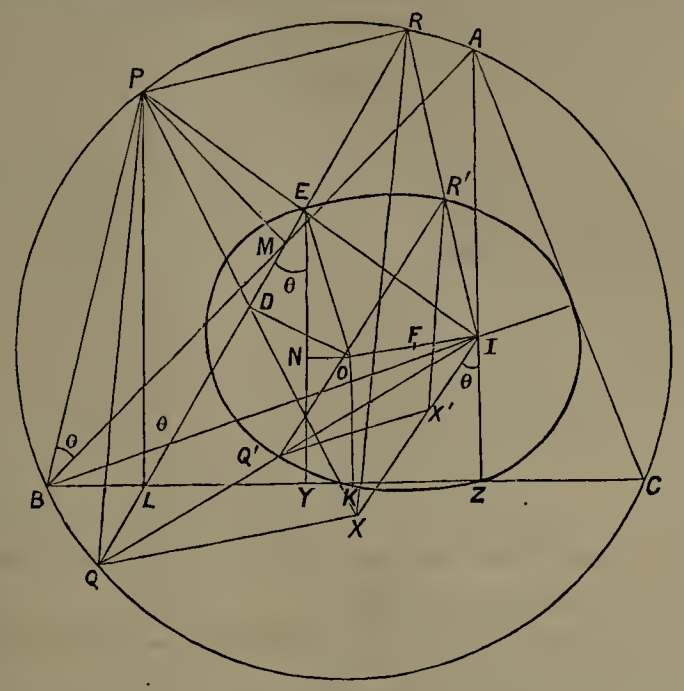
On substituting in the equations to be proved, they become identities.

[The rest in Volume.]

2683. (R. TUCKER, M.A.)—To each point on the circumscribing circle of a triangle corresponds a foot-perpendicular line; this cuts the circle in two points; required the locus of the intersection of the feet-perpendicular lines corresponding to these points of section.

Solution by G. E. CRAWFORD, B.A.

I assume that the following construction for the pedal line is known:—Join P to the orthocentre I of the triangle ABC, and through E the mid-point of IP, draw a straight line making with AI the same angle that PA subtends at the circumference of the circle.



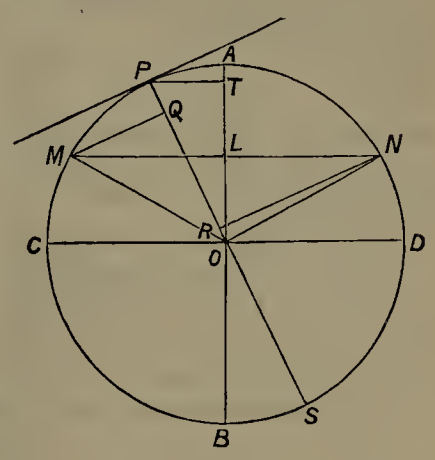
[*Notice.*—The inner curve is meant to be the 9-point circle centre F. It passes correctly through E, R′, Z, K, Q′, but its shape is somewhat deformed.]

Now in the triangle ABC let I be the ortho-, O the circum-, and F the nine-point centre, and QR the pedal line of P.

Then the pedal line of R passes through R′, the mid-point of IR, and is inclined to AI at an angle measured by RA. [The rest in Volume.]

3216. (ARTEMAS MARTIN, LL.D.)—A sphere is cut by a random plane, and then cut again; find the chance that the last section is a complete circle.

Solution by D. BIDDLE.



The two planes are severally parallel to tangential planes. It is indifferent with which point on the surface of the sphere the tangential plane parallel to the first is in contact; but let A be that point, and AB the diameter perpendicular to the first plane. Let ACBD be the great circle passing through A and P (the similar point in reference to the second of the two planes). Then, MN being the line of intersection of the first plane with ACBD, and MQ, NR perpendiculars upon the diameter PS, it is evident that, in fulfilling the conditions, the second plane may cut PS anywhere in PQ or RS, and the particular chance is (PQ+RS)/PS. [The rest in Volume.]

10123. (J. GRIFFITHS, M.A.)—If

$$I_3(x, y) = a_0x^3 + 3a_1x^2y + 3a_2xy^2 + a_3y^3, \quad I_2(x, y) = a_0x^2 + 2a_1xy + a_2y^2,$$

prove that $x = a_1a_2 - a_0a_3$ and $y = 2(a_0a_2 - a_1^2)$ will invariantise both I_3 and I_2, and that these quantics will have a common factor, viz., the discriminant of I_3.

Solution by W. GROSS, Dr.Sc.

Let I_2', I_3' be the transformed values of I_2 and I_3, and R the discriminant of I_3. Then we have

$$I_2' = a_0R, \quad I_3' = (a_0^2a_3 - 3a_0a_1a_2 + 2a_1^3)R, \quad a_0^2a_3 - 3a_0a_1a_2 + 2a_1^3,$$

being the first coefficient in the cubic covariant Q of I_3.

[The rest in Volume.]

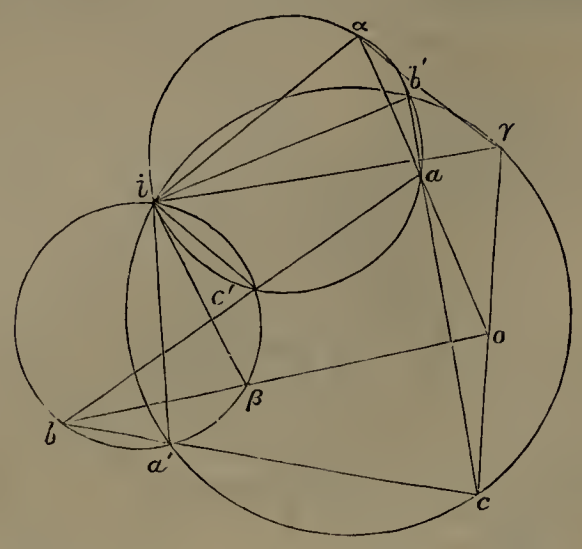
10145. (Professor MANNHEIM.)—On donne un triangle *abc*. On trace une circonférence qui passe par *a*, elle coupe *ab* en *c′* et *ac* en *b′*. On trace une circonférence qui passe par *b* et *c′*, elle coupe *bc* en *a′* et la première circonférence en *i*; les points *i*, *a′*, *c*, *b′* sont sur une même circonférence. On prend un point arbitraire *o* sur le plan *abc*. La droite *oa* coupe en α la circonférence qui passe par *a*. La droite *ob* coupe en β la circonférence qui passe par *b*. Enfin sur la troisième circonférence on a le point γ à sa rencontre avec *oc*. Démontrer que les points *o*, α, β, γ, *i* sont sur une même circonférence de cercle.

Solution by W. J. GREENSTREET, M.A.; Professor DARBOUX; *and others.*

$$\angle b'ic' = \pi - \angle b'ac', \text{ and } \angle a'ic' = \angle c'ba';$$

therefore $\angle b'ia' = \pi - \angle b'ac' + \angle c'ba' = \angle bac + \angle c'ba' = \pi - \angle acb$,

therefore *b′*, *i*, *a′*, *c* are concyclic.



Again, $\angle i\gamma c = \angle ib'c = \pi - \angle ic'a = \angle ic'b = \angle i\beta b = \pi - \angle i\beta o$,

therefore i, γ, o, β are concyclic, and

$\angle i\gamma o = \angle ib'a = \angle i\alpha a = \pi - \angle i\beta o$; therefore i, γ, o, α are concyclic;

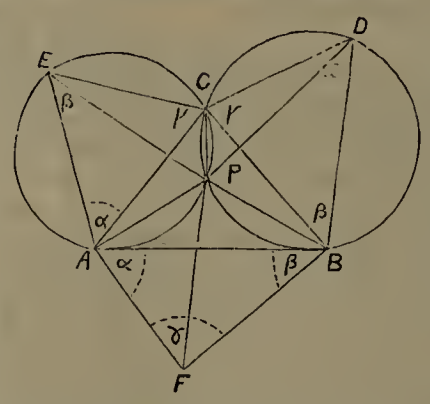
i.e., i, γ, o, α, β are concyclic.

10158. (C. H. Thompson, B.A.)—On the sides of a triangle ABC are described three similar triangles BCD, CAE, ABF of any given species, so that the pairs of angles at A, B, C are equal. Prove that the circles described about the three triangles pass through a common point, and that AD, BE, CF meet in this same point.

10162. (E. M. Langley, M.A.)—BKC, CLA, AMB are equilateral triangles described externally on the sides BC, CA, AB of a triangle ABC; prove that AK, BL, CM are equal, and have a common point.

Solution by Rev. J. L. Kitchin, M.A.; D. T. Griffiths; *and others.*

(10158.) About CBD, AEC describe circles cutting in P. Join points as in figure.



$\angle APC = \alpha + \gamma$, $\angle BPC = \beta + \gamma$,

whence $\angle APB = \alpha + \beta$;

therefore, in quadrilateral APBF, angles APB, AFB are two right angles, therefore circle about AFB passes through P.

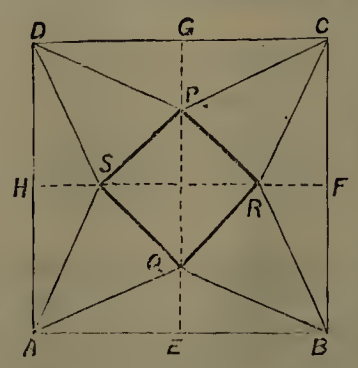
Again, $\angle CPB = \beta + \gamma$, and $\angle EPC = \alpha$, and their sum 2 right angles, therefore EP, PB are in one straight line; so AP, PD are in one straight line, and CP, PF.

(10162.) This is a simple case of this more general proposition [and both are included in Quest. 7818, Vol. xliii., page 88].

10166. (C. A. Swift.)—Equilateral triangles are described on the four sides of a square, the triangles all lying within the square. Show that the area of the eight-pointed star-shaped figure formed by the vertices of the triangle and the corners of the square, together with three times the area of the square, is equal to eight times the area of one of the equilateral triangles.

Solution by the Rev. J. L. Kitchin, M.A.; *and* W. J. Greenstreet, M.A.

Let ABCD be a square, its side $2a$. P, R, Q, S the vertices of the four equilateral triangles. There are three star-shaped figures, each suiting the wording of the question; it appears, however, that star, with square PRQS cut out of it, is the one intended by the question.



Now $EP = a\sqrt{3}$,

therefore $EQ = 2a - a\sqrt{3}$,

therefore the four triangles

AQB, BRC, &c. $= 4a^2(2-\sqrt{3})$.

But $PQ = EP - EQ = 2a\sqrt{3} - 2a$,

therefore area of square PRQS $= \frac{1}{2}(2a\sqrt{3}-2a)^2 = 8a^2 - 4a^2\sqrt{3}$,

therefore star $= 4a^2 - 8a^2 + 4a^2\sqrt{3} - 8a^2 + 4a^2\sqrt{3}$,

therefore star + 3 times square $= 8a^2\sqrt{3} = 8$ times equilateral triangle.

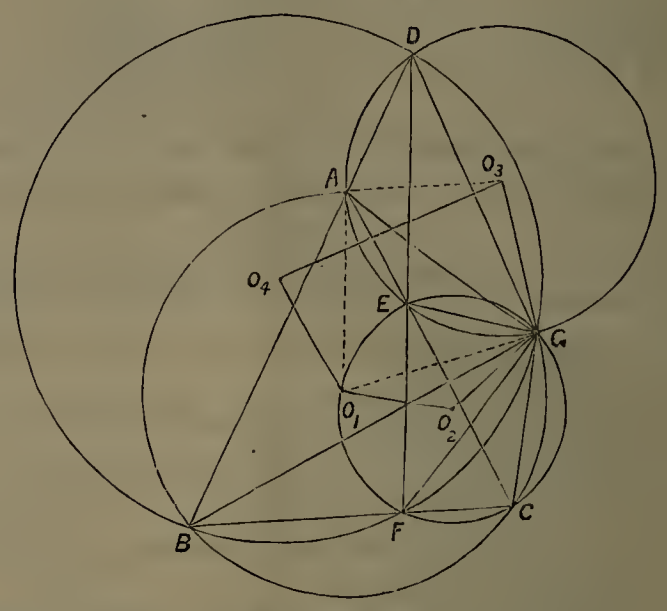
9650. (Fannie H. Jackson, B.Sc.)—Prove that (1) the circles that circumscribe the four triangles got by omitting successively each of four lines pass through a point; and (2) their centres lie on a circle that passes through the same point.

Solution by W. J. Greenstreet, M.A.; *and* Rev. J. J. Milne, M.A.

AB, AC, BC, DF make triangles ABC, EFC, DAE, BDF.

1. Let the circles round ADE, EFC cut in G. Then

$$\angle AGC = \angle AGE + \angle EGC = \pi - \angle EFC + \angle BDF$$
$$= \angle BFD + \angle BDF = \pi - DBF,$$



therefore the circumcircle of ABC passes through G. Also

$$\angle FGC = \angle FEC = \angle DEA = DGA,$$

therefore $\angle AGC = \angle DGF$, and also $\angle AGC = \pi - \angle DBF$,

therefore $\angle DGF = \pi - \angle DBF$,

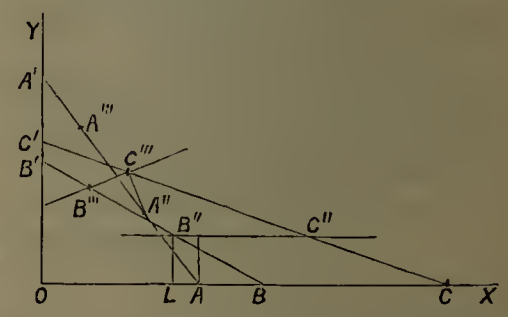
therefore the circumcircle of DBF passes through G. [The rest in Vol.]

10042. (Professor Neuberg.)—On donne deux droites rectangulaires OX, OY. Soient A, B, C trois points quelconques de OX; A′, B′, C′ trois points quelconques de OY; A″, B″, C″ trois points divisant les droites AA′, BB′, CC′ dans le rapport $\alpha : 1$; A‴, B‴, C‴ trois points divisant ces droites dans le rapport $\beta : 1$. Cela posé: démontrer que (1) les perpendiculaires abaissées de A sur B″C″, de B sur C″A″, de C sur A″B″ concourent en un même point P; (2) lorsque α varie, P décrit une droite; (3) les perpendiculaires abaissées de A″ sur B‴C‴, de B″ sur C‴A‴, de C″ sur A‴B‴ concourent en un point Q; (4) lorsque α varie, Q décrit une droite; (5) lorsque β varie, Q décrit une hyperbole équilatère.

Solution by L. Wiener, LL.D.

Let $OA = a_1$, $OB = a_2$, $OC = a_3$;

$OA' = b_1$, $OB' = b_2$, $OC' = b_3$.



(1) The coordinates of B″ are B″L, OL, but

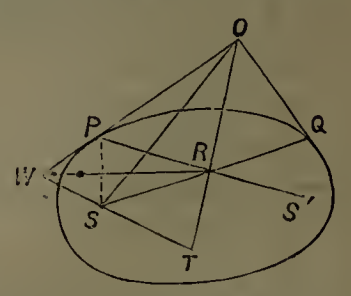
$$\frac{B''L}{OB'} = \frac{B''B}{B'B} = \frac{\alpha}{\alpha+1},$$

$$B''L = \frac{\alpha}{\alpha+1} \cdot b_2,$$

$$\frac{OL}{BO} = \frac{B'B''}{B'B} = \frac{1}{\alpha+1}, \quad OL = \frac{1}{\alpha+1} \cdot a_2.$$ [The rest in Vol.]

10132. (W. W. Poole Hughes, B.A.)—OP and OQ are tangents to an ellipse, whose foci are S and S′. SQ and S′P intersect in R. The normal at P intersects OR produced in T; TS meets the tangent at P in W. Prove that TP, OS, and RW are concurrent.

Solution by T. W. Robinson, B.A.; G. E. Crawford, B.A.; *and others.*



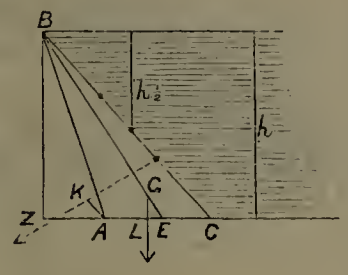
We know that SO and P′T bisect angles at S and P of △PRS, and PO is perpendicular to PT, therefore O is S-escribed centre of △PRS, therefore OR bisects angles PRQ or SRS′, therefore T is P-escribed centre of △PRS, and therefore W is R-escribed centre, therefore RW, PT, and OS are concurrent.

10066. (Professor Asûtosh Mukhopâdhyây, M.A.)—An embankment of triangular section ABC supports the pressure of water on the side BC; find (1) the condition of its not being overturned about the angle A when the water reaches to B, the vertex of the triangle; and prove (2) that, if s is the specific gravity of the embankment, when the area of the triangle is reduced to the minimum consistent with stability for a given depth of water,

$$\tan A = (s^2+2s+9)^{\frac{1}{2}}/(s-1), \quad \tan C = (s^2+2s+9)^{\frac{1}{2}}/(3-s).$$

Solution by C. MORGAN, M.A., R.N.

Considering a section of the embankment, the resultant pressure of the water on BC acts two-thirds of the way down. Let h = depth of water. Hence, taking moments about A, we must have, for the condition of the embankment not being overturned,



$$g\,.\,1\,.\,\tfrac{1}{2}h\,.\,\mathrm{BC}\,.\,\mathrm{AK} \not> \tfrac{1}{2}h\,.\,\mathrm{AC}\,.\,s\,.\,g\,.\,\mathrm{AL},$$

$$\mathrm{BC}\,.\,\mathrm{AK} \not> \mathrm{AC}\,.\,\mathrm{AL}\,.\,\mathrm{S},$$

$$\mathrm{BC}\,(\tfrac{1}{3}\mathrm{BC} - \mathrm{AC}\cos\mathrm{C}) \not> \mathrm{AC}\,(\tfrac{2}{3}\mathrm{AC} - \tfrac{1}{3}\mathrm{BC}\cos\mathrm{C})\,s\,;$$

$$\therefore\quad \tfrac{1}{3}a^2 - ab\cos\mathrm{C} \not> (\tfrac{2}{3}b^2 - \tfrac{1}{3}ab\cos\mathrm{C})\,s \text{ or } \frac{3c^2 - 3b^2 - a^2}{3b^2 - a^2 + c^2} \not> s.$$

[The rest in Volume.]

QUESTIONS FOR SOLUTION.

10219. (Professor SYLVESTER.)—(1) Three rigidly connected closed curves (without singular points) in a plane are thrown down on a grating composed of an indefinite number of parallel lines, the distance between any two consecutive ones of which is uniform and not less than the greatest diameter of the complex contour formed by the three given curves. Show that, if certainty is represented by the periphery of a circle touched by two consecutive parallels, the probability of intersection between the complex contour and the parallels will be represented by some one of a determinate group of homogeneous linear functions, with (positive, negative, or zero) integer coefficients, of the lengths of the double tangents that can be drawn between the curves and of the segments into which the curves are divided by their points of contact with those tangents.

(2) Let there be any two rigidly connected figures whatever (A and C) in a plane; suppose an endless string to be passed round them, crossing itself at O, and let a third figure (B *intermediate* between A and C), rigidly connected with A and C, lie within either of the two open angles of the crossing string. Round A and C pass a tight uncrossed endless elastic band (which B is supposed large enough to intersect), and bend in the part of it which spans the angle in which B lies, towards O, until it passes round and rests on B. Show, on the same suppositions as previously made, that the probability of A, B, C being all simultaneously cut by one of the parallels, will be equal to the gain in length of the elastic band in passing from its first position to the second.

(3) If, everything else remaining the same as in (2), the figure B does not intersect the uncrossed elastic band round A and C, show that the probability of A, B, C being all cut by a parallel, is the difference in length between the bands obtained by making the part of this band which spans the open angle in which B lies, twist right round B in opposite directions.

In (2) it is to be understood that A, B, C are so situated that, of *any* straight line cutting them all three, the portion lying upon B will be intermediate between the portions lying upon A and C.

[For the corresponding, but very much simpler, theory of *two* figures, Prof. SYLVESTER refers to CZUBER'S *Geometrische Wahrscheinlichkeiten*, Leipzig, 1884, pp. 117, 118, 125.]

—220. (Professor WOLSTENHOLME, M.A., Sc.D.)—A circle is described with its centre on the directrix of a given parabola and diameter equal to the focal distance of the centre; prove that three of the common tangents to this circle and the parabola will form an equilateral triangle; and the centres of the escribed circles of any such equilateral triangle lie on the cubic $y^2(3x+7a) + 4a^2(3a-x) = 0$.

—221. (Professor CATALAN.)—Intégrer

$$\frac{(\lambda-1)\cos(\lambda+1)x + (\lambda+1)\cos(\lambda-1)x}{\cos^2 x}\,dx.$$

—222. (Professor DÉPREZ.)—Soient P un point du plan du triangle ABC, et A′, B′, C′ les points où les droites AP, BP, CP rencontrent les côtés BC, CA, AB. Le lieu d'un point P tel que l'angle de Brocard du triangle A′B′C′ ait une valeur donnée V, est une courbe du sixième ordre.

—223. (Professor NEUBERG.)—Une droite AB de longueur constante se meut entre deux droites fixes OX, OY. On joint ses extrémités à un point fixe C du plan XOY. Déterminer géométriquement les points de contact des hauteurs AA′, BB′ du triangle ABC avec leurs enveloppes, ainsi que la tangente à la trajectoire de l'orthocentre.

—224. (Professor DE LONGCHAMPS.)—Résoudre les équations

$$\frac{x-b-c}{x-2a} + \frac{x-c-a}{x-2b} + \frac{x-a-b}{x-2c} + 1 = 0,$$

$$\frac{2x+c-b}{x+b-c} + \frac{2x+a-c}{x+c-a} + \frac{2x+b-a}{x+a-b} + 2 = 0,$$

$$\frac{x+b+c-a}{x+3a-b-c} + \frac{x+c+a-b}{x+3b-c-a} + \frac{x+a+b-c}{x+3c-a-b} + 1 = 0,$$

et reconnaître que la *clef* qui peut servir à former, en nombre indéfini, les équations de ce genre est représentée par l'identité

$$(\alpha+\beta)(\beta+\gamma)(\gamma+\alpha) - \alpha\beta(\alpha+\beta) - \beta\gamma(\beta+\gamma) - \gamma\alpha(\gamma+\alpha) - 2\alpha\beta\gamma = 0.$$

10225. (Professor DECHAMPS.)—Si A représente la somme des diviseurs d'un nombre entier pair N donnant des quotients impairs, B la somme des diviseurs donnant des quotients pairs, et C la somme des diviseurs impairs, on a A = B + C.

—226. (Professor MANDART.)—On donne un cercle O, deux diamètres rectangulaires OX, OY, et une perpendiculaire CL en un point C de OX. La tangente menée au point P de la circonférence rencontre OX en A, OY en B; la perpendiculaire élevée en A sur AB coupe CL en R. Démontrer que le lieu géométrique du point d'intersection des droites OP, BR est la circonférence décrite sur OC comme diamètre.

—227. (Professor FITZ-PATRICK.)—Sur le diamètre AB d'un demi-cercle, on prend un point I tel que AI = $\frac{2}{3}$AB et un autre point quelconque C; du point A comme centre avec les rayons AI, AC, on décrit deux arcs de cercle qui coupent la demi-circonférence en D et E. Prouver géométriquement que ID > CE.

—228. (Professor MASCART.)—Étant donnés, dans un plan, deux droites AE, AF et un point O′, construire un triangle ABC, sachant que la bissectrice et la hauteur issues de A sont dirigées suivant AE, AF, et que O′ est le centre du cercle des neuf points.

—229. (Professor STAMMER.)—La perpendiculaire élevée au milieu du côté BC d'un triangle rencontre les deux autres côtés AB, AC en des points B′ et C′ tels que les segments BB′ et CC′ sont vus de tout point de la circonférence ABC sous des angles égaux ou supplémentaires. Autrement dit, si B′ et C′ sont deux points divisant un diamètre d'une circonférence en parties harmoniques, et si BC est une corde quelconque perpendiculaire à ce diamètre, les droites BB′, CC′ sont vues de tout point de la circonférence sous des angles égaux ou supplémentaires.

—230. (Professor MORLEY.)—In the cardioid let parallel tangents touch at PQR, then we know (CHASLES' theorem) that the mean centre of PQR is fixed, being in fact the triple focus. Show that (1) QR, RP, PQ subtend equal angles at the cusp (this point in a triangle might be called isoptic centre); (2) PQR is of constant area; (3) the concentric ellipse through PQR is of given axes; (4) the tangents meet the concentric circle through the vertex in two equilateral triangles; (5) from the corners of one of these triangles draw the other six tangents; these meet the circle again at a regular hexagon, the twelve new tangents from these points meet at a regular 12-gon, and so on; (6) the sum of the common tangents drawn to two equal concentric cardioids is zero; (7) the sum of the radii of curvature at PQR is zero; (8) the loci of orthocentre, circum-centre, nine-point centre of PQR are circles; (9) the locus of intersection of perpendicular tangents or normals to a cardioid is a circle and a limaçon. [Much of this holds good also for any epicycloid.]

—231. (Professor DE WACHTER.)—If a, b, c be the radii of gyration of a given plane area about three axes perpendicular to its plane in A, B, C, show that, if circles be drawn with centres A, B, C, and radii a, b, c, respectively, their radical centre will be the area's centroid.

—232. (Professor LEMAIRE.)—On donne un angle quelconque xOy. Une droite pivote autour d'un point fixe I du plan de cet angle et détermine un triangle OAB. Trouver (1) le lieu du centre du cercle circonscrit à ce triangle; (2) le lieu du point K de rencontre du cercle circonscrit avec la symédiane (droite symétrique de la médiane par rapport à la bissectrice) issue de O. On prend la droite de SIMSON du point K relativement au triangle OAB: démontrer qu'elle passe par un point fixe.

—233. (Professor MOREAU.)—On donne trois points fixes A, B, O. Le point O est le centre d'un cercle de rayon variable. Par les points A, B, on mène des tangentes AM, AM′, BN, BN′ au cercle variable; on joint les milieux P, P′ de AM, AM′, et les milieux Q, Q′ de BN, BN′. Lieu du point d'intersection des deux droites PP′ et QQ′.

—234. (Professor SCHOUTE.)—Prove that the Hessian covariant $(ab)^2 a_x^{n-2} b_x^{n-2}$ of the binary equation $a_x^n = b_x^n = 0$ represents, when equalised to cipher, every point P, the cubic polar system of which with reference to $a_x^n = 0$ lies equi-anharmonically to the point itself.

—235. (The EDITOR.)—If a, b, c be the sides of a triangle, p_1, p_2, p_3 the perpendiculars thereon from the opposite corners, and Δ the area, solve the equation $a(p_1^2 - x^2) + b(p_2^2 - x^2) + c(p_3^2 - x^2) = 2\Delta$.

—236. (ARTEMAS MARTIN, LL.D.)—What is the greatest number of equal spheres, each one inch in diameter, that can be packed in a hollow sphere whose internal diameter is three inches?

—237. (D. T. GRIFFITHS.)—The pairs of tangents to a conic from points on a straight line determine an involution on any transversal through its pole, or on any tangent to the conic.

—238. (J. J. BARNIVILLE.)—A triangle, in which $a^2 : b^2 : c^2 = 9 : 7 : 16$, performs a complete rotation round the side a, prove that it generates a cone whose vertical angle is equal to the trihedral angle of a cube.

—239. (E. VIGARIÉ.)—Soient ABC un triangle et G son centre de gravité. Les droites AG, BG, CG coupent le cercle circonscrit respectivement en A′, B′, C′. Démontrer que le point de LEMOINE du triangle A′B′C′ est sur le diamètre qui passe par les points de TARRY et de STEINER du triangle ABC.

—240. (R. W. D. CHRISTIE.)—Any power of any prime number either equals the sum or else equals the difference of two squares.

10241. (H. L. Orchard, M.A., B.Sc.)—Find the value of k, in order that $$4x^4 + 4x^3 + 5kx^2 + 2x + 1 = 0$$ may be soluble as a simple quadratic.

—242. (J. C. St. Clair.)—Given a point P on a circle, and a line s which is the Simson-line of any inscribed triangle; prove that (1) the triangle may vary, and find the locus of centroids; and (2) if P vary, s remaining fixed, and conversely—determine geometrically the limiting positions of P in the first case, and the limiting envelope of s in the second case, so that it may be possible to inscribe an *acute-angled* triangle having s for its Simson-line.

—243. (Maurice d'Ocagne.)—Soit A un point arbitrairement choisi sur une hyperbole équilatère, et soient B et C les extrémités d'un diamètre quelconque de cette courbe. La tangente en A à cette hyperbole equilatère est symédiane du triangle ABC. (Ce théorème permet, connaissant le centre et deux points d'une hyperbole équilatère, de construire les tangentes en ces points.) *Corollaire.*—Si un cercle et une hyperbole équilatère sont concentriques, les tangentes à l'hyperbole aux extrémités d'un de leurs diamètres communs sont perpendiculaires à l'autre diamètre commun.

—244. (F. R. J. Hervey.)—Prove that the inverses of a point P with respect to four mutually orthogonal circles invert from P and from three other points into mutually orthocentric points.

—245. (H. W. Segar.)—The distance between the orthocentre of a triangle and the centre of the circumscribed circle is, in terms of the sides of the triangle,

$$\{a^2(a^2-b^2)(a^2-c^2)+b^2(b^2-c^2)(b^2-a^2)+c^2(c^2-a^2)(c^2-b^2)\}/(4\Delta)^2.$$

—246. (B. F. Finkel, B.Sc.)—Find the volume common to the intersection of a cone and cylinder for all positions of the two solids.

—247. (W. J. Greenstreet, M.A.)—A line XY is divided in Z, so that ZY = 2XZ. Draw through X a line such that chords intercepted by both circles may be equal.

—248. (R. Knowles, B.A.)—Tangents TP, TQ meet a parabola in P, Q; the diameter through T meets the curve in R; the tangent at R meets TP, TQ in M, N respectively; prove that the circles TPQ, TMN touch at the point T.

—249. (E. Lemoine.)—Construire un tétraèdre équifacial SABC, connaissant la droite sur laquelle est l'arête SA, le plan mené par SA parallèlement à BC; un point de BC; un triangle LMN sembable à ABC. Les arêtes opposées d'un tétraèdre équifacial sont égales.

—250. (E. M. Langley, M.A.)—O, A, B, C, D are five points on a circle. If the circle and the Simson line of the quadrilateral ABCD (see Question 9917) with respect to O be inverted with O as centre of inversion, and the same constant of inversion, there is the same relation between the inverses and O as between the originals and O.

—251. (D. Biddle.)—A figure, consisting of three equal circles touching each other, is disposed at random on a floor ruled with parallel lines, the distance between which exceeds that of two diameters. Find the probability that the figure will be cut by one of the lines, (1) in two points, (2) in four points, (3) in six points.

—252. (R. Tucker, M.A.)—The "N.P." circle cuts the sides of ABC in D, α; E, β; F, γ; α, β, γ being the mid-points of BC, CA, AB. The positive isoscelians, Eα, Fβ, Dγ, form a triangle whose area and circumradius are Δ_1, R_1; Δ_2, R_2 are the like quantities for the triangle formed by the negative isoscelians Fα, Dβ, Eγ. Prove

$$\Delta_1/R_1 + \Delta_2/R_2 = \Delta/R.$$

—253. (H. J. Woodall. Suggested by Quest. 10179.)—Solve (1) the cubic $x^3 + ax = b$, (2) the quintic $x^5 + ax^2 = b$, by means of a continued fraction of the form $x = K/(L + \sqrt[2]{\ }\ \&c.)$; and find (3) whether the form is suitable for calculation.

—254. (L. W. Robinson, B.A.)—If $(1+x)^n \equiv 1 + c_1x + c_2x^2 + \ldots$, prove that, according as n is even or odd,

$$\begin{vmatrix} 1, & c_1, & c_2, & c_3 \ldots c_n \\ c_1, & c_2, & c_3, & \ldots\ldots\ 1 \\ \ldots & \ldots & \ldots & \ldots\ \ldots \\ c_n & \ldots & \ldots & \ldots\ \ldots \end{vmatrix} = 0 \text{ or } 2^n.$$

—255. (W. J. C. Sharp, M.A.)—Prove that (1) if n, p, and r be integers, then, if n be prime to p,

$$\{n(n-p)(n-2p)\ldots(n-rp+p)\}/(1.2.3\ldots r)$$

reduces to a fraction with an integral numerator, the denominator being $\alpha^A.\beta^B\ldots$, where $\alpha, \beta, \ldots$ are the prime factors of p, and A, B ... the numbers of times they occur respectively in r'; (2) if n be not prime to p, and m be their greatest common measure, so that $n = mp'$, $p = mp'$, the same fraction is equal to

$$m^r\{n'(n'-p')(n'-2p')\ldots(n'-rp'+p')\}/(1.2.3\ldots r).$$

—256. (R. H. W. Whapham, B.A.)—From any point P on a semicubical parabola are drawn normals PQ, PQ′ to the involute; PN is drawn perpendicular to the axis meeting it in N, and V is the vertex of the semicubical parabola: if PQ, PQ′ meet the axis in G, G′ respectively, show that VN = 3NG = 3VG′.

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Erratum.—By a printer's error in the earlier issue of the July Prospectus, the Greek subjects for Matriculation, Jan. and June, 1890, were interchanged. They should be as follows:—

Jan., 1890. Euripides, *Hecuba*.
June, 1890. Xenophon, *Hellenics, Book II.*

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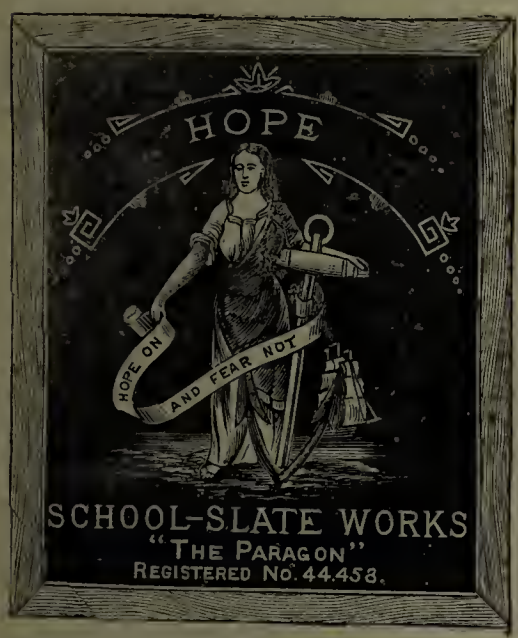

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CLASS LIST

OF PUPILS WHO HAVE PASSED THE MIDSUMMER EXAMINATION OF THE COLLEGE OF PRECEPTORS.

[*Throughout the List bracketing of names implies equality.*]

SCHOLARSHIPS

for intending Teachers.

Chapman, Miss A. S.	Mrs. Byers, Victoria College, Belfast.
Hamlet, J. G.	Mr. Bayley, Wellington College, Salop.
Raymer, R. R.	Mr. Cooper, Paignton School, Paignton.
Trüdinger, Miss C.	Miss Griffiths, Girls' High S., Spring Grove, Isleworth.

PRIZES.

General Proficiency.

1.	Gibberd, W. W. (*Isbister Prize.*)	Mr. Stewart, University School, Hastings.
2.	Dale, H. H. (*Pinches Prize.*)	Mr. W. Brown, Tollington Park College, N.
3.	Smythe, H. J.	Mr. Lees, Boys' College and High School, Southampton.
4.	Berry, Miss E.	Miss Cheveley, The College, Huddersfield.
	Cammock, R.	Very Rev. T. A. Burge, Ampleforth College, York.

*Mathematics.**

1.	Smythe, H. J.	Mr. Lees, Boys' College and High School, Southampton.
2.	Fewings, R. J.	Mr. West, Cheltenham High School for Boys.

Classics.

1.	Cruttwell, H. M.	Rev. H. E. Sanderson, King Edward's School, Bath.
2.	Bailey, G. C.	Rev. Dr. Conway, St. Mary's College, Woolhampton.

English Subjects.†

1.	Smythe, H. J.	Mr. Lees, Boys' College and High School, Southampton.
2.	Wood, Miss E. M.	Mrs. Bishop, Claremont House, Notting Hill.

Modern Foreign Languages.‡

1.	Gibberd, W. W.	Mr. Stewart, University School, Hastings.
2.	Manuk, P. P. C.	Private tuition.

Natural Sciences.

1.	Gibberd, W. W.	Mr. Stewart, University School, Hastings.
2.	Rickards, E. H.	Mr. Stewart, University School, Hastings.

Taylor Jones Prize for Scripture History.§

1.	Godsmark, Miss F. M.	Mrs. Simon, Wintersdorf, Southport.

* W. W. Gibberd, University School, Hastings, was disqualified for the 1st Prize for Mathematics, having obtained it at a previous examination; and Miss C. Trüdinger, Girls' High School, Spring Grove, Isleworth, was disqualified by age for the 1st Prize for Mathematics.

† J. G. Hamlet, Wellington College, Salop, was disqualified by age for the 1st Prize for English Subjects.

‡ Miss M. S. Smith, private tuition, was disqualified by age for the 1st Prize for Modern Foreign Languages.

§ Miss M. S. Smith, Private tuition, was disqualified by age for the Taylor Jones Prize for Scripture History.

List of the Candidates who were First and Second in each Subject of Examination.

Scripture History.

1.	Smith, Miss M. S.	Private tuition.
2.	Godsmark, Miss F. M.	Mrs. Simon, Wintersdorf, Southport.

English Language.

1.	Trüdinger, Miss C.	Miss Griffiths, Girls' High S., Spring Grove, Isleworth.
2.	Dale, H. H.	Mr. W. Brown, Tollington Park College, N.

English History.

1.	Hamlet, J. G.	Mr. Bayley, Wellington College, Salop.
2.	Smythe, H. J.	Mr. Lees, Boys' College and High School, Southampton.

Geography.

1.	Fawcett, R.	Mr. Stewart, University School, Hastings.
2.	Gibberd, W. W.	Mr. Stewart, University School, Hastings.

Arithmetic.

1.	Gibberd, W. W.	Mr. Stewart, University School, Hastings.
2.	Raymer, R. R.	Mr. Cooper, Paignton School, Paignton.

Algebra.

1.	Trüdinger, Miss C.	Miss Griffiths, Girls' High S., Spring Grove, Isleworth.
2.	Gibberd, W. W.	Mr. Stewart, University School, Hastings.

Euclid.

1.	Trüdinger, Miss C.	Miss Griffiths, Girls' High S., Spring Grove, Isleworth.
2.	Chapman, Miss A. S.	Mrs. Byers, Victoria College, Belfast.
	Gibberd, W. W.	Mr. Stewart, University School, Hastings.

Trigonometry.

1.	Gibberd, W. W.	Mr. Stewart, University School, Hastings.
	Raymer, R. R.	Mr. Cooper, Paignton School, Paignton.

Mechanics.

1.	Rickards, E. H.	Mr. Stewart, University School Hastings.
2.	Raymer, R. R.	Mr. Cooper, Paignton School, Paignton.

Book-keeping.

1.	Smith, H. W.	Mr. Vinter, Woodhouse Grove School, Apperley Bridge.
2.	Glover, B. H.	Mr. Anthony, Collegiate School, Belper.
	Hannam, J. D.	Mr. Vinter, Woodhouse Grove School, Apperley Bridge.
	Smythe, H. J.	Mr. Lees, Boys' College and High School, Southampton.
	Stewart, P. M.	Mr. Stewart, University School, Hastings.

Mensuration.

1.	Hamlet, J. G.	Mr. Bailey, Wellington College, Salop.
	Happold, C.	Mr. Speight, Commercial School, Barrow-in-Furness.
	Harrison, E. R.	Mr. Thornhill, Oxford House School, St. Albans.

French.

1.	Laumonier, Miss L. A. V.	Private tuition.
2.	Smith, Miss M. S.	Private tuition.

German.

1.	Smith, Miss M. S.	Private tuition.
2.	Disteli, Miss M.	Miss Willoughby, Queen's College, Wood Green.
	Tressler, A. W.	Mr. Kirk, University School, Stroud Green, N.

Italian.

1.	Charbonier, O. N.	Mr. Stewart, University School, Hastings.
2.	Gibberd, W. W.	Mr. Stewart, University School, Hastings.

Spanish.

1.	Cepa, E.	Dr. O'Reilly, Tooting College School.
2.	Lasala, A.	Dr. O'Reilly, Tooting College School.

Latin.

1.	Cruttwell, H. M.	Rev. H. E. Sanderson, King Edward's School, Bath.
2.	Bailey, G. C.	Rev. Dr. Conway, St. Mary's College, Woolhampton.

Greek.

1.	Cruttwell, H. M.	Rev. H. E. Sanderson, King Edward's School, Bath.
2.	Hawson, O. M.	Mr. Haysman, Anglo-French College, Finchley Road.

Experimental Physics.

1.	Trüdinger, Miss C.	Miss Griffiths, Girls' High S., Spring Grove, Isleworth.
2.	Chapman, Miss A. S.	Mrs. Byers, Victoria College, Belfast.

Chemistry.

1.	Raymer, R. R.	Mr. Cooper, Paignton School, Paignton.
2.	Hamlet, J. G.	Mr. Bailey, Wellington College, Salop.

Natural History.

1.	Parry, H. W.	Mr. Savage, Seaford College.
2.	Rickards, E. H.	Mr. Stewart, University School, Hastings.
	White, J. S.	Mr. Stewart, University School, Hastings.

Drawing.

1.	Hodgson, Miss M. C.	Miss Smith, The Manse, Malvern Wells.
2.	Aulton, Miss M.	Private tuition.

Music.

1.	McGowan, Miss A. G.	Mrs. Simon, Wintersdorf, Southport.
2.	Cammock, R.	Very Rev. T. A. Burge, Ampleforth College, York.
	Puzey, Miss M. J.	Miss Masterman, Heathfield House, Norton.

Political Economy.

1.	Moore, Miss K. V. M. C.	Private study.
2.	Benn, Miss A. M. R.	Miss Johnson, All Saints, Highgate, Middle Class School.
	Buckle, Miss G.	Miss McBean, Camperdown, West Dulwich.
	Mabbs, Miss B. M.	Miss Mills, Stroud Green High School for Girls, N.

GENERAL CLASS LIST—BOYS.

N.B.—In the following lists, the small italic letters denote that the Candidate to whose name they are attached obtained a Special Certificate in the following subjects respectively:

a. = Arithmetic.
al. = Algebra.
bk. = Bookkeeping.
ch. = Chemistry.
d. = Drawing.
e. = English.
eu. = Euclid.
f. = French.
g. = Geography.
gr. = Greek.
ger. = German.
h. = History.
i. = Italian.
l. = Latin.
m. = Mechanics.
ms. = Mensuration.
mu. = Music.
nat. = Natural History.
p. = Political Economy.
ph. = Physics.
s. = Scripture.
sp. = Spanish.
tr. = Trigonometry.

First Class.—Honours Division.

Gibberd, W. W. University School, Hastings.
a. al. eu. tr. f. ger. i. ph. ch. nat.
Hamlet, J. G. Wellington College, Salop.
e. h. a. eu. tr. ms. f. ch. d. l.
Raymer, R. R. Paignton School, Paignton.
a. tr. ch.
Dale, H. H. Tollington Park College, N.
s. e. l. ch. nat.
Smythe, H. J. Boys' Coll. & High S., S'hampton.
e. h. bk. ch.
Cammock, R. Ampleforth College, York.
ph. d. mu.
Bailey, G. C. St. Mary's Coll., Woolhampton.
e. l. ph. d.
Rickards, E. H. University School, Hastings.
e. ch. nat.
Redfern, A. E. Tollington Park College, N.
e. bk. ger. ch.
Barlow, F. *s. ch. d.* University School, Hastings.
White, J. S. *s. nat.* University School, Hastings.
Lakeman, J. H. *ch.* Tollington Park College, N.
Beck, E. G. University School, Hastings.
Fewings, R. J. *d.* Cheltenham High S. for Boys.
Guerrier, F. E. *ger.* Tollington Park College, N.
Brown, W. C. Tollington Park College, N.
Lindsey, R. W. *bk.* Tollington Park College, N.
Benham, C. H. *nat.* University School, Hastings.
Parry, H. W. *nat. d.* Seaford College.
Cruttwell, H. M. King Edward's School, Bath.
e. f. l. gr.
Miller, B. V. *eu. l.* St. Mary's Coll., Woolhampton.
Colman, H. C. *e. ch.* Noneon. Gram. S., Bp. Stortford.
Sheard, J. R. S. *tr.* Almondbury Grammar School.
Round, E. W. Dudley Middle Class School.
Tucker, J. W. *a. ph.* Portland Grammar S., Plymouth.
Haworth, F. Almondbury Grammar School.
Collyer, A. E. University School, Hastings.
Faweett, R. *g. bk.* University School, Hastings.
Smith, H. W. *bk.* Woodhouse Grove School.
Cockroft, A. S. Almondbury Grammar School.
Rickett, A. *nat.* University School, Hastings.
Ashburner, J. A. *a.* Laurel Bank S., Hr. Broughton.
Brown, H. E. Eton House, Hull.
Fillingham, A. L. *e. mu.* Cherville College, Romsey.
Millard, P. W. Stationers' School, E.C.
Hastings, R. W. Holloway College, N.
Brook, F. Tollington Park College, N.
Spencer, C. K. *bk.* University School, Hastings.
Thornton, A. *bk.* University School, Hastings.
Kendon, E. T. Bethany House S., Goudhurst.

First Class.—Pass Division.

Pearce, S. L. Noneon. Gram. S., Bp. Stortford.
Cove, T. H. *d.* Kingsbridge Grammar School.
Cole, R. J. Banham Grammar S., Attleboro'.
Hingdon, F. M. Noneon. Gram. S., Bp. Stortford.
Meade, G. *ph. nat.* Tooting College.
Waymark, R. C. D. *a.* Pennington Hall S., Southboro'.
Stribling, E. Banham Gram. S., Attleboro'.
Dudley, L. C. *e. a.* Endowed Gram. S., Northwich.
Leeming, M. Salford Catholic Grammar S.
Dormer, W. L. *ch.* Private tuition.
Davis, P. H. *bk. f.* Tollington Park College, N.
Manuk, P. P. C. *f. ger.* Private tuition.
Read, H. A. The College, South Penge Park.
Horsfall, A. E. Almondbury Grammar School.
Gartrell, H. J. East Cornwall College, Liskeard.
Maung-Gyi, J. A. Private tuition.
Loretz, L. *ch.* Ampleforth College, York.
Barnes, J. A. P. Sutton Park School, Surrey.
Wilson, F. W. M. *d.* Marlborough Coll. S., Tuebrook.
McCormick, E. 83 Montpellier Road, Brighton.
Cook, W. H. Argyle House S., Sunderland.
Thorpe, H. M. Private study.
Welch, M. E. Whitchurch Grammar School.
Kernan, F. J. *e.* St. Mary's Coll., Woolhampton.
Morgan, E. S. Tollington Park College, N.
Primavesi, G. *ph.* Tooting College.
Steele, W. H. *f.* Kelly College, Tavistock.
Barnard, W. E. Mayall College, Herne Hill.
Hobbs, H. R. *a.* Queen Eliz. Gram. S. Gainsboro'.
Skuffham, H. R. The Grammar School, Eye.
Dixon, R. A. The High School, Malton.
Weaver, F. *d.* Forest Hill Middle Class School.
Weeden, C. T. Tollington Park College, N.
Moore, G. L. Noneon. Gram. S., Bp. Stortford.
Stewart, P. M. University School, Hastings.
Quinlan, H. Tooting College.
Havart, H. H. Mayall College, Herne Hill.
Butts, E. P. Tollington Park College, N.
Kendon, W. C. *d.* Bethany House S., Goudhurst.
Zwinger, T. St. Catharine's S., Broxbourne.
Milnes, W. S. Woodhouse Grove School.
Wiltshire, G. C. *mu.* Herne House, Margate.
Watts, E. M. Hoe Grammar School, Plymouth.
Leader, S. Banham Grammar S., Attleboro'.
Miller, N. McL. Grammar School, Dudley.
Wernet, A. J. Tooting College.
John, J. H. *bk.* Truro College.
Read, J. Stationers' School, E.C.
Yates, R. H. Cambridge House S., Margate.
Benham, S. J. University School, Hastings.
Beamish, G. M. Grosvenor College, Ostende.
Saunders, H. *f.* Elgin College, Maida Vale.
Simmons, E. J. University School, Hastings.
Broadbent, J. E. Almondbury Grammar School.
Dighton, E. J. Stationers' School, E.C.
Lillie, C. F. *nat.* University School, Hastings.
Hall, N. *f.* Tooting College.
Primavesi, R. H. Tooting College.
Bateman, D. E. Grammar School, Dudley.
Hutley, W. C. Grammar School, Uckfield.
Bellows, W. Bussage House, Stroud.
Lychenheim, J. Chorlton High S., Manchester.
Carter, W. Woodhouse Grove School.
Brown, R. D. Stationers' School, E.C.
Hayes, J. E. St. Mary's Coll., Woolhampton.
Sutcliffe, F. E. Banham Gram. S., Attleboro'.
Egan, J. F. *bk.* Tooting College.
White, W. L. Truro College.
Read, F. *bk.* Truro College.
France, J. H. *d.* Noneon. Gram. S., Bp. Stortford.
Haydon, A. L. Woodhouse Grove School.
Pollard, R. East Cornwall Coll., Liskeard.
Wilson, R. W. Argyle House S., Sunderland.

Second Class.—First Division.

Battye, W. R. Coombe Down School, Bath.
Greeves, P. Stationers' School, E.C.
Green, G. *d.* Halesowen Grammar School.
Knipe, J. W. *d.* Mathematical S., Rochester.
Huck, J. *bk.* Commercial School, Bognor.
Tressler, A. W. *f. ger.* University School, Stroud Green.
Way, W. West Cliff Prep. S., Bournemouth.
Harrison, E. R. *ms.* Oxford House School, St. Albans.
Newsome, H. 25 Earl St., Coventry.
Sutherland, C. W. *e.* St. Joseph's College, Huntingdon.
Happold, C. *ms.* Commercial S., Barrow-in-Furness
Watson, E. F. University School, Hastings.
Silver, H. W. Private tuition.
Andrews, H. C. *d.* St. Catharine's S., Broxbourne.
Crompton, S. Grammar School, Dudley.
James, F. C. University College School.
Denham, L. *bk.* Almondbury Grammar School.
Holder, H. Tollington Park College, N.
Lean, N. H. 38 Tavistock Place, Plymouth.
Wright, R. E. Deacon's School, Peterborough.
Colwell, H. A. Tollington Park College, N.
Trythall, W. R. *d.* Private study.
Darnley, E. R. Fir Lodge College, Sydenham.
Morris, C. Salford Catholic Grammar School.
Johnson, J. R. Whitchurch Grammar School.
Cook, W. G. Private tuition.
Everington, P. Private study.
Hignett, J. Chatham Institute, Liverpool.
Miers, N. B. Woodhouse Grove School.
Paget, P. W. Hemel Hempstead Grammar S.
Pawlett, E. L. Archdeacon Johnson's S., Oakham.
Morrison, J. St. John's College, Finsbury Park.
Nugent, F. Salford Catholic Grammar School.
Whiteford, E. H. *d.* Plymouth College.
May, C. Tollington Park College, N.
Stewart, J. H. Tollington Park College, N.
Pearce, S. R. Noneon. Gram. S., Bp. Stortford.
Powell, A. Ampleforth College, York.
Ball, W. S. *bk.* Collett House, Bournemouth.
Catford, F. O. Middle Class School, Barnstaple.
Shepherd, G. The Polytechnic S., Regent St.
Thomas, F. M. North London Collegiate School.
Walker, C. S. The Polytechnic S., Regent St.
Wells, J. W. Salford Catholic Grammar School.
Bryan, E. F. J. *d.* Middle Class School, Barnstaple.
Hind, G. Ampleforth College, York.
Jenkins, J. E. Grammar School, Cardigan.
Alexander, A. P. St. George's College, Weybridge.
Binns, G. Almondbury Grammar School.
Torrance, A. M. Tollington Park College, N.
O'Dowd, H. Ampleforth College, York.
Rees, W. H. *d.* Private tuition.
Shettle, W. C. The Grammar School, Eye.
Finlay, W. Collegiate School, Carlisle.
Frost, F. E. Belle Vue House, Greenwich.
Kearne, A. H. *d.* Oxford County School, Thame.
Connolly, J. Ampleforth College, York.
Crabtree, G. H. Woodhouse Grove School.
Rylance, W. Ampleforth College, York.
Thornhill, H. L. Oxford House School, St. Albans.
Ince, A. G *d.* Private study.
Tomkins, A. K. D. Private tuition.
Batty, G. F. Woodhouse Grove School.
Allword, F. C. *d.* University School, Hastings.
Bell, C. L. North London Collegiate School.
Caires, G. S. A. The Polytechnic S., Regent St.
Dixon, J. F. Queen Eliz. Gram. S., Gainsboro'.
Flory, C. H. The Mount, Sheffield.
Parsons, W. J. University School, Hastings.
Poulton, C. H. Leytonstone College.
Read, E. H. The College, South Penge Park.
Tillett, A. The Grammar School, Eye.
Bremer, S. J. Highbury Park School, N.
Brown, F. W. R. St. John's College, Finsbury Park.
Cadeux, A. T. Private tuition.
Harrington, T. J. Tooting College.
Smith, T. W. Boys' High S., Salt Schools, Shipley.
Denman, A. Tollington Park College, N.
Exton, J. J. St. Joseph's High School, Cardiff.
Bennett, W. F. C. Royal Grammar School, Sheffield.
Miles, H. P. Plymouth College.
Kershaw, C. W. Fir Lodge College, Sydenham.
Ottaway, E. E. North London Collegiate School.
Spurway, E. East Cornwall College, Liskeard.
Barber, J. W. *d.* Almondbury Grammar School.
Casartelli, L. Ampleforth College, York.
Clarke, W. E. J. Dolgelley Grammar School.
Lloyd, L. North London Collegiate School.
Strong, J. A. East Cornwall College, Liskeard.
Baxter, J. W. Ascham College, Clacton-on-Sea.
Hall, A. W. New College, Worthing.
Bateman, H. H. Barton School, Wisbech.
Keatinge, R. Private tuition.
Myers, T. A. Woodhouse Grove School.
Spofforth, A. Thorne Grammar S., Doncaster.
Willson, R. Ampleforth College, York.
Ellis, W. H. Singleton Ho. S., N'castle-on-T.
Benians, W. S. Bethany House S., Goudhurst.
Deakin, N. H. University School, Hastings.
Greenham, G. F. *d.* Loughborough College, Brixton.
Morrison, T. St. John's College, Finsbury Park.
Stewart, B. H. *d.* University School, Hastings.
Wilson, H. O. Tollington Park College, N.
Eva, W. J. Truro College.
Dodd, H. M. F. Private tuition.
Greenwood, A. R. University School, Hastings.
Jackson, F. S. *mu.* Woodhouse Grove School.
Jeeves, F. A. Tollington Park College, N.
McGeenie, R. G. Tollington Park College, N.
Burns, E. Ampleforth College, York.
Mott, S. V. Paradise Ho. S., Stoke Newington.
Prentice, G. J. South Hackney High School, N.E.
Tillott, R. The Grammar School, Eye.
Bridger, J. D. Private tuition.
Crust, W. Ashford Grammar School.
Haffenden, J. W. *d.* Paradise House S., Stoke N'ington.
Brown, F. W. Endowed Gram. S., Northwich.
Featherstone, C. Kersal Glen S., Hr. Broughton.
Pinckney, E. B. *a.* Private tuition.
Roberts, A. H. Truro College.
Smith, T. W. Brunswick House S., Windsor.
Bard, E. H. Cavendish Ho. S., Hammersmith.
Base, G. W. Noneon. Gram. S., Bp. Stortford.
Harrison, D. H. St. Catharine's S., Broxbourne.
Jones, H. D. University School, Hastings.
Jones, J. E. Grammar & Coll. S., Carnarvon.
Jones, R. G. Dolgelley Grammar School.
Marsden, W. E. *d.* Leytonstone College.
Martin, T. T. Tollington Park College, N.
Pentney, F. Deacon's School, Peterborough.
Wright, P. M. Woodhouse Grove School.
Dutton, J. H. P. Almondbury Grammar School.
Hawkes, A. Halesowen Grammar School.
Rodgers, C. Hall Gate School, Doncaster.
Waterman, J. C. Ashford Grammar School.
Dillon, A. Ampleforth College, York.
Hartley, T. S. King James' Gram. S., Knaresboro'.
Meek, S. W. Truro College.
Morley, E. G. *d.* Banham Grammar S., Attleboro'
Smith, W. G. Thorne Grammar S., Doncaster.
Chesterfield, W. Belle Vue House, Greenwich.
Haffenden, J. W. *d.* Paradise House S., Stoke N'ington.
Hillier, A. F. Grammar School, Marlborough.
Hirst, H. J. Almondbury Grammar School.
Northwood, S. Dudley Middle Class School.
Sidebotham, H. Chatham Institute, Liverpool.
Simmons, P. D. Noneon. Gram. S., Bp. Stortford.

BOYS, SECOND CLASS—*Continued.*

Smith, F.	Ampleforth College, York.
Sowerby, R. J. *bk.*	South Hackney College, N.E.
Spence, H.	Kersal Glen S., Hr. Broughton.
Stone, A. E.	Dunn Foundation S., Crediton.
Walker, R. E.	Fir Lodge College, Sydenham.
Baker, A. T.	Noncon. Gram. S., Bp. Stortford.
Moreton, A. V.	The Academy, Crewe.
Penrose, J.	Truro College.
Whittington, B. W.	Private study.
Bodeker, H. A.	St. Joseph's College, Huntingdon.
Osborn, G.	Noncon. Gram. S., Bp. Stortford.
Robinson, J. E.	Ashford Grammar School.
Smith, A. J. H.	Anglo-French Coll., Finchley Rd.
Smith, G. R.	University School, Hastings.
Stewart, W. G.	Tollington Park College, N.
Williams, T.	Lewis' School, Gelligaer.
Bernhardt, D. R.	Private tuition.
Homer, E. A.	University School, Hastings.
Margrett, E. T.	Oxford County School, Thame.
Scott, G.	University School, Hastings.
Stewart, A. A.	University School, Hastings.
Vaughan, H. W.	Dolgelly Grammar School.
Vining, H. J. B.	Chingford High School.
Bennett, J. A.	Bethany House S., Goudhurst.
Langman, A. E.	Boys' Coll. & High S., S'hampton.
Larkin, D.	Waverley House, Eastbourne.
Lieck, A. H.	South Hackney High School, N.E.
Bills, A. J.	Dudley Middle Class School.
Bodger, F. J.	Tollington Park College, N.
Brumpton, F. H.	Queen Eliz. Gram. S., Gainsboro'.
Butler, E. C.	Vermont College, Clapton.
Ferrall, J. C. N.	The College, South Penge Park.
Prendergast, P.	Salford Catholic Grammar School.
Smallshaw, W. H.	Up. Holland Grammar School.
Sutherland, S. A.	St. Oswald's College, Tynemouth.
Brockmann, A.	St. John's College, Finsbury Park.
Caley, A.	Ampleforth College, York.
Hines, C.	Ampleforth College, York.
Lovitt, H. G.	North London Collegiate School.
Mathieson, J. G.	South Hackney High S., N.E.
Traed, B. M. C. L.	Grosvenor College, Ostende.
Saunders, E. W.	Tollington Park College, N.
Waller, H. B.	Noncon. Gram. S., Bp. Stortford.
Weld, A. W. M.	Private tuition.
Beaumont, W. *d.*	Almondbury Grammar School.
Long, A.	Ampleforth College, York.
Smith, M. J.	Oxford County School, Thame.
Tomlins, R. P.	Edward VI. Gram. S., Wymondham
Alger, C. B.	The Grammar School, Eye.
Blaydes, A. G.	Woodhouse Grove School.
Fox, B. H.	Noncon. Gram. S., Bp. Stortford.
Gibberd, J. V.	University School, Hastings.
Havelock, T. H.	Singleton Ho. S., N'castle-on-Tyne.
Hinckel, A. A.	Camden Rd. Collegiate School, N.
Linley, P. H.	Archbishop Holgate's S., York.
Whitmarsh, G.	Tooting College.
Anderson, J. C.	Tollington Park College, N.
Dredge, J. A.	Blundell's School, Tiverton.
Lacy, J. S.	St. George's College, Weybridge.
Manley, H.	Ampleforth College, York.
Norfolk, H. D. D. *bk.*	Tooting College.
Plummer, E. S.	University School, Hastings.
Walker, H. V.	Queen Eliz. Gram. S., Gainsboro'.
Allen, W. T. W.	Kingsbridge Grammar School.
Hildreth, C. J.	St. John's College, Finsbury Park.
Raybould, H. E.	Halesowen Grammar School.
Acklam, P. J.	Oxford County School, Thame.
Butcher, F. E.	Bethany House S., Goudhurst.
Howcroft, F. P.	Byron House School, Ealing.
Latter, T. J.	Private tuition.
Lenfestey, L. d'E.	Dunn Foundation S., Crediton.
Warburton, H.	Endowed Gram. S., Northwich.
Winkley, H. G.	North London Collegiate School.
Barton, H.	Sandwich School.
Bidgood, W. A.	Ealing Commercial College, W.
Butler, C. S.	St. Catharine's S., Broxbourne.
Capadose, A. E.	North London High School, N.W.
Hanham, E. M. *d.*	Summerleaze Coll. S., B. Harptree.
Robinson, C. *d.*	Banham Grammar S., Attleboro'.
Squire, M. F.	Queen Eliz. Gram. S., Gainsboro'.
Stevens, P. B.	Truro College.
Taylor, I.	Woodhouse Grove School.
Warwick, W. H. *d.*	Old Elvet School, Durham.
Ford, R. C.	University School, Hastings.
Griffiths, G. J.	St. Joseph's High S., Cardiff.
Oakley, J.	Private study.
Shaw, H. W.	Hall Gate School, Doncaster.
Smart, F. W.	Deacon's School, Peterborough.
Butler, H. A. G.	The Douglas Coll. S., Cheltenham.
Chapman, R. S.	Ashford Grammar School.
Crossfield, J. S.	Woodhouse Grove School.
Kenny, J. H.	Boys' Coll. & High S., S'hampton.
Manisty, H. W. E.	St. Oswald's College, Tynemouth.
Powell, W.	Ampleforth College, York.
Stanger, A. E.	Noncon. Gram. S., Bp. Stortford.
Wooldridge, G. W.	Grammar School, Marlborough.
Daniell, W. F. *d.*	Burlington House S., Balham.
Dykes, A. J.	Woodhouse Grove School.
Holditch, E. D.	Whitchurch Grammar School.
Leader, E. W.	Banham Grammar S., Attleboro'.
May, W. J.	Private tuition.
Mordin, F.	Oxford County School, Thame.
Setchell, H. M.	Deacon's School, Peterborough.
Whiteley, F.	Rastrick Grammar School.
Whitlock, T. S.	Halstead Grammar School.
Wright, W. R.	University School, Hastings.

SECOND CLASS.—2ND DIVISION.

Hughes, C. E.	Stroud Borough School.
Lenfestey, S. de J.	Dunn Fonndation S., Crediton.
Roberts, J. W. G.	Kingston School, Yeovil.
Thomas, H. H.	Private tuition.
Westgate, F.	Banham Grammar S., Attleboro'.
Attlee, E. G.	Herne House, Margate.
Bankart, H. M. S.	North London High School, N.W.
Bond, H.	Blundell's School, Tiverton.
Fuller, G.	Rye Grammar School.
Goadby, K. W.	Royal Gram. S., Henley-on-Thames
Greenwood, P. C. *d.*	Fir Lodge College, Sydenham.
Jennings, H. H. J.	K. Ed.'s High Sch., Birmingham.
Laxton, W. A.	Rastrick Grammar School.
Morgan, L. R.	Herne House, Margate.
Nicholls, A. A. *bk.*	Leytonstone College.
Andrew, J. G.	Tollington Park College, N.
Bawden, A. C.	Truro College.
Brown, W. *d.*	St. Bede's College, Sunderland.
Edwards, J. L.	Grammar School, Dudley.
Ashford, G. W.	Bethany House S., Goudhurst.
Bell, E. P.	University School, Stroud Green.
Clare, W. H. H.	Vermont College, Clapton.
Edwards, T. N.	Tollington Park College, N.
Furber, R. A.	Whitchurch Grammar School.
Hart, H. T.	Vermont College, Clapton.
Morris, J.	Salford Catholic Grammar School.
Ransom, R.	Halstead Grammar School.
Watts, S. B.	Noncon. Gram. S., Bp. Stortford.
Fennell, W.	East Finchley College, N.
Hughes, C.	Salford Catholic Grammar S.
Wharton, H.	Bethany House S., Goudhurst.
Ayling, E. D.	Highbury Park School, N.
Bell, J.	Laurel Bank S., Hr. Broughton.
Grice, F.	Salford Catholic Grammar School.
Holditch, A. H.	Whitchurch Grammar School.
Lewis, W.	Dolgelley Grammar School.
Mosscrop, G. P.	Woodhouse Grove School.
Trick, W. H.	Bible Christian Coll., Shebbear.
Walker, G. C.	Private tuition.
Weston, J. S.	Private tuition.
Baker, F. R.	University School, Hastings.
Foster, S. C.	Rosslyn House, Hadleigh.
Gray, G. D.	The College, South Penge Park.
Mannox, H. C.	New Hall Coll., Sutton Coldfield.
Phillips, R. G. A.	Cavendish Ho. S., Hammersmith.
Savage, H. W.	Seaford College.
Sidaway, S. B.	Halesowen Grammar School.
Torbitt, F. C.	Dudley Middle Class School.
Wainwright, A.	Ashford Grammar School.
Wilmshurst, A. C. J.	College House S., West Croydon.
Hilton, C.	Cambridge House School, Wigan.
Norris, A. B. *ch.*	University School, Hastings.
Payne, W.	Stroud Borough School.
Robinson, A.	Percy House S., North Shields.
Wagler, P. J. T.	Anglo-German School, Brixton.
Billing, F.	Grammar & Coll. S., Carnarvon.
Cloke, F. A.	Sandwich School.
Hanes, E. S.	North London Collegiate School.
Hogg, C. J.	The Grammar School, Eye.
Newport, G. B.	Noncon. Gram. S., Bp. Stortford.
Ross, H. T. R.	The Polytechnic S., Regent St.
Surman, H. W. *bk.*	Cheltenham High School for Boys.
Blandy, W. H.	Nottingham High School.
Coley, F. S. *d.*	Halesowen Grammar School.
Foster, C. E.	Noncon. Gram. S., Bp. Stortford.
Henshaw, T.	Salford Catholic Grammar School.
Jones, G. W. G.	Anglo-French Coll., Finchley Rd.
Newall, A.	Endowed Gram. S., Northwich.
Rabone, W. *d.*	Weston School, Bath.
Spong, H. A.	Coopers' Company's S., Stepney.
Goodchild, J. H.	Noncon. Gram. S., Bp. Stortford.
Kett, H. J.	Noncon. Gram. S., Bp. Stortford.
Stead, H.	Ampleforth College, York.
Taylor, A. F. P. *d.*	The Polytechnic S., Regent St.
Boote, W. G. *d.*	Old Trafford S., Manchester.
Hazlehurst, G. A.	Newton School, Rock Ferry.
Higgins, J.	Salford Catholic Grammar School.
Milton, J. E.	Royal Gram. S., N'castle-on-Tyne.
Stevens, G.	Grammar School, Goole.
Bloxsidge, W.	26, Chepstow Villas, Bayswater.
Cardwell, E. E.	Private tuition.
Carnell, G. W.	Bethany House School, Goudhurst.
Mills, M. J.	Dolgelly Grammar School.
Montgomery, G. H.	N'castle Mod. S., N'castle-on-Tyne.
Pickering, H. J.	Private tuition.
Rowe, R.	Singleton Ho. S., N'castle-on-Tyne.
Scruton, T. E.	Woodhouse Grove School.
Welch, S. J.	Highbury Park School, N.
Brown, J.	Endowed Gram. S., Northwich.
Burren, W. E.	Bethany House S., Goudhurst.
Cole, S.	University School, Hastings.
Crisswell, H. B.	Noncon. Gram. S., Bp. Stortford.
Cubley, A.	Royal Grammar School, Sheffield.
Milton, W. T.	Royal Gram. S., N'castle-on-Tyne.
Sandford, W. Y.	Woodhouse Grove School.
Scorgie, G. W.	Woodhouse Grove School.
Bateman, J. H.	Barton School, Wisbech.
Bowyer, E. H.	Anerley High School.
Hughes, F.	High Schls., Chorlton-cum-Hardy.
Ikin, J. H.	Whitchurch Grammar School.
Stickland, H. D.	Hemel Hempstead Gram. School.
Wall, E.	St. Chad's College, Lowestoft.
Wyatt, R.	University School, Stroud Green.
Body, C. S.	Blundell's School, Tiverton.
Jameson, H. D. R.	N'castle Mod. S., N'castle-on-Tyne.
Jones, J.	Grammar School, Cardigan.
Peacock, E. C.	Ellesmere School, Harrogate.
Phillips, J.	Grammar School, St. Clears.
Preston, J. D.	Hatton House, Newark.
Bennett, J. A.	Chorley Grammar School.
Goody, N. C.	Noncon. Gram. S., Bp. Stortford.
Hare-Dean, S. G. *d.*	Mayall College, Herne Hill.
Raybould, A. *d.*	Halesowen Grammar School.
Wilkes, F.	Middle Class School, Cardiff.
Woollard, A. E.	Clapham Rise Collegiate School.
Connor, E.	Ampleforth College, York.
Hillier, P. C. A.	Grammar School, Marlborough.
Hines, F.	Ampleforth College, York.
Hitch, W. H.	Woodhouse Grove School.
Tedbury, H.	Tollington Park College, N.
Webb, A. D.	Royal Gram. S., High Wycombe.
Cheatle, W. G.	Bussage House, Stroud.
Franklin, A. C.	High Street Academy, Farcham.
Haine, H. R.	Waverley House, Eastbourne.
Kent, S. H.	St. John's Colleges, Brixton.
Thomas, E.	Truro College.
Young, W. H.	Argyle House School, Sunderland.
Carter, H. D.	Tollington Park College, N.
Challis, O.	Private tuition.
Foulds, G. S. *d.*	K. Edw. VI. Gram. S. Wymondham.
Fuchs, C. G.	Anglo-German School, Brixton.
Barton, E. C.	Woodhouse Grove School.
Evans, L. M.	Woodhouse Grove School.
Leeming, A.	Private study.
Nicolson, J. W. H. I.	Heath House, Horsmonden.
Vernon, S.	High School, Smethwick.
Claybyn, A. T.	Banham Grammar S., Attleboro'.
Cole, A.	St. Oswald's College, Tynemouth.
Davis, A. H.	Oxford County School, Thame.
Edwards, J. G.	Dolgelly Grammar School.
Fielding, C. A.	Archbishop Holgate's S., York.
McMullen, P.	St. Catharine's S., Broxbourne.
Melvin, A. D.	Lyttleton Grammar S., Malvern.
Patchett, H.	Ampleforth College, York.
Satterthwaite, R.	Private tuition.
Andrews, M.	Victoria Collegiate School, Erith.
Byles, R. B.	Noncon. Gram. S., Bp. Stortford.
Callard, P. S.	Seaford College.
Campbell, E. K.	The Polytechnic S., Regent St.
Charlton, F.	St. Oswald's College, Tynemouth.
Howe, A. F. A.	High School, Burgess Hill, Sussex.
Neve, W. R.	Arnold Coll., W. Bournemouth.
Barker, A. Y.	Woodhouse Grove School.
Biscomb, T. H.	St. Martin's School, York.
Carry, G. F.	St. George's College, Weybridge.
James, D.	Aberavon Academy, Port Talbot.
Maud, F. H.	Noncon. Gram. S., Bp. Stortford.
Wells, L. T.	Private tuition.
Baker, J. E.	St. Oswald's College, Tynemouth.
Crust, J.	Ashford Grammar School.
Lacy, J. A.	St. George's College, Weybridge.
Newman, H. R. C.	Redcliffe House, Clifton.
Hooson, C. R.	Whitchurch Grammar School.
Ward, J. C.	The Polytechnic S., Regent St.
Bainbridge, C.	N'castle Mod. S., N'castle-on-Tyne
Carey, J. G.	Brunswick House S., Windsor.
Figgess, W. G.	Royal Masonic Inst., Wood Green.
Hazlehurst, H. W.	Newton School, Rock Ferry.
Möller, A. H.	Highbury Park School, N.
Simmons, E. H.	King Edward VI. Gram. S., Spilsby.
Whitaker, A.	Private tuition.
Allen, F. W.	Banham Grammar S., Attleboro'.
Hall, A. W.	Stationers' School, E.C.
Hannis, R. R. V.	Brunswick House S., Windsor.
Peacock, F. J.	Pynes House School, Thorverton.
Reid, E.	North London Collegiate School.
Rowe-Ferrier, A. D.	Grammar School, Uckfield.
Bidgood, P.	Ealing Commercial College, W.
Brown, G.	St. Joseph's Acad., Kennington Rd.
Fawcett, F. D.	New Hall Coll., Sutton Coldfield.
Hope, J. P.	Singleton Ho. S., N'castle-on-Tyne
Huff, J. E.	The Huish School, Taunton.
Laurence, W. M.	University School, Hastings.
Maitland, J. de W.	The Hermosa School, Ealing.
Pearson, J. H.	Halesowen Grammar School.
Pearson, T. H.	Deacon's School, Peterborough.
Plank, A. E. W. G.	Brockley High School, S.E.
Plant, R. D. H.	Classical & Comm. Sch., Stamford.
Williams, G. C.	Dolgelly Grammar School.
Appleton, W. S. *d.*	Raymond House, Bramley.
Cox, M.	Blundell's School, Tiverton.
Douglass, W. H. H.	St. Oswald's College, Tynemouth.
Stone, F.	The College, Broadstairs.
Symonds, T. W.	The Grammar School, Eye.
Town, H. D.	Commer. S., Barrow-in-Furness.

SECOND CLASS.—3RD DIVISION.

Cheeseman, C. F. K.	Grammar School, Uckfield.
Hewlins, A. P.	Cameron House S., Leatherhead.
Le Cudennec, L. E.	Private tuition.
Thompson, C. W. B.	Halesowen Grammar School.
Johnson, A. J.	New Hall Coll., Sutton Coldfield.
Keene, R.	Grammar School, Uckfield.
Miller, M. E.	Royal Gram. S., N'castle-on-Tyne.
Penney, C. G.	Eton House, Hull.
Silverlock, H. B.	South Hackney College, N.E.
Atkinson, F. L.	Charlton High S., Manchester.
Byrne, J. A.	St. George's College, Weybridge.
Moggridge, C. F. B.	Blundell's School, Tiverton.
Overy, A. E.	Heath House, Horsmonden.
Scarlett, E.	Grammar School, Uckfield.
Whittle, A.	Ampleforth College, York.
Breton, H. H.	Boys' Coll. & High S., S'hampton.
Jones, R. G.	Grammar School, Pontypridd.
Vigor, J. A.	The Polytechnic S., Regent St.
White, H. M.	Loughborough College, Brixton.
Bloomer, M. L.	Halesowen Grammar School.
Harries, W. L.	26 Chepstow Villas, Bayswater.
Heath, F. G. *d.*	University School, Hastings.
Warner, E. S.	Belmont House, Lee, S.E.
Basilio, H. J. S.	Hillmartin Coll., Camden Rd. N.W
Melhuish, F. H.	Brunswick House S., Windsor.
Roberts, R. D.	St. Asaph Grammar School.
White, C. E.	Oxford County School, Thame.
Bedford, F. C.	The Mount, Sheffield.
Huxham, W. S.	Stroud Borough School.
Smith, A. W.	Highbury Park, School, N.
Wright, A.	Whalley Range Coll. S., M'chester
Berge, H.	Thorne Grammar S., Doncaster.
Brown, P.	Camden Rd. Collegiate School, N.
Johnson, F. W.	Endowed Grammar S., Northwich.
Richards, W. J.	Aberavon Academy, Port Talbot.

BOYS, SECOND CLASS—*Continued.*

Elder, H. G.	Abney Ho. S., Stoke Newington.
Wood, C. W.	Byron House School, Ealing.
Batty, T. J.	Thorne Grammar S., Doncaster.
Hurst, J.	Private tuition.
Platt, F.	Bussage House, Stroud.
Pudney, C. C.	Halstead Grammar School.
Stutfield, D. W.	St. Catharine's S., Broxbourne.
Davies, R. L.	Grammar School, Cardigan.
Phillips, E. M.	1 Arthur Road, Holloway.
Rollin, C.	N'castle Mod. S., N'castle-on-Tyne.
Baines, E. E.	Private tuition.
Dunn, F.	Kineton Mid. Class S., Warwick.
Melliss, E. McH.	Almondbury Grammar School.
Price, W.	St. John's Colleges, Brixton.
Sanders, C. P.	Boys' Coll. & High S., S'hampton.
Brown, A. J.	Camden Rd. Collegiate School, N.
Michell, W. H.	1 Napier St., Stoke, Devonport.
Morter, H. A.	Private tuition.
Norley, E. P.	Ashford Grammar School.
Rhodes, F.	The School, Tavistock.
Barton, G. R.	Queen Eliz. Gram. S., Gainsboro'.
Edey, A. M.	331 Crookesmoor Rd., Sheffield.
Forsayeth, J. R. M.	Loughborough Park S., Brixton.
Pitt, S. B.	New Hall Coll., Sutton Coldfield.
Richardson, W. D.	Parkgate Avenue School, Hull.
Clarke, H.	Private tuition.
Coughtrey, A. H.	Hingham Endowed S., Attleboro'.
Fair, W.	Grammar School, Ormskirk.
MacKenzie, D.	Tollington Park College, N.
Haynes, F. E.	Fir Lodge College, Sydenham.
Stimson, H. P.	Halstead Grammar School.
de Castro, J. P. F. L.	Herne House, Margate.
Fishwick, H. A. M.	Herne House, Margate.
Harrington, A. W.	Anglo-French Coll., Finchley Rd.
Pearce, E. T.	Private study.
Shearsmith, H. W.	Tollington Park College, N.
Holroyd, A.	The Western College, Harrogate.
Lewis, F. W.	Private study.
Stephens, J. F.	Clarendon Road School, Eccles.
Wright, A. B.	Warwick House School, Southsea.
Davies, D. M.	Grammar School, Pontypridd.
Hillard, G. C.	Summerleaze Coll. S., E. Harptree.
Shaw, T. W.	St. Oswald's College, Tynemouth.
Snow, W. K.	University School, Hastings.
McSwiney, S.	St. Joseph's College, Huntingdon.
O'Beirne, A.	St. Francis Xavier's S., Mayfield.
Steinmann, A.	Ampleforth College, York.
Williams, H. S. F.	St. Asaph Grammar School.
Adams, G. B.	Sea House School, Eastbourne.
Alcock, E. S.	Abney House S., Stoke Newington.
Apps, C. T. T.	Heath House, Horsmonden.
Nightingale, C. T.	K. Edward VI. Gram. S., Spilsby.
Donovan, W.	S. Joseph's Acad., Kennington Rd.
Newman, W.	King's College School, Strand.
Boyle, M.	St. Joseph's College, Huntingdon.
Flack, S. E.	University School, Stroud Green.
Sims, G. C. V.	University School, Hastings.
Dawes, E.	Ampleforth College, York.
Roddam, C. J. G.	Royal Masonic Inst., Wood Green.
Butler, S. G.	Vermont College, Clapton.
Hansom, P.	Ampleforth College, York.
Scriven, E. C.	Private study.
Charlesworth, E. A.	Private tuition.
Gray, H.	Rugby House School, Eastbourne.
Keats, G. W.	43 Maryon Road, Charlton.
Poile, G. E.	Anglo-French Coll., Finchley Rd.
Schneiders, H.	Holmwood, Bexhill.
Murray, E.	Private tuition.
Roberts, H.	St. Asaph Grammar School.
Swan, G. G.	Hingham Endowed S., Attleboro'.
White, A. B.	The Polytechnic S., Regent St.
Besly, J. C.	Royal Masonic Inst., Wood Green.
Fell, T.	Commercial Academy, Crook.
Llewelyn, J. G.	Grammar School, Cardigan.
Sandford, A.	St. Joseph's Acad., Kenn'gton Rd.
Wilton, S. D.	Singleton Ho. S., N'castle-on-Tyne.
Elliott, R.	Queen Eliz. Gram. S., Gainsboro'.
Metcalfe, H. D.	K. James' Gram. S., Knaresboro'.
Pillans, A. A.	Trafalgar House S., Winchester.
Yates, T. P.	Cambridge House School, Wigan.
Kirkpatrick, C. S.	Oakhurst College, East Dulwich.
Wright, E. H.	Moore Park Gram. School, S.W.

THIRD CLASS.—1ST DIVISION.

Beeson, H. G. W.	Mill Hill House S., Leicester.
Allan, H. L. *d.*	Montrose College, Brixton Hill.
Pratt, P. W. *f.*	Grammar School, Barnstaple.
Moss, F. J.	North London Collegiate School.
Sears, E. E. *d.*	Bethany House S., Goudhurst.
Hobbs, H. A.	Tollington Park College, N.
Payne, W.	Ampleforth College, York.
Charbonier, O. N. *i.*	University School, Hastings.
Sutton, T. P.	The College, South Penge Park.
Trethewy, W. J. *bk.*	Truro College.
Edwards, T. W.	The Polytechnic S., Regent Street.
Davie, J. W.	Middle Class School, Barnstaple
Horne, E. R. *d.*	Private tuition.
Dawes, W. *d.*	Ampleforth College, York.
Jones, J. H.	Dolgelly Grammar School.
Jackson, G. R.	Rosslyn House, Hadleigh.
Stahlschmidt, E. E. H.	High School, Sutton, Surrey.
Turner, P. H.	Stationers' School, E.C.
Buckhurst, B. J.	Private tuition.
Fflucker, R. *ger.*	Anglo-German School, Brixton.
Wilkes, S. J. *d.*	Woodhouse Grove School.
Nash, R. P.	Tollington Park College, N.
Brice, J. H.	Tollington Park College, N.
Pamphilon, W. J.	Non-con. Gram. S., Bp. Stortford.
Stephenson, E.	Werneth Academy, Oldham.
Botley, H. P.	Tollington Park College, N.
James, W. *d.*	The Polytechnic S., Regent Street.
Lewin, W. S.	Up-Holland Grammar School.
Smith, B. S.	Woodhouse Grove School.
Wilkes, W. M.	Woodhouse Grove School.
Dunstan, A. E.	Truro College.
Jones, L.	Dolgelly Grammar School.
Ellerton, F. J.	Blundell's School, Tiverton.
Samson, E.	The Huish School, Taunton.
Edwards, L. A. C.	University School, Hastings.
Styles, W. K.	Non-con. Gram. S., Bp. Stortford.
Jones, G. H. B.	Highfield Coll. S., Rock Ferry.
Nelson, C.	The Polytechnic S., Regent Street.
Walker, W. W.	Almondbury Grammar School.
Balme, H.	Coopers' Company's S., Stepney.
Thomas, A.	Grammar School, Knutsford.
March, H. *d.*	North London High School, N.W.
Payne, S. E.	North London High School, N.W.
Dixon, C. J.	Collegiate School, Sunderland.
Copley, I.	Almondbury Grammar School.
Fennell, S.	The Grammar School, Coleshill.
Phillips, W. C.	Truro College.
Rudin, M. R.	Anglo-German School, Brixton.
Wachter, A. E.	Chorlton High S., Manchester.
James, F.	North London Collegiate School.
Baumann, R. T. *ger.*	Anglo-German School, Brixton.
Elder, A. S.	Abney Ho. S., Stoke Newington.
O'Connell, J.	St. Joseph's Acad., Kennington Rd.
Terry, C. F.	Ashton High S., Ashton-on-Mersey
Tregelles, J. A.	St. Catharine's S., Broxbourne.
Way, A. O. *d.*	Private tuition.
West, G.	The Polytechnic S., Regent Street.
Boyd, J.	Tollington Park College, N.
Capes, J. L.	North London High School, N.W.
France, S.	Borough Collegiate S., Rotherham.
Griffiths, F. W.	Halesowen Grammar School.
Littlejohn, N.	Tollington Park College, N.
Mills, J.	Willow House College, Walsall.
Straker, F. W.	Seaford College.
Wykesmith, P.	Private study.
Evans, W. B.	Tollington Park College, N.
Feeny, E.	St. Joseph's College, Huntingdon.
French, J.	Oxford County School, Thame.
Norton, W. E.	Highbury Park School, N.
Rains, A. E.	Coopers' Company's S., Stepney.
Roberts, G. F.	Woodhouse Grove School.
Shadwell, R.	The Polytechnic S., Regent Street.
Chapman, P. H.	The Polytechnic S., Regent Street.
Foster, E.	St. John's College, Finsbury Park.
Hicks, F. J.	Trevu Academy, Camborne.
May, O.	Tollington Park College, N.
Noblett, T.	Ampleforth College, York.
Rodgers, J. H.	Tollington Park College, N.
Woulfe, T. V. *d.*	Camden Road Collegiate S., N.
Young, H. *d.*	Camden Road Collegiate S., N.
Dunstan, W. R.	Truro College.
Friend, H. P.	Wesley College, Sheffield.
Newton, J.	Tollington Park College, N.
Callard, C. R.	Seaford College.
Campbell, W. A. *d.*	University School, Hastings.
Jennings, G. M.	Coopers' Company's S., Stepney.
Nash, J. D.	Mayall College, Herne Hill.
Ridge, W. S.	Woodhouse Grove School.
Wright, P.	Bussage House, Stroud.
Edwards, S. P.	Tollington Park College, N.
Lait, C. A.	81 Minerva Terrace, Hull.
Johnson, R. C.	Queen Eliz. Gram. S., Gainsboro'.
Mellows, W. J.	Thorne Grammar S., Doncaster.
Moxon, G. R.	"Brudenell," Tunbridge Wells.
Warlow, G. H.	Coopers' Company's S., Stepney.
Boggon, R. O.	Royal Gram. S., N'castle-on-Tyne.
Butler, D. La M.	Taplow Grammar School.
Collinson, F. C.	The Middle Class S., Sheffield.
Gillespie, A.	Collegiate School, Carlisle.
Jessop, H.	Almondbury Grammar School.
Lunn, H. P.	Almondbury Grammar School.
Rimmington, W.	Woodhouse Grove School.
Smith, B. A.	Whitchurch Grammar School.
Sutcliffe, H.	St. John's College, Finsbury Park.
Uhthoff, H. A.	St. George's College, Weybridge.
Sachs, J. C.	North London Collegiate School.
Sharpley, N. C.	Woodhouse Grove School.
Barnes, F. C.	Noncon. Gram. S., Bp. Stortford.
Calow, H. W.	Loughborough College, Brixton.
Cooke, E. W.	St. Chad's College, Lowestoft.
Holford, E. W.	Woodhouse Grove School.
Jacobs, H. J.	Sandwich School.
Leicester, T.	Endowed Gram. S., Northwich.
Melling, E.	Endowed Gram. S., Northwich.
Morris, K. A.	Cheltenham High School for Boys.
Phillips, T. W.	Oxford County School, Thame.
Prince, D. C.	North London Collegiate School.
Shirley, S. H.	South Hackney High School, N.E.
Truefitt, F. T.	Seaford College.
Aldridge, W. F.	Camden Rd. Collegiate School, N.
Harvey, A.	Truro College.
Holland, A. B.	Oxford County School, Thame.
Plowman, T. R.	Vermont College, Clapton.
Rees, P.	Woodhouse Grove School.
Smeaton, J. A. McN.	Tollington Park College, N.
Stoneman, H. J. *d.*	Kingsbridge Grammar School.
Barber, J.	Almondbury Grammar School.
Darbin, W. T.	The Huish School, Taunton.
Day, H. F.	Vale House, Ramsgate.
Grimsdell, E. V.	St. John's Coll., Finsbury Park.
Moat, C. W.	Anerley High School.
Pern, H.	Private tuition.
Venn, J. F. H.	Private tuition.
Browning, A.	Bussage House, Stroud.
Chandler, T. R.	Tollington Park College, N.
Guest, C. W. *d.*	Hall Gate School, Doncaster.
Kitchin, J.	Grammar School, Market Harboro'.
Lawrie, E. A. *d.*	Birchfield High S., Birmingham.
Potous, M.	Chiswick Collegiate School.
Poulter, S. G.	Coopers' Company's S., Stepney.
Spencer, M.	University School, Hastings.
Walker, E. J.	The Modern School, Thirsk.
Warren, W. H.	The Polytechnic S., Regent St.
Wolter, P. E.	Hillmartin Coll., Camden R., N.W.
Brownhill, C. H. *d.*	Wesley College, Sheffield.
Dunkley, W. R.	Montrose College, Brixton Hill.
Gill, J. F.	College House S., West Croydon.
Hanson, A. J.	Bront Hill Coll. S., Hanwell.
Harrison, F. H.	St. Katharine's S., Broxbourne.
Lindsey, A. B.	Tollington Park College, N.
Patterson, H. D.	Collegiate School, Belper.
Porter, H. W.	South Hampstead Collegiate S.
Ward, A. F.	Vermont College, Clapton.
Allan, A. H.	Montrose College, Brixton Hill.
Baker, A.	Cheltenham High School for Boys.
Brown, E.	Noncon. Gram. S., Bp. Stortford.
Camm, R. J. *d.*	Hall Gate School, Doncaster.
Carter, S.	Mirfield Grammar School.
Cook, F. R.	Tollington Park College, N.
Cranfield, R. T.	Moore Park Grammar S., S.W.
Dodds, M.	Collegiate School, Sunderland.
Dunn, H.	University School, Stroud Green.
Holt, W. E.	South Hackney College, N.E.
Johnson, E. M.	Woodhouse Grove School.
Kendall, R.	Anglo-German School, Brixton.
Kendall, T.	Coopers' Company's S., Stepney.
Latham, H. J.	The College, Broadstairs.
Pick, G.	Grammar S., Market Harboro'.
Rosser, F.	Tollington Park College, N.
Smith, P. W.	Highbury Park School, N.
French, C. Le Poer	Bethany House S., Goudhurst.
Williams, P.	University School, Hastings.
Bruzelin, A.	Anglo-French Coll., Finchley Rd.
Cash, N.	Bethany House S., Goudhurst.
Collin, J. F.	Banham Grammar S., Attleboro'.
Field, E. P.	Eton House, Hull.
Gibson, G. H.	Southolme School, Gainsborough.
Gledhill, A.	Queen Eliz. Gram. S., Gainsboro'.
Harrison, T. B. *d.*	Argyle House School, Sunderland.
Hyamson, A.	Beaufort College, St. Leonards.
Lyell, J. C.	Private tuition.
Phillips, F. S. C.	Tollington Park College, N.
Roberts, P. C.	Tollington Park College, N.
Smith, T. R.	Woodhouse Grove School.
Turner, D. G.	Sidney Sussex House, Hastings.
Whiting, C. J.	Woodhouse Grove School.
Allpress, E.	Camden Rd. Collegiate School, N.
Balls, R. W. J.	Great Yarmouth College.
Batey, G.	Weston School, Bath.
Blackledge, P.	Ampleforth College, York.
Holliday, T. H.	South Hackney High School, N.E
Worsley, J. G.	Hemel Hempstead Grammar S.
Ault, P.	Hall Gate School, Doncaster.
Denton, A. D. W.	Strond Borough School.
Capps, J. H.	St. Margaret's Coll., Lowestoft.
Clacher, T.	Coopers' Company's S., Stepney.
Evans, T. H.	Woodhouse Grove School.
Fordham, J. W.	Coopers' Company's S., Stepney.
Fowler, J.	Bussage House, Stroud.
Gill, A. M.	Blenheim House S., Fareham.
Goodman, F. T.	Halesowen Grammar School.
Gover, J. M.	Singleton Ho. S., N'castle-on-Tyne.
Hardie, J. J.	Endowed Grammar S., Northwich.
Hiller, J. C.	Coopers' Company's S., Stepney.
Isaac, B. A.	83 Montpellier Road, Brighton.
Oxley, C. E.	Byron House School, Ealing.
Packwood, A.	St. Joseph's Coll., Huntingdon.
Pool, F. R.	Truro College.
Rayner, G. H.	Tollington Park College, N.
Rees, A. H.	Private study.
Robinson, C. O.	Percy House S., North Shields.
Simpson, C. *d.*	Wesley College, Sheffield.
Smith, H. A.	Richmond Ho. S., Handsworth.
Anderson, J. S.	Eldon College, Hull.
Capps, A. F.	St. Margaret's Coll., Lowestoft.
Charlton, G.	St. Oswald's Coll., Tynemouth.
Eady, K.	Grammar S., Market Harboro'.
Kendall, A.	Ampleforth College, York.
Parsons, H. W.	Seaford College.
Pedlar, J. H. C.	Truro College.
Pentony, W.	Ampleforth College, York.
Raffen, R.	Coopers' Company's S., Stepney.
Spence, J. M.	N'castle Mod. S., N'castle-on-Tyne.
Spraggett, W. G.	St. John's Hospital S., Exeter.
Stapley, H.	Taunton House School, Brighton.
Blanchard, W. E.	Yealand Conyers Collegiate S.
Bunting, W. H. J.	Seaford College.
Eagles, E.	Byron House School, Ealing.
Duffell, T. H.	Hamstead Hill S., Handsworth.
Gardner, W.	Collegiate School, Blackpool.
Gates, H. C.	St. John's Coll., Finsbury Park.
Harding, H. L.	St. John's Colleges, Brixton.
Holl, H. A.	Coopers' Company's S., Stepney.
Hunter, E. F.	Tollington Park College, N.
Ives, J. *d.*	Oxford County School, Thame.
Kendrick, H.	Middle Class School, Cardiff.
Lucas, S.	Hatton House, Newark.
Pinn, H. E.	Heavitree Collegiate S.
Seaborn, M. B.	Birchfield High S., Birmingham.
Sutherland, E.	Borough Collegiate S., Rotherham.
Troake, E. M. *d.*	Kingsbridge Grammar School.
Zambra, M.	St. John's College, Finsbury Pk.
Barnes, H. C.	High Cross Coll. S., Tottenham.
Cameron, F. G.	Coopers' Company's S., Stepney.
Carter, E. V.	Gravesend Proprietary School.
Dryden, E. V.	The Grammar School, Coleshill.
Fell, J. L.	N'castle Mod. S., N'castle-on-Tyne.
French, H. J.	Tollington Park College, N.
Gjemre, E. W.	N'castle Mod. S., N'castle-on-Tyne.
Parker, J.	Ampleforth College, York.
Permezel, L.	Tooting College School.
Westrup, R. J.	Heath House, Horsmonden.
Wild, F.	Salford Catholic Grammar S.
Bell, J. C.	St. John's College, Finsbury Pk.
Bevington, E.	Tollington Park College, N.
Chennels, A. E.	Hemel Hempstead Grammar S.

BOYS, THIRD CLASS—*Continued.*

Clabon, A.		Clapham Rise Collegiate School.
Coulson, F.		Tollington Park College, N.
Dorté, P. F.		St. George's College, Weybridge.
Godfrey, H.		Wesley College, Sheffield.
Grainger, E. H.		Grammar School, Dudley.
Green, C.		Weston School, Bath.
Hicks, M. P.		Vale House, Ramsgate.
Hollis, W.		Camden Road Collegiate S., N.
Howard, F. G.	*d.*	University School, Hastings.
Husband, A. E. N.		East Cornwall College, Liskeard.
Kelly, J.		Salford Catholic Grammar School.
Murray, M. M.		Newcastle Mod. S., N'castle-on-T.
Pulbrook, M.		Highbury Park School, N.
Simpson, A. B.		Tollington Park College, N.
Stanton, H.		Coopers' Company's S., Stepney.
Walbank, H.		Salford Catholic Grammar School.
Waterhouse, R.		Woodhouse Grove School.
Wyse, H.		Woodhouse Grove School.
Angier, H. N.		Royal Masonic Inst., Wood Green.
Barton, A. C.		Woodhouse Grove School.
Bonnor, E. W.		22 Lansdown Terr., Cheltenham.
Brockmann, W.		St. John's Coll., Finsbury Park.
Button, C. J.		Banham Grammar S., Attleboro'.
Coldrey, H. M.		Tollington Park College, N.
Collier, H. J.		Herne House, Margate.
Marsden, W. B.		The Academy, Wakefield.
O'Dell, G. E.		The Polytechnic S., Regent Street.
Osmond, T.		Weston School, Bath.
Pearce, E. T.		Noncon. Gram. S., Bp. Stortford.
Polley, H. A.		Mayall College, Herne Hill.
Slocombe, C. H.		Chiswick Collegiate School.
Spencer, W. D.		Hamstead Hill S., Handsworth.
Stevens, A.		Whitchurch Grammar School.
Stribley, J.		Trevn Academy, Camborne.
Underhill, S. H.		Halbrake S., Wandsworth Comm.
Whiteley, G. H.		Tollington Park College, N.
Willey, C. D.		East Cornwall College, Liskeard.
Archer, R. E.		Collegiate School, Wakefield.
Dymond, R.		Woodland Ho. S., New Southgate.
Gibson, A. J.		High School, Sutton, Surrey.
Parker, E. G.		Anerley High School.
Ratcliffe, E. J.		Stroud Borough School.
Rugg, A.		Kingston School, Yeovil.
Shute, F.		St. Joseph's Coll., Huntingdon.
Smith, H.		Grammar School, Dudley.
Sopwith, H. N.		Newcastle Mod. S., N'castle-on-T.
Sutherst, W. F.		Endowed Gram. S., Northwich.
Worswick, R.		Ampleforth College, York.
Wright, E. A.		Higher Grade School, Kettering.
Addison, R.		Taplow Grammar School.
Ballard, G. O.		Seaford College.
Brayn, P. H. G.		Whitchurch Grammar School.
Brown, W.	*d.*	St. Joseph's Acad., Kennington Rd.
Conder, H.		University School, Hastings.
Creighton, J. A.		Halbrake S., Wandsworth Comm.
Dobson, P. J.		Yealand Conyers Collegiate S.
Fox, G. M.		Deacon's School, Peterborough.
Hammond, W.		St. Joseph's College, Huntingdon.
Loosely, A. E. A.		Cavendish Ho. S., Hammersmith.
Munro, W. C.		Argyle House School, Sunderland.
Noble, F. B.		Halbrake S., Wandsworth Comm.
Peniston, J. E.		Lyttleton Grammar S., Malvern.
Peters, E. E.		Vernon Academy, Liverpool.
Rayner, R. G.		Tollington Park College, N.
Scott, S.		Commercial S. Barrow-in-Furness.
Shannon, W. B.		Fern Hill House, Handsworth.
Swinburne, H.		Grammar School, Knutsford.
Tyte, J. H.		Kingston School, Yeovil.
Abell, H. A.		University School, Hastings.
Cepa, E.	*sp.*	Tooting College School.
Climenson, S. W. A.		The College, South Penge Park.
Harvey, L. J. T.		Royal Masonic Inst., Wood Green.
Harvey, P. L.		Bancroft House, Hitchin.
Haywood, C.		Bedford House School, Streatham.
Hosking, F.		Truro College.
Hutchinson, F. A.		The Polytechnic S., Regent Street.
Jay, J. S.		Herne House, Margate.
Lagerwall, H. W. E.		Oxford House School, St. Albans.
May, T. A. P.		Brockley High School, S.E.
Storey, F. A.		St. Martin's School, York.
Terry, H. F.		Ashton High S., Ashton-on-Mersey.
Townend, E. H.		Herne House, Margate.
Venn, W. T.		St. John's Hospital School, Exeter.
Wharton, A.		Bethany House S., Southhurst.
Aldis, F. G.		Redenhall School, Harleston.
Bettison, W.		Chiswick Collegiate School.
Connery, D. P.		St. Joseph's High School, Cardiff.
Goulding, J.		Tooting College.
Harper, J. J.		The Gram. S., West Bromwich.
Heath, G. F.		Taplow Grammar School.
Hockin, L.		Weston School, Bath.
Hogan, F.		St. Joseph's College, Dumfries.
Lang, T. E.		Kingston School, Yeovil.
Lucas, C. A.		The Huish School, Taunton.
Milnthorpe, H.		Hall Gate School, Doncaster.
Needham, G. A.		Montgomery Ho, Tunbridge Wells.
Parkes, A. E.		Grammar School, Dudley.
Reynolds, T.		St. Joseph's Coll., Huntingdon.
Rice H.		Truro College.
Thomas, C.		Dolgelly Grammar School.
Woodham, C. B.		3 West Park Villas, Southampton.
Bachhoffner, C.		Tollington Park College, N.
Buist, J.		Ampleforth College, York.
Carey, A. S.		St. Martin's School, York.
Constable, C. E.		Cavendish College, Southampton.
Gray, F. H.		Collegiate School, Melksham.
Hankens, A.		Camden Road Collegiate S., N.
Hateley, E.		Oxford County School, Thame.
Hirst, F.		Almondbury Grammar School.
Martin, T. H.		Mayall College, Herne Hill.
Oliver, J.		Wesley College, Sheffield.
Pape, H.		Hamstead Hill S., Handsworth.
Parkes, H. A.		Tollington Park College, N.
Pierson, A. E.		Grammar School, Knutsford.
Silver, T.		Commercial S., Barrow-in-Furness
Simmons, J.	*d.*	The Polytechnic S., Regent Street.
Styles, J. C.		Commercial S., Borrow-in-Furness
Thomas, J.		Grammar School, Cardigan.
Tweedy, S.		Endowed Grammar S., Northwich.
Young, M.		Bussage House, Stroud.
Berryman, G. S. D.		Halesowen Grammar School.
Binns, N.		Almondbury Grammar School.
Bowyer, F. R.		Anerley High School.
Branson, A. W.		High School, Smethwick.
Hughes, A. O.		St. Asaph Grammar School.
Jarvis, F.		The Grammar School, Eye.
Mayer, R. D.		Tollington Park College, N.
Mousley, J. A.		Highbury Park School, N.
O'Bryen, O.		St. Joseph's College, Huntingdon.
O'Neill, M.		Salford Catholic Grammar School.
Powell, J.		The College, Hendon.
Proudfoot, G. K.		Ger. & Fr. Coll., Wandsworth.
Rose, W. B.		Thirsk High School.
Sadler, J.		St. Catharine's S., Broxbourne.
Sheppard, W. R. L.		Towcester School.
Smith, A.		Ampleforth College, York.
Smith, W.		Almondbury Grammar School.
Symington, H. W.		Grammar S., Market Harboro'.
Vickery, A.		Plymouth Public School.
Wilkinson, H.		St. John's College, Finsbury Park.
Broadbent, F. J.		Almondbury Grammar School.
Dalton, E. G.		Malvern House, Shirley.
Garside, D.		Longwood Gram. S., Huddersfield.
Gilbert, O. I.		Cavendish College, Southampton.
Jennings, F. D.		Cheltenham High S. for Boys.
Jessop, E.		Weston School, Bath.
John, H. B.		Private study.
Johnson, W. G.		The Polytechnic S., Regent Street.
Lake, C. J.		Private study.
Lambert, C. W.		Tollington Park College, N.
Manning, J.		Carter House School, Deal.
McLonghlin, W. M.		Private study.
Ozanne, R. C.		St. Oswald's College, Tynemouth.
Rigby, J.		Up-Holland Grammar School.
Sayner, C. D.		St. Martin's School, York.
Scott, A. A.		University School, Hastings.
Surridge, W.		Private study.
Tirrell, A. W.		Cheltenham High School for Boys.
Walker, H. J.		Royal Masonic Inst., Wood Green.
Appleby, F. C.		Hatton House, Newark.
Beaumont, R.		Royal Masonic Inst., Wood Green.
Davies, J. E.		Grammar School, Dudley.
Gilchrist, S.		Coopers' Company's S., Stepney.
Gillman, W. N.		Stroud Borough School.
Holden, H. G.		Hamstead Hill S., Handsworth.
Jones, H. M.		Montrose College, Brixton Hill.
Kendle, R. H.		Malvern House, Shirley.
Macfadyen, H. A.		Royal Gram. S., N'castle-on-Tyne.
Orton, G. H.		Brent Hill Collegiate S., Hanwell.
Pinckney, A. A.		Central H.S., Queen's Coll., B'ham.
Robins, H. G.		Mayall College, Herne Hill.
Schofield, J. A.		Almondbury Grammar School.
Sippe, C. B.		Montrose College, Brixton Hill.
Stevenson, C.		Whalley Range Coll. S., M'chester.
White, A. Y.		The College, Broadstairs.
Wilcockson, H. C. E.		Waverley House, Eastbourne.
Atkinson, C. I.		Whitchurch Grammar School.
Hartness, J. B.		Clayton College, Peckham.
Hazlewood, E.		Banham Grammar S., Attleboro'.
Hoyland, A.		Wesley College, Sheffield.
Peterkin, E.		Endowed Gram. S., Northwich.
Phillips, A. E.		New Hall Coll., Sutton Coldfield.
Phillips, H. J.		Comm. S., Barrow-in-Furness.
Pick, R. O.		The Modern School, Thirsk.
Pickersgill, E. B.		Woodhouse Grove School.
Pool, W. G.		Truro College.
Seeley, W. N.		St. Margaret's College, Lowestoft.
Shaw, C. R.		Almondbury Grammar School.
Stamm, J. C.		Tollington Park College, N.
Thomas, R. H.		Brent Hill Coll. S., Hanwell.
Beckerleg, W. J.		Truro College.
Broome, G. B.		Collegiate School, Belper.
Colbeck, N.		Almondbury Grammar School.
Curran, P.		Ampleforth College, York.
Duncan, F. H.		Anglo-French Coll., Finchley Rd.
Foster, C. C.		New Hall Coll., Sutton Coldfield.
Foster, S. C.		St. John's College, Finsbury Pk.
Georges, C.		Tooting College.
Godfrey, S. W.		Kingston School, Yeovil.
Hazlehurst, A. N.		Newton School, Rock Ferry.
Howell, F. M.		3 Belgrave Villas, Lee, S.E.
Johnson, B. J.	*d.*	Halesowen Grammar School.
Mantle, F. W.		Oxford House School, St. Albans.
Milburn, E. W.		Archbishop Holgate's S., York.
Parkinson, C. E.		Collegiate School, Blackpool.
Roman, S.		Salford Catholic Grammar School.
Soar, H.		The College, Hendon.
Straub, J.		St. Joseph's Acad., Kennington Rd.
Turner, G. A.		Highfield Coll. S., Rock Ferry.
White, W. H		Grove House School, Highgate.
Wood, J.		Solsgirth House, Highgate.
Allen, J.		Hall Gate School, Doncaster.
Bailey, H.		The Polytechnic S., Regent St.
Bates, H. M.		Seaford College.
Brand, E.		The Grove, Hooe, Pevensey.
Byatt, H. C.		The High S., Waltham Abbey.
Chalouer, C.		Ampleforth College, York.
Damon, R. C.		Thorne Grammar S., Doncaster.
Draper, R. W.		Cavendish Ho. S., Hammersmith.
Elsom, H. H.		Kingston Commercial S., Hull.
Gibson, A. G.		Manor School, York.
Guymer, P. J.		St. Margaret's College, Lowestoft.
Hardy, E. C.		The Polytechnic S., Regent St.
Mallinson, T. H.		Almondbury Grammar School.
Oscroft, J. H.		Royal Masonic Inst., Wood Green.
Renwick, R.		Coopers' Company's S., Stepney.
Rogers, E. N. C.		Grammar School, Knutsford.
Rowe, W.		Truro College.
Savage, W. C.		Archbishop Holgate's S., York.
Shettle, E. G.		The Grammar School, Eye.
Tyson, T. A.		Wavertree Academy.
Wesencraft, A. E.		St. Oswald's College, Tynemouth.
Weston, P.		Bethany House S., Goudhurst.
Baird, P. J.		Grammar School, Dudley.
Beaumont, W.		Thorne Grammar S., Doncaster.
Brister, O. L.		Royal Masonic Inst., Wood Green.
Coehrane, H. B.		Old Trafford School, Manchester.
Cole, F. E.		Banham Grammar S., Attleboro'.
Gruner, O. C.		Old Trafford School, Manchester.
Joyes, A. E.		New College, Worthing.
Major, W.		Kingston School, Yeovil.
McGowan, W. E.		Comm. S., Barrow-in-Furness.
Parker, H. J.		Bethany House S., Goudhurst.
Punch, J. F. T.		Byron House School, Ealing.
Renwick, F. F.		Buxton College, Forest Gate.
Robb, S. H.		Coopers' Company's S., Stepney.
Roberts, W.		Willow House College, Walsall.
Scarborough, E. A.		Grammar S., Market Harboro'.
Smith, W. V.		St. John's Hospital S., Exeter.
Snow, C. J.		Ventnor Collegiate & High School.
Walker, H.		Oxford County School, Thame.
Williams, A. E.		Grammar School, Dudley.
Ambrose, D.		Tooting College.
Clark, H. H.		Chingford High School.
Dawson, E.		Percy House S., North Shields.
Eagle, W. C.		Banham Gram. S., Attleboro'.
Ellis, J. C.		Endowed Gram. S., Northwich.
Garnier, C.		Tooting College School.
Keir, C.		The Huish School, Taunton.
Micklewood, G. R.		University School, Stroud Green.
Old, H. A.		East Cornwall College, Liskeard.
Palmer, J. M.		K. Edw. VI. Gram. S., Wymondham.
Rowe, W. F.	*bk.*	Truro College.
Savage, J.		Tooting College.
Thomas, A. W.		Abney House S., Stoke Newington.
Tiplady, G. J.		Anglo-French Coll., Finchley Rd.
Upton, W. B.		The Grammar School, Coleshill.
Williams, W. J.		Dolgelly Grammar School.
Willis, F. W.		Longwood Gram. S., Huddersfield.
Baker, S. M.		Liversedge Grammar School.
Coltman, E.		Thirsk High School.
Farley, J.		Salford Catholic Grammar School.
Franklin, G. A.		High St. Academy, Fareham.
Hazelby, T. W.		Trafalgar House S., Winchester.
Hirst, B. H.		Longwood Gram. S., Huddersfield.
Larkin, T. C.		The Polytechnic S., Regent Street.
Mellish, L. O.		Malvern House, Shirley.
Monro, E. G.		North London High School, N.W.
Moorcroft, F. A.		Royal Masonic Inst., Wood Green.
Oldham, S.		Richmond Terr. S., Stoke-on-Trent.
Oxley, O. C.		Byron House School, Ealing.
Pinnock, A. V.		Holloway College, N.
Roberts, W. H.		Dolgelly Grammar School.
Rowney, B.		St. Joseph's College, Huntingdon.
Wilcox, B.		University School, Hastings.
Wilkinson, J. H.		Yealand Conyers Collegiate S.
Barnett, A. W.		Truro College.
Brilliant, J. H. N.		Oxford House School, Highgate.
Collinge, D.		Almondbury Grammar School.
Connolly, W. H.		St. Joseph's High School, Cardiff.
Duncan, J. L.		Tollington Park College, N.
Durward, W. C.		Oakfield School, Crouch End.
Eggleston, H.		Collegiate School, Sunderland.
Harbord, H.		Endowed Gram. S., Northwich.
Hughes, T.		Dolgelly Grammar School.
Jackson, H.		High School, Sutton, Surrey.
Oakley, F. A.		Almondbury Grammar School.
Tew, F. B.		Hillmartin Coll., Camden Rd., N.W.
Walton, C. F.		University School, Hastings.
Waterhouse, A. W.		3 Belgrave Villas, Lee, S.E.
Whitwam, J. H.		Longwood Gram. S., Huddersfield.
Brown, W. L.		Oxford County School, Thame.
Butcher, F. J.		Collegiate School, Lapford.
Campbell, H. M.		Private tuition.
Curling, R.		Ampleforth College, York.
Edy, C. W.		Anglo-French Coll., Finchley Rd.
Ensor, J. W.		Private tuition.
Golding, D. H.		North London High S., N.W.
Graham, H. J.		Belmont House, Lee, S.E.
Harrison, W. J.		Coopers' Company's S., Stepney.
Lemin, O. E.		South Hackney College, N.E.
Little, A.		81 Minerva Terrace, Hull.
Moody, E. A. P.		North London High School, N.W.
Ozanne, L. W.		St. Oswald's College, Tynemouth.
Pickworth, G. B.		West House College, Congleton.
Robinson, H. S.		St. Asaph Grammar School.
Robinson, J. E.		Whitchurch Grammar School.
Scott, F. W.		Sunnyside H.S., Chorlton-c-Hardy
Sheldrake, A. M.		University School, Hastings.
Stimson, E.		Halstead Grammar School.
Stoner, R.		St. John's College, Finsbury Pk.
Sutcliffe, L. B.		Thorne Grammar S., Doncaster.
Wilson, P.		Coopers' Company's S., Stepney.
Woodward, W. F.		Hamstead Hill S., Handsworth.
Allwood, F. E.		The Grammar School, Coleshill.
Brims, C. W.		Royal Gram. S., N'castle-on-Tyne.
Burrows, E. J.		Bancroft House, Hitchin.
Dawkins, A. E.		Immanuel Coll., Streatham Comm.
Edwards, C. J.		Truro College.
Evans, J.		Grammar School, Cardigan.
Godwin, E. H.		Leytonstone College.
Hales, H.		Woodhouse Grove School.
Hardcastle, E.		Yealand Conyers Collegiate School
Hearder, D.		Private tuition.
Ironmonger, H. L.		K. Edward VI. Gram. S., Spilsby.
Lawfield, J.		St. Joseph's Coll., Huntingdon.
Robinson, T. J.		Cambridge House, Bradford.
Tappenden, P. H.	*d.*	Gunnersbury College, W.
Tasker, H. C.		Taplow Grammar School.
Thompson, E. M.	*d.*	Halesowen Grammar School.
Walter, W. J.		Carter House School, Deal.

BOYS, THIRD CLASS—*Continued.*

Whiskin, J. E.	Collegiate School, Belper.
Whitehead, G. J.	St. Joseph's Acad., Kennington Rd.
Alcock, A.	Royal Grammar School, Sheffield.
Bakewell, L. C.	Collegiate School, Belper.
Bevington, A.	Tollington Park College, N.
Clark, H.	Halstead Grammar School.
Clarkson, J. S.	Woodhouse Grove School.
Day, J. J.	Almondbury Grammar School.
Douse, J. F.	Montrose College, Brixton Hill.
Eugster, A.	University School, Stroud Green.
Falder, T. F.	Collegiate School, Carlisle.
Haynes, P. H.	North London Collegiate School.
James, C. H.	Truro College.
Keene, H. H.	Breydon House, Bournemouth.
Lane, H. R.	Royal Masonic Inst., Wood Green.
Mousley, W. R.	Highbury Park School, N.
Osmond, G. H.	University School, Hastings.
Owen, R. J.	Palmerston House, Ross.
Packer, F. E.	Banham Grammar S., Attleboro'.
Ranwell, J. W.	South Hackney High School, N.E.
Roy, H. W.	Highbury Park School, N.
Symonds, G. E.	The Grammar School, Eye.
White, W. R.	University School, Hastings.
Atkinson, B.	Salford Catholic Grammar School.
Bensted, J. D.	Bethany House S., Goudhurst.
Colman, A. W.	St. George's College, Weybridge.
Couban, J.	Ampleforth College, York.
Dixon, E. M.	Private tuition.
Durrans, J.	Almondbury Grammar School.
Evans, H.	High Schools, Chorlton-c-Hardy.
Forshaw, J.	Salford Catholic Grammar School.
Hammond, H.	Cambridge House, Bradford.
Haworth, C.	Almondbury Grammar School.
Hehl, F. W.	The Polytechnic S., Regent Street.
Hodgson, R. J.	Commercial S., Barrow-in-Furness
Ingram, E. J.	Stroud Borough School.
Kelsey, E. L. R.	Private tuition.
Langford, E. J.	Stroud Borough School.
Mackrill, E. S.	Oxford County School, Thame.
Merrell, W.	Grammar School, Knutsford.
Morgan, W. D.	St. Martin's School, York.
Morris, S. H.	Grammar School, Market Harboro'
Muir, A. L.	Laurel Bank S., Hr. Broughton.
Mumford, G. B.	Fir Lodge College, Sydenham.
Nunneley, H. W.	Grammar School, Market Harboro'
Pope, T. M.	Mayall College, Herne Hill.
Rose, J. M.	Oxford County School, Thame.
Seal, A. H.	Albert House School, S. Hackney.
Smith, C. F.	Whitchurch Grammar School.
Walford, W. S.	Grammar School, Uckfield.
Watts, H. S.	Sandwich School.
Williams, J.	Taplow Grammar School.
Williams, W.	Grammar & Coll. S., Carnarvon.
Barham, W.	Weston School, Bath.
Blunt, E. J.	Collegiate School, Lapford.
Bown, A.	Coopers' Company's S., Stepney.
Britton, T. W.	High S., Chorlton-cum-Hardy.
Burt, J. W.	Kingston School, Yeovil.
Crook, N. C.	Seaford College.
Dawson, J. T.	Brighton House Coll. S., Oldham.
Dell, R. J.	Brighton Modern School.
Donohoe, F.	Cambridge House School, Wigan.
Dymond, T. M.	Woodland House S., New S'thgate.
Franco, S. P.	Baylis House S., Slough.
Gardner, S. R.	Herne House, Margate.
Garstang, W.	Grammar School, Knutsford.
Hannay, W. S.	University School, Stroud Green.
Hope, S. H.	New Hall Coll., Sutton Coldfield.
Ives, G. A.	Almondbury Grammar School.
Jones, C. E.	Grammar & Coll. S., Carnarvon.
Keast, A.	Truro College.
Lamberth, H.	Private tuition.
Lewis, A.	Malvern House, Shirley.
Lowry, T. M.	Truro College.
Marcroft, H.	Borough Collegiate S., Rotherham
Marriott, A. S.	Collegiate School, Saltburn.
Marsh, H. L.	Endowed Gram. Sch., Northwich.
Mountain, S. W.	Taplow Grammar School.
Oades, S.	The College, Broadstairs.
Phillips, E.	N'castle Mod. S., N'castle-on-Tyne.
Postlethwaite, R. G.	Comm. School, Barrow-in-Furness
Reichenheim, W. E.	St. John's Colleges, Brixton.
Richards, D. S.	Tredegar Grammar School.
Saunders, H.	Ealing Commercial College, W.
Smith, W. H.	Whitchurch Grammar School.
Sopwith, J.	St. Oswald's College, Tynemouth.
Stocker, J. B.	Truro College.
Summerhayes, M. W.	The Grammar S., Wellingborough.
Tonkin, E.	East Cornwall College, Liskeard.
Vallis, C.	Hatton House, Newark.
Watson, W. G.	University School, Hastings.

THIRD CLASS.—2ND DIVISION.

Barritt, J. W.	Hamstead Hill S., Handsworth.
Bridgwater, F.	Mayall College, Herne Hill.
Clayton, W. H.	Almondbury Grammar School.
Dadson, H. H.	Herne House, Margate.
Davies, A.	Grammar & Coll. S., Carnarvon.
Draper, P.	Grammar School, Ormskirk.
Green, E. A.	Whitchurch Grammar School.
Hame, W. J.	Kingston School, Yeovil.
Hatton, W.	Anglo-French Coll., Finchley Rd.
Hook, J.	East Finchley College, N.
Jaggar, H.	Almondbury Grammar School.
Lambert, E. S.	St. George's College, Weybridge.
Mayo, A. T.	Palmerston House, Ross.
Mitchell, J. A.	Truro College.
Mordin, H.	Oxford County School, Thame.
Peckitt, M.	Archbishop Holgate's S., York.
Phillips, W. H.	Stroud Borough School.
Pringle, C. E.	Fullarton House S., Manchester.
Pritchard, I. G.	Alwyne House, Canonbury.
Richardson, F.	Dolgelly Grammar School.
Rosevere, G.	The School, Tavistock.
Sayner, F. T.	St. Martin's School, York.
Simmons, J. W.	Hillmartin Coll., Camden Rd. N.W.
Tyler, W. J.	South Hackney College, N.E.
Vincent, P.	Tooting College School.
Wadeson, G.	Yealand Conyers Collegiate S.
Wilson, W. A.	Denton High S., Manchester.
Wood, W. A.	Private tuition.
Wooldridge, R. A.	Grammar School, Marlborough.
Youngman, A. G.	St. Chad's College, Lowestoft.
Atton, R. C.	Classical & Comm. S., Stamford.
Butters, C.	South Hackney College, N.E.
Cornish, W. G.	Kingston School, Yeovil.
Cutter, A. C.	Grammar School, Knutsford.
Douglas, R.	Chatham Institute, Liverpool.
Dunkin, W. H.	Truro College.
Fairweather, E. V.	Kingsbridge Grammar School.
Farmbrough, W.	Oxford County School, Thame.
Hebard, O. R.	Heath House, Horsmonden.
Long, W.	Ampleforth College, York.
New, E. S.	Prince Henry's Gram. S., Evesham.
Prosser, F. W.	The Grammar School, Coleshill.
Rollason, E. G.	Cen. High S., Queen's Coll., B'ham
Russell, G. B. A.	Private tuition.
Smith, T. J.	Milton College, Ullesthorpe.
Steer, S. R.	Kingsbridge Grammar School.
Vincent, T. T.	Trevu Academy, Camborne.
Whiteway, A.	Weston School, Bath.
Wood, J.	St. Joseph's College, Huntingdon.
Annison, A. C.	Herne House, Margate.
Bailey, G. H.	Coopers' Company's S., Stepney.
Beeny, J.	Weston School, Bath.
Briggs, E. F. H.	University School, Stroud Green.
Browne, J.	Ampleforth College, York.
Crowther, T. H.	Longwood Gram. S., Huddersfield.
Davies, C. E.	Grove House School, Highgate.
Dowdy, S. E.	University School, Stroud Green.
Gray, R. H.	Breydon House, Bournemouth.
Hemsley, O. T.	Chiswick Collegiate School.
Higginson, G. A.	Ealing Commercial College, W.
Hutchins, F.	Middle Class School, Cardiff.
James, D. M.	Grammar School, Cardigan.
Lambert, E. T.	The Grammar School, Coleshill.
Lees, F.	Grammar School, Knutsford.
Lereschc, J. R.	Stanwell House, Brondesbury.
Mash, H. J.	Bethany House S., Goudhurst.
Mason, H. G.	Blenheim House S., Fareham.
Murray, A. W.	Kingston School, Yeovil.
Parkes, E. H.	Hamstead Hill S., Handsworth.
Pope, E. H.	Royal Masonic Inst., Wood Green.
Prior, G. P. U.	Warwick House S., Southsea.
Pritchard, C.	Tooting College School.
Robinson, E.	Percy House S., North Shields.
Speight, G.	Queen Eliz. Gram. S., Gainsboro'.
Toomy, W.	St. Joseph's Acad., Kennington Rd.
Wicker, W. E.	Royal Grammar School, Sheffield.
Ashworth, J.	Wesley College, Sheffield.
Bell, H.	Woodhouse Grove School.
Brooke, J. R.	Highbury Park School, N.
Charlton, J. FitzG.	Private tuition.
Clarke, A. J.	East Cornwall College, Liskeard.
Collyer, N. R.	The Grammar School, Eye.
Dundas-Mouat, G.	Old Trafford School, Manchester.
Durrans, P.	Almondbury Grammar School.
East, W.	Buxton College, Forest Gate.
Fox, P. J.	Halesowen Grammar School.
Freeman, A.	Camden Rd. Collegiate School, N.
Glover, H.	Collegiate School, Belper.
Green, W.	Halesowen Grammar School.
Hards, G.	Bedford House S., Streatham.
Hopkins, S.	St. John's College, Finsbury Park.
Macdonald, A.	Private tuition.
Macqueen, A.	St. Giles College, Norwich.
Mason, G. H.	Halesowen Grammar School.
Moore, E.	Wesley College, Sheffield.
Moore, L. C.	79 Lancaster Rd., Notting Hill.
Morrissy, F.	Baylis House School, Slough.
Pigeon, W. H.	Teignmouth Grammar School.
Pringle, H. M.	Fullarton House S., Manchester.
Richards, A. W.	Belmont House, Lee, S.E.
Robins, E. B.	Truro College.
Ross, P. T.	University School, Hastings.
Russell, T. P.	St. George's College, Weybridge.
Sharpe, C. M.	Rye Grammar School.
Shirley, A. E.	Endowed Grammar S., Northwich.
Silverstone, C.	Denbigh Lodge Coll. S., Edgbaston.
Sissons, H. P.	Queen Eliz. Gram. S., Gainsboro'.
Stephenson, F. J.	St. Oswald's College, Tynemouth.
Stratton, R.	Herne House, Margate.
Yeomans, J. E.	Tollington Park College, N.
Ashton, A. W.	Collegiate School, Belper.
Bishop, K. C.	Anglo-French Coll., Finchley Rd.
Bott, W. S.	University School, Hastings.
Brooke, S. W.	Highbury Park School, N.
Campsall, W. H.	Private tuition.
Clifton, P. H.	Fossdyke House S., Winchester.
Dunt, W. E.	Halstead Grammar School.
Durand, E. A. H.	Heath House, Horsmonden.
Gaston, G. P.	Kent Coast College, Herne Bay.
Hampshire, D. H.	Halbrake S., Wandsworth Comm.
Hodgson, J. F.	Commer. S., Barrow-in-Furness.
Jacobs, F. J.	Buxton College, Forest Gate.
Kemp, H. B.	Stroud Borough School.
Matthews, S.	Plymouth Public School.
Morley, H. E.	Chiswick Collegiate School.
Pearson, H. J. M.	Kersal Glen S., Hr. Broughton.
Pitt, W.	St. John's Colleges, Brixton.
Raincock, C.	St. Catharine's S., Broxbourne.
Scott, F.	Private tuition.
Smith, V.	Tooting College School.
Town, G. A.	Gunnersbury College, W.
Adey, F. P.	East Cliff School, Bournemouth.
Andrews, E. R.	Buxton College, Forest Gate.
Apperson, A. E.	Private tuition.
Bonnevialle, C.	Tooting College School.
Collins, F. W. S.	Longwood Gram. S., Huddersfield.
Dash, R.	Kent County School, Birchington.
Edginton, L. S.	Malvern House, Shirley.
Edwards, B. L.	Holmwood House, Hampstead.
Garle, J. L.	Herne House, Margate.
Hansom, V.	Ampleforth College, York.
Harris, G. H.	The College, Burnham, Somerset.
Healey, F.	Commercial School, Rastrick.
Hunt, W. C.	St. George's College, Weybridge.
Jones, F. M.	Grammar School, Dudley.
Lawrence, J.	Taplow Grammar School.
Martin, H. T.	K. Edward VI. Gram. S., Spilsby.
Martin, S. A.	University School, Hastings.
Sharp, H.	Hall Gate School, Doncaster.
Shoolbred, C.	Tooting College School.
Short, O.	Percy House S., North Shields.
Steven, J. D.	Montrose College, Brixton Hill.
Stoton, E. H.	83 Montpellier Road, Brighton.
Swan, I. J.	Newcastle Mod. S., N'castle-on-T.
Theakston, J.	Private study.
Vertigen, H. T.	Banham Grammar S., Attleboro'.
Windsor, F.	Oxford County School, Thame.
Woods, T.	The Grammar School, Eye.
Armitage, W.	South Hackney High School, N.E.
Bagge, J. L.	Kingston School, Yeovil.
Batty, F.	Wareside End. Grammar S., Ware
Berg, E.	Anglo-French Coll., Finchley Rd.
Bolton, J. E.	Archbishop Holgate's S., York.
Brown, V. R.	Woodhouse Grove School.
Burgess, S. H.	Clarendon Road School, Eccles.
Burnett, T.	Borough Collegiate S., Rotherham.
Butler, E.	Tooting College.
Clarke, G.	Parkgate Avenue School, Hull.
Clay, E. L.	Oakfield House, Balsall Heath.
Cocksedge, R. D.	Anglo-French Coll., Finchley Rd.
Collins, E.	Erme House School, Mutley.
Deere, E. W.	Middle Class School, Cardiff.
Deighton, C. H.	Herne House, Margate.
Furber, M.	Herne House, Margate.
Henstock, F. W.	Collegiate School, Belper.
Holditch, R. S.	Mayall College, Herne Hill.
Hopkinson, J. A.	Almondbury Grammar School.
Jones, W. P.	Grammar School, Cardigan.
Merrit, E. H.	Waverley House, Eastbourne.
Riley, F. T.	Higher Grade School, Kettering.
Robb, G.	Coopers' Company's S., Stepney.
Russell, E. F.	The Grammar School, Coleshill.
Scott, G. A.	Anglo-French Coll., Finchley Rd.
Southey, S.	Bethany House School, Goudhurst.
Tebbutt, T. P.	Milton College, Ullesthorpe.
Walters, S.	Weston School, Bath.
Barker, W.	Redenhall School, Harleston.
Barnwell, R.	Palmerston House, Ross.
Blockey, E. J.	St. George's College, Weybridge.
Bullen, J.	Cambridge House School, Wigan.
Burton, E. G.	Collegiate School, Belper.
Carr, F. U.	Private tuition.
Carr, J. W.	Sandwich School.
Clemens, P. W.	38 Tavistock Place, Plymouth.
Gale, W. H.	Private tuition.
Grabham, R. J.	2 St. Philip's Road, Surbiton, S.W.
Gray, S. B.	Noncon. Gram. S., Bp. Stortford.
Greenall, J. R.	Immanuel Coll., Streatham Comm.
Grimshaw, C. H.	Fair Oaks School, Wilmslow.
Hamilton, R. C.	Taplow Grammar School.
Jacobs, H. V.	Portsdown High S., Maida Vale.
Jull, T. E.	Coopers' Company's S., Stepney.
Keighley, R.	Weston School, Bath.
Oates, H.	Almondbury Grammar School.
Steer, B. R.	Kingsbridge Grammar School.
Swingler, J.	St. Joseph's College, Huntingdon.
Venables, B. C. S.	University School, Hastings.
Wadoux, M. H.	Anglo-French Coll., Finchley Rd.
Williams, A. E.	Bethany House S., Goudhurst.
Williams, G. V.	St. George's College, Weybridge.
Adam, S. D.	Private tuition.
Baily, J. A. M.	Royal Masonic Inst., Wood Green.
Bedding, T.	Taplow Grammar School.
Brooks, F.	Bethany House S., Goudhurst.
Calvert, F.	Wesley College, Sheffield.
Elliott, A. J.	Taplow Grammar School.
Firth, E.	Commercial School, Rastrick.
Grugeon, H.	Bedford House S., Streatham.
Hebblethwaite, S.	College House, Spotforth.
Heelas, W.	Bussage House, Stroud.
Hill, P. P.	Queen Eliz. Gram. S., Gainsboro'.
Jameson, G. A.	Private tuition.
Jones, P. E.	St. Asaph Grammar School.
Muddle, A. S.	Chiswick Collegiate School.
Oldham, J. R. D.	New Hall Coll., Sutton Coldfield.
Owsley, J. W.	Gram. School, Market Harboro'.
Priest, S. B.	Halesowen Grammar School.
Proctor, G. S.	Montrose College, Brixton Hill.
Rowton, W. C.	Grove House School, Highgate.
Smith, W.	Ampleforth College, York.
Vaughan, H.	Weston School, Bath.
Vink, C.	Weston School, Bath.
Andrews, C. O.	Englefield, Westgate-on-Sea.
Andrews, C. T.	Herne House, Margate.
Auslow, F.	Weston School, Bath.
Ball, E.	Grammar School, Ormskirk.
Barker, F.	The Grammar School, Goole.
Belshaw, P.	Cambridge House School, Wigan.
Betts, J. H.	Old Trafford School, Manchester.
Burton, F. M.	Beech Terrace S., Fairfield, L'pool.
Coomber, H.	Weston School, Bath.
Dakin, C. C.	The Polytechnic S., Regent Street.
Hartgill, H.	Weston School, Bath.
Hearne, J.	St. George's College, Weybridge.
Hunt, W.	Up.-Holland Grammar School.
McAll, R. L.	Westbury House, Worthing.
Miller, A. E.	New Hall Coll., Sutton Coldfield.
Newton, W. H.	Taplow Grammar School.

BOYS, THIRD CLASS—*Continued.*

Richards, H. J.	Noncon. Gram. S., Bp. Stortford.
Riden, A. W.	Private tuition.
Sandiland, D.	Alwyne House, Canonbury.
Suckling, L.	Oakfield House, Balsall Heath.
Theophilus, G. E. H.	Tredegar Grammar School.
Thornton, C. J.	Taplow Grammar School.
Warren, S. R.	Bethany Ho. School, Goudhurst.
Worthington, A.	Private tuiton.
Barnsley, R.	Halesowen Grammar School.
Bentall, L. H.	Montrose College, Brixton Hill.
Bloss, W. E.	University School, Stroud Green.
Brayn, R. C. H.	Whitchurch Grammar School.
Bull, J. H.	Waverley House, Eastbourne.
Clifton, S.	Fossdyke House S., Winchester.
Ford, E. B.	University School, Hastings.
Ford-Smith, A.	Ashton High S., A'ton-on-Mersey.
Green, A.	The College, Hendon.
Harvey, J.	Weston School, Bath.
Hepworth, H.	Hall Gate School, Doncaster.
Isner, H. C. S.	Tufnell Park Terr. S., Holloway.
McInerny, M.	St. Francis Xavier's S., Mayfield.
Nicholson, E.	Up.-Holland Grammar School.
Pye, R.	St. Joseph's Acad., Kennington Rd
Ramsden, T.	Almondbury Grammar School.
Roe, S.	Werneth Academy, Oldham.
Rust, S.	Arundel House, West Malling.
Sloman, H.	Anglesea House S., St. Mary Cray.
Snow, W. H.	38 Tavistock Place, Plymouth.
Taylor, W. S.	Grove Place School, Rochdale.
Waller, J.	St. Oswald's College, Tynemouth.
Weston, A. F.	St. George's College, Weybridge.
Witten, J,	St. Kenelm's, Cowley, Oxford.
Wright, J. H.	Whitchurch Grammar School.
Agate, F. G.	Lonsbury College, Upper Clapton.
Booth, H.	Anglo-French Coll., Finchley Rd.
Booth, H. J.	Collegiate School, Belper.
Booth, W. R. W.	Grammar School, Dudley.
Bowler, F. H.	South Hackney College, N.E.
Broadley, E.	Ampleforth College, York.
Cooper, A. S.	University School, Hastings.
Field, A. E.	Oxford County School, Thame.
Gleed, J.	Camden Rd. Collegiate School, N.
Gross, A.	Hall Gate School, Doncaster.
Hedges, G.	Clapham Rise Collegiate School.
Jones, P. G.	Herne House, Margate.
Laury, A.	Truro College.
Murray, B.	Ampleforth College, York.
Offord, L. E.	College House S., West Croydon.
Reid, J. F.	Warwick House S., Maida Hill West
Scharschmidt, H. S.	Bethany House S., Goudhurst.
Scott, H. W.	Brighton House Coll. S., Oldham.
Tracy, R. S.	Malvern House, Shirley.
Weston, S. J.	University School, Hastings.
Woodland, E. J.	East Cornwall College, Liskeard.
Alexander, F. L.	St George's College, Weybridge.
Andrews, H. C.	East Cornwall College, Liskeard.
Birch, O. A.	Bethany House S., Goudhurst.
Brown, J.	Collegiate School, Sunderland.
Chater, J.	Grammar S., Market Harboro'.
Clarkson, E.	Argyle House School, Sunderland.
Dexter, J. R.	Bradmore College, Chiswick.
Edwards, E. W.	Holmwood House, Hampstead.
Frost, W. F.	Clarendon Road School, Eccles.
Gibbs, S. J.	Brighton Modern School.
Hack, L. A.	Kent Coast College, Herne Bay.
Hopkinson, J.	Almondbury Grammar School.
Ingle, H. E.	Highbury Park School, N.
Jeffery, W. G.	St. Kenelm's, Cowley, Oxford.
Kemp, C. H.	Hillmartin Coll., Camden Rd., N.W.
King, H. G.	38 Tavistock Place, Plymouth.
Legg, J. C.	Truro College.
Martin, T. H.	Bussage House, Stroud.
Morford, F.	Byron House School, Ealing.
Pearse, E.	Cheltenham High School for Boys.
Pointing, T.	Weston School, Bath.
Ritchie, G.	Oxford County School, Thame.
Rolfe, E. J.	Banham Grammar S., Attleboro'.
Ruck, C. E.	Radnor House School, Redhill.
Stewart, C. L.	University School, Hastings.
Strong, S. F.	North London High School, N.W.
Tompkins, C. E.	Grammar S., Market Harboro'.
Vaughan, G.	Weston School, Bath.
Westlake, B. B.	Brunswick House S., Windsor.
Wilson, J. C.	Old Trafford S., Manchester.
Worsfold, J. L.	Sandwich School.
Axe, A.	Manor School, York.
Barrett, E. F.	Anglo-French Coll., Finchley Rd.
Curtis, A.	Solsgirth House, Highgate.
Davis, E. J.	Taplow Grammar School.
Gange, E.	Private tuition.
Harding, E. H.	Ventnor Collegiate & High School.
Harris, C.	Deacon's School, Peterborough.
Harris, P. H.	Private study.
Hunt, E.	Malvern House, Shirley.
Jacques, F.	The College, Burnham, Somerset.
Jones, M. B.	Royal Masonic Inst., Wood Green.
Knowles, C.	Weston School, Bath.
Lickfold, M.	Camden Rd. Collegiate S., N.
Lucas, E.	The College, Burnham, Somerset.
Marks, H.	Bradmore College, Chiswick.
Mason, G.	Ashford Grammar School.
Mawson, R.	Ampleforth College, York.
Methold, A. E.	Sandwich School.
Murray, F.	Tooting College.
Palk, W.	Plymouth Public School.
Sawyer, W. J.	Collegiate School, Melksham.
Stott, J. H.	Grove Place School, Rochdale.
Thomas, W. J.	Halesowen Grammar School.
Topping, W.	Cambridge House S., Wigan.
Turnbull, W. G.	The Polytechnic S., Regent Street.
Warren, C. A.	University School, Hastings.
Whattoff, J. C.	Taplow Grammar School.
Whichelo, H. H. G.	Brockley High School, S.E.
Wickham, S. H.	Trafalgar House S., Winchester.
Worsfold, H. H. H.	Sandwich School.
Adams, H. C.	Kingsbridge Grammar School.
Crofts, W.	Sandwich School.
Crowther, W. H.	Commercial School, Rastrick.
Edwards, A. P.	St. John's Colleges, Brixton.
Hanson, A.	Brent Hill Coll. S., Hanwell.
Hayr, R. H.	Grammar S., Market Harboro'.
Hillier, H. E.	Grammar School, Marlborough.
Holland, J.	Barton School, Wisbech.
Jamieson, J. B.	Brent Hill Collegiate S., Hanwell.
Lee, A.	Bethany House S., Goudhurst.
Osborne, H.	Almondbury Grammar School.
Shield, A. R.	St. George's College, Weybridge.
Sladden, T. C.	Sandwich School.
Slater, G. H.	The College, Burnham, Somerset.
Weatherdon, R. C. A.	Streatham School, Surrey.
Welch, F. D.	Malvern House, Shirley.
Wilkinson, F.	Old Trafford School, Manchester.
Wolfe, J. A.	Private tuition.
Wright, W. J.	Halesowen Grammar School.
Aston, H.	Harborne Vicarage S., Bir'ngham.
Brand, T.	Halstead Grammar School.
Burridge, T. A.	The College, Broadstairs.
Cotter, E. B.	3 Warfelton Terrace, Saltash.
Creasey, H. H.	Redenhall School, Harleston.
D'Abadie, L.	Tooting College.
Druce, L. V.	Taplow Grammar School.
Gilbert, R.	Private tuition.
Harrison, J. C.	Collegiate School, Blackpool.
Hedley, G. W.	Royal Gram. S., N'castle-on-Tyne.
Judd, J. M.	Gravesend Proprietary School.
Keillar, A. N.	Commercial Academy, Crook.
Lutley, C. E.	Heavitree Collegiate School.
Newstead, G. H.	Fir Lodge College, Sydenham.
Rowe, J.	Kingston School, Yeovil.
Sharrock, T.	Salford Catholic Gram. School.
Story, C. W.	Grammar School, Uckfield.
Thwaites, J. A.	Commercial S., Barrow-in-Furness
Tully, G.	Heath House, Horsmonden.
Williams, E. J.	University School, Hastings.
Woolton, A. G.	Halbrake S., Wandsworth Comm.
Barling, L. F.	Stroud Borough School.
Beard, T.	The College, Hendon.
Brickwell, J. R.	University School, Hastings.
Cooke, R. L.	Newcastle Mod. S., N'castle-on-T.
Cooper, P. W.	Lonsbury College, Upper Clapton.
East, C. A. A.	Bayldon House, Dartford.
Fordham, S. H.	Coopers' Company's S., Stepney.
Frampton, G.	Paradise Ho. S., Stoke Newington.
Gilbert, F. W.	Collegiate School, Belper.
Gill, R. H.	Archbishop Holgate's S., York.
Gothard, S.	Camden Road Collegiate School, N.
Harrison, F. J.	Collegiate School, Belper.
Heaton, T. W.	Ycaland Conyers Collegiate School
Jones, A. L.	Tredegar Grammar School.
Jones, J. B.	Grammar School, Haverfordwest.
Kirk, A. L.	University School, Stroud Green.
Lawson, D.	The College, Broadstairs.
Lewtas, M.	Collegiate School, Blackpool.
Marsh, R.	Clifton Pk. School, Birkenhead.
Milne, A.	South Hackney College, N.E.
Murray, W. P.	Cambridge House School, Wigan.
Nightingale, A. E.	Thanet College, Margate.
Oakes, H. H.	Grammar School, Dudley.
O'Hea, J.	St. George's College, Weybridge.
Pern, S.	Malvern House, Shirley.
Roberts, P. B.	St. John's Colleges, Brixton.
Saunders, A. E.	The Douglas Coll. S., Cheltenham.
Sidaway, F. H. H.	Halesowen Grammar School.
Skinner, W.	Weston School, Bath.
Thornton, J. M.	Almondbury Grammar School.
Trapp, C. H.	St. George's College, Weybridge.
Upton, F.	St. Joseph's Acad., Kennington Rd.
Watson, S. M.	New Hall Coll., Sutton Coldfield.
Westcott, F. W.	Leytonstone College.
Whitehorn, H.	St. Oswald's College, Tynemouth.
Whittle, W.	St. Asaph Grammar School.
Wilson, J. A.	Streatham School, Surrey.
Adams, S. H.	Norton College, Luton.
Bryant, V. S.	Truro College.
Butcher, C. St. A.	Montrose College, Brixton Hill.
Byrne, J. D.	St. George's College, Weybridge.
Cooper, R. W.	Rugby House School, Eastbourne.
Fletcher, R. H.	St. George's College, Weybridge.
Gapper, E. H.	Mayall College, Herne Hill.
Glover, H.	Pomfret College, Pontefract.
Hall, G. R.	Cheltenham High School for Boys.
Harvey, W.	Bethany House S., Goudhurst.
Henderson, W.	Cavendish Ho. S., Hammersmith.
Long, A. J.	Noncon. Gram. S., Bp. Stortford.
Mitchell, R. C.	Anglo-French Coll., Finchley Rd.
Roberts, H. F.	Westbury House, Worthing.
Saunders, L.	University School, Hastings.
Vernon, W. T.	Grammar School, Knutsford.
Wilson, W. E.	Denton High School, Manchester.
Alexander, H.	The School, Tavistock.
Buckley, A. N.	Hall Gate School, Doncaster.
Clark, H.	East Cliff School, Bournemouth.
Constable, E. J.	St. Joseph's Acad., Kennington Rd.
Cruickshank, J. G.	3 West Park Villas, Southampton.
Cusel, E.	Mayall College, Herne Hill.
Day, J. S.	The Huish School, Taunton.
Gamble, M.	Kersal Glen S., Higher Bronghton.
Gammage, P. H.	University School, Hastings.
Gardner, F. W.	Epworth College, Rhyl.
Green, A.	The Gram. S., West Bromwich.
Harper, P. M.	Ventnor Collegiate and High S.
Home, E. M. R.	Stanley House, Margate.
John, D.	Grammar School, Cardigan.
Marriott, E. L.	Collegiate School, Saltburn.
Mills, F.	Werneth Academy, Oldham.
Mitton, H.	Woodhouse Grove School.
Needham, F.	Milton College, Ullesthorpe.
Newman, J. J.	Grammar School, Cardigan.
Pearcey, F. G.	The Huish School, Taunton.
Phillips, L.	Denbigh Lodge Coll. S., Edgbaston.
Phillips, S. L.	Portsdown High S., Maida Vale.
Preece, A.	Grammar School, Dudley.
Richardson, J. R.	Kingston Commercial S., Hull.
Rousell, A. J.	Ventnor Collegiate and High S.
Sanders, R. S. McC.	North London High School, N.W.
Stanton, E. W. C.	Towcester School.
Starkey, F.	The College, Broadstairs.
Surman, B.	Weston School, Bath.
Taylor, W. J. W.	Collegiate School, Saltburn.
Warren, W. R.	University School, Hastings.
Beaty, S.	Old Trafford School, Manchester.
Blewitt, B.	Herne House, Margate.
Brain, R. H.	Archbishop Holgate's S., York.
Brissenden, A. W.	Bethany House S., Goudhurst.
Capes, G. H.	Wesley College, Sheffield.
Churchman, R.	Bethany House S., Goudhurst.
Clarke, A. J.	Tollington Park College, N.
Cruickshank, C. F.	Malvern House, Shirley.
Gregory, J.	Taplow Grammar School.
Gubbins, L. B. B.	Westbury House, Worthing.
Hale, F. M.	Taplow Grammar School.
Lake, B.	Truro College.
Lovibond, T. L.	Herne House, Margate.
McEnery, J.	Tooting College School.
Park, C. M. W.	Clapham Rise Collegiate School.
Robinson, J. L.	Grove Place School, Rochdale.
Scott, F.	University School, Hastings.
Shandley, E.	Collegiate School, Blackpool.
Stead, H.	Liversedge Grammar School.
Thomas, A. W.	University School, Hastings.
Tucker, A.	Strood Hill School, Rochester.
Vinson, H.	University School, Hastings.
Walker, J.	The Huish School, Taunton.
Wood C. F.	Kent Coast College, Herne Bay.

THIRD CLASS.—3RD DIVISION.

Allin, J. W.	Milton College, Ullesthorpe.
Broad, E. W.	Taplow Grammar School.
Cautley, J. B.	Archbishop Holgate's S., York
Coleman, J.	Portsdown High S., Maida Vale.
Duncan, C. L.	Boys' Coll. & High S., Southampton
Hampshire, G. N.	Chatham Institute, Liverpool.
Illingworth, J. P.	Almondbury Grammar School.
Jackson, R.	23 Pine Street, Burnley.
Kirkpatrick, C. L.	Grammar School, Knutsford.
McAdam, J.	Tooting College School.
McKenzie, A. T.	Private study.
Moore, C.	Tooting College School.
Moore, R.	The College, Broadstairs.
Phillips, A. C.	German & French Coll., Wandsworth
Richardson, J.	Chatham Institute, Liverpool.
Roberts, E. B.	North Camberwell High Schools.
Rowe, S. A.	Truro College.
Scolding, F. H.	Redenhall School, Harleston.
Spencer, W.	Palmerston House, Ross.
Taylor, D. M.	22 Lansdown Terr., Cheltenham.
Apps, W. J. E.	Heath House, Horsmonden.
Bethell, F.	Charlotte St. High Class S., Bath.
Bilby, W. H.	Taplow Grammar School.
Blake, M. F.	Caversham House S., Reading.
Daly, N.	Private tuition.
Elmore, F.	Petherton School, Highbury.
Fippard, A.	East Cliff School, Bournemouth.
Gilbert, G. H.	Classical & Comm. S., Stamford.
Greig, J.	Anglo-French Coll., Finchley Rd.
Hope, J.	Grammar School, Knutsford.
Laver, R. J.	Kent Coast College, Herne Bay.
Lewis, D.	Weston School, Bath.
Holmes, H.	Commercial College, Pontefract.
Pagan, W. J.	Chatham Institute, Liverpool.
Parsons, E.	New Hall Coll., Sutton Coldfield.
Peduzzi, C.	Tooting College School.
Primavesi, E.	Tooting College School.
Scotton, W.	Milton College, Ullesthorpe.
Silversides, J.	The College, Hendon.
Simpson, A. E.	Grammar School, Dudley.
Squibb, E. G.	Kingston School, Yeovil.
Sulman, J. H.	Grove House School, Highgate.
Swinchatt, S. H.	Grammar School, Dudley.
Walter, J.	Weston School, Bath.
Whittam, B.	Ampleforth College, York.
Williams, R. J.	Seaford College.
Yule, J.	Private tuition.
Archibald, R. L.	Gravesend Proprietary School.
Barry, S.	Tooting College School.
Blakely, P. L.	Arnold College, W. Bournemouth.
Burbidge, R. W.	The Polytechnic S., Regent St.
Burnip, W. A.	Commercial Academy, Crook.
Churchill, H. W.	Lonsbury College, Upper Clapton
Constable, A.	Heath House, Horsmonden.
Fenner, D. W.	Grammar School, Uckfield.
Gibbons, H. W.	Truro College.
Gibson, P.	Tooting College.
Gowland, A. B.	Commercial Academy, Crook.
Hearn, J. R.	2 Hilton St., Higher Broughton.
Hopkins, J.	Grammar School, Uckfield.
Johnston, R. R.	Private tuition.
Marston, A. T.	Milton College, Ullesthorpe.
Rice, F. M. P.	Oakfield School, Crouch End.
Sell, E.	Weston School, Bath.
Smith, J. A.	Grammar School, Knutsford.
Stevenson, H. R.	Old Trafford School, Manchester.
Stocks, E.	Hoe Grammar School, Plymouth.
Thompson, G. W. A.	Archbishop Holgate's S., York.
Tremearne, P.	Halstead Grammar School.
Wyler, E.	Camden Rd. Collegiate School, N
Anstey, W. J.	Taplow Grammar School.
Brunton, H. C.	Anglo-French Coll., Finchley Rd.
Cattell, S. K.	New Hall Coll., Sutton Coldfield.
Farrar, W.	Queen Eliz. Gram. S., Gainsboro'.

BOYS, THIRD CLASS—*Continued.*

Fitton, W. W.	Almondbury Grammar School.
Holmes, L. C.	Grammar & Coll. S., Carnarvon.
Nichols, P.	Oakfield House, Balsall Heath.
Parkhouse, T.	The College, Hendon.
Philpott, E. R.	Sandwich School.
Potts, T.	Collegiate School, Sunderland.
Shone, H. J.	Whitchurch Grammar School.
Thomas, H. G.	Truro College.
Wilkinson, J.	Whalley Range Coll. S., M'chester.
Williams, H. J.	Vermont College, Clapton.
Williamson, G. L.	Tollington Park College, N.
Buckworth, E.	Kent County School, Birchington.
Clay, F.	Private study.
Clifford, H.	Weston School, Bath.
Dunsford, G.	Cambridge House School, Wigan.
Hardy, G.	Endowed Gram. S., Northwich.
Holland, S. E.	Grammar School, Dudley.
Le Gresley, F.	Gorey, Jersey.
Lomax, J. H.	Ashton High S., Ashton-on-Mersey.
Mayon, M. S.	Grammar School, Knutsford.
Millar, C. S.,	Stanley House, Margate.
Smith, F. J. W.	Sandwich School.
Thomas, G.	Tower House S., Newton Abbot.
Toye, P. W.	Kent Coast College, Herne Bay.
Wilson, R.	1 York Terrace, Liverpool.
Bull, G. F.	Ventnor Collegiate & High School.
Capper, F. H.	Endowed Gram. S., Northwich.
Davies, J.	Wynnstay House School, Wrexham.
Gammond, O. J.	Palmerston House, Ross.
Gomersall, P.	Immanuel Coll., Streatham Comm.
Hart, E. S. I.	83 Montpellier Rd., Brighton.
Horne, E.	Collegiate School, Belper.
Jenkins, H. E.	Cavendish House S., Hammersmith.
Lansdell, W. J. P.	Heath House, Horsmonden.
Mawson, C. B.	St. George's College, Weybridge.
Morecraft, A. T.	Brighton Modern School.
Phillipson, J.	Portsdown High S., Maida Vale.
Prescott, W.	Cambridge House School, Wigan.
Preston, W.	Weston School, Bath.
Pymar, C. A.	Banham Gram. S., Attleboro'.
Railton, E. A.	St. John's Colleges, Brixton.
Sanders, J.	Oxford County School, Thame.
Senior, F.	Weston School, Bath.
Sinclair, L. E.	Woodhouse Grove School.
Stallard, H. O.	Fir Lodge College, Sydenham.
Topp, J.	Anglo-French Coll., Finchley Rd.
Wallace, R. W.	Chatham Institute, Liverpool.
White, H. M.	Ventnor Collegiate & High School.
Attale, H.	Taplow Grammar School.
Bathurst, C. P.	North London High School, N.W.
Benjamin, D. J.	Coopers' Company's S., Stepney.
Chew, E. A.	Anerley High School.
Finch, E.	Ampleforth College, York.
Heathcote, G. W.	Collegiate School, Belper.
Helliar, H. J.	Hemel Hempstead Grammar S.
Hodge, I. L.	38 Tavistock Place, Plymouth.
Hope, W. N.	Holbrake S., Wandsworth Comm.
Hosmer, S.	Bethany House School, Goudhurst.
Ibbotson, W. F.	Wesley College, Sheffield.
Lamb, H. H.	South Hackney College, N.E.
Mason, E. D.	Montrose College, Brixton Hill.
Matterson, G. A.	Bilton Grange School, Harrogate.
Newcombe, S.	Hoe Grammar School, Plymouth.
Pocock, P. J.	Collegiate School, Melksham.
Sleightholme, J.	Queen Eliz. Gram. S., Gainsboro'.
Spouncer, H. S.	Queen Eliz. Gram. S., Gainsboro'.
Anderson, A. H.	Private tuition.
Clarke, E.	Ampleforth College, York.
Dunbar, S. T.	East Cornwall College, Liskeard.
Eldridge, D.	Grammar School, Uckfield.
Field, F. E.	Stanley House, Margate.
Higgins, J. 1.	Truro College.
Hopwood, T. H.	Almondbury Grammar School.
Lacey, C.	Tooting College School.
Morgan, T. H.	Cheltenham High School for Boys.
Phillips, P.	Denbigh Lodge Coll. S., Edgbaston.
Pullen, T. A.	Collegiate School, Melksham.
Roberts, H. E.	Strood Hill School, Rochester.
Rowsell, L. J.	The College, Broadstairs.
Ryder, L. S.	Central High S., Queen's Coll., B'ham.
Simpson, F. S.	Heath House, Horsmonden.
White, A.	The College, Burnham, Somerset.
Willford, H. E.	Thorne Grammar S., Doncaster.
Allen, A.	Kingsbridge Grammar School.
Argall, A. C.	Truro College.
Chandler, H. G.	Burlington House School, Balham.
Foley, E.	Tooting College School.
Gregory, D.	Taplow Grammar School.
Hill, D.	St. Oswald's College, Tynemouth.
James, G.	Halesowen Grammar School.
Johnson, C.	Queen Eliz. Gram. S., Gainsboro'.
Kendle, F. C.	Malvern House, Shirley.
King, C. C.	The Huish School, Taunton.
Nicholls, C.	Weston School, Bath.
Norbury, L.	Sunnyside H. S., Chorlton-c-Hardy.
O'Brien, J.	St. Joseph's Acad., Kennington Rd.
Roberts, H. S.	The Mount, Sheffield.
Tomlinson, W.	Weston School, Bath.
Weston, A. T. J.	Sandwich School.
White, H. E. A.	St. John's Colleges, Brixton.
Wickett, F.	Truro College.
Attale, C. E.	Taplow Grammar School.
Clark, A. B.	Sandwich School.
Cole, H.	St. Oswald's College, Tynemouth.
Hatch, S.	Taplow Grammar School.
Kaye, A.	Almondbury Grammar School.
Kidney, R. C. S.	Private tuition.
Mattocks, W.	Arnold College, W. Bournemouth.
Mosely, L.	Beaufort College, St. Leonards.
Parr, H. J.	Halbrake S., Wandsworth Comm.
Smith, S.	Bethany House School, Goudhurst.
Stahl, J.	St. Joseph's Acad., Kennington Rd.
West, H.	Hall Gate School, Doncaster.
Daly, C.	Woodhouse Grove School.
Dunderdale, H.	Endowed Gram. S., Northwich.
Edmunds, P.	The Grammar S., West Bromwich.
Hawkins, S.	Moldova House School, Clapham.
Hill, C.	Niddry House School, Eccles.
Hinchley, J.	Commercial Academy, Crook.
Illingworth, J.	Yealand Conyers' Collegiate School.
Le Marchand, G. J.	Private tuition.
Maples, P. F.	Oakhurst, Great Grimsby.
Mason, A. H.	Oakfield School, Crouch End.
Needham, H. A.	New Hall Coll., Sutton Coldfield.
Osborn, P. J.	Holmwood House, Hampstead.
Pettitt, C. E.	Halstead Grammar School.
Plant, J. P.	Richmond House S., Handsworth.
Pretty, J.	Taplow Grammar School.
Shapland, W.	Weston School, Bath.
Sikes, G. H.	Queen Eliz. Gram. S., Gainsboro'.
Walker, F.	Halesowen Grammar School.
White, F.	Dunn Foundation S., Crediton.
Wigmore, J.	Palmerston House, Ross.
Gibson, A.	Anglo-French Coll., Finchley Rd.
Gullachsen, L. W.	St. Oswald's College, Tynemouth.
Harper, G. W.	Laurel Bank S., Hr. Broughton.
Hencke, F.	Immanuel Coll., Streatham Comm.
Herman, J. B.	1 York Terrace, Liverpool.
Houtum-Schindler, A.	Taplow Grammar School.
Kennedy, L.	St. Joseph's Acad., Kennington Rd.
Martin, G. R.	Taplow Grammar School.
Read, B. H.	Private tuition.
Tracey, C. F.	Taplow Grammar School.
Allen, A. C.	The Huish School, Taunton.
Butler, H. E.	Anglo-French Coll., Finchley Rd.
Connor, W.	Ampleforth College, York.
Foggon, T. A.	Halstead Grammar School.
Gowar, W. J.	Taplow Grammar School.
Gregory, E. G.	Gravesend Proprietary School.
Hall, C. F.	Bradmore College, Chiswick.
Hearder, K. B.	Hoe Grammar School, Plymouth
King, E.	The College, Burnham, Somerset.
Law, F. D.	Anglo-French Coll., Finchley Rd
Mason, J. P.	Halesowen Grammar School.
Nursey, C. F. L.	Halbrake S., Wandsworth Comm
Stott, J. E.	Almondbury Grammar School.
White, F.	Almondbury Grammar School.
Woodward, H. G.	Grammar School, Knutsford.
Buckingham, J.	Redenhall School, Harleston.
Cooper, J. E.	Charlotte St. High Class S., Bath.
Gifford, C.	Weston School, Bath.
Green, R. L.	Grammar School, Dudley.
Holdaway, F. H.	Ventnor Collegiate & High School.
Kinnings, J. H.	Montrose College, Brixton Hill.
Nott, F. H.	Anglo-French Coll., Finchley Rd.
Stubbs, B. T.	Private tuition.
Alexander, D. M.	Chatham Institute, Liverpool.
Cheatle, N.	Bussage House, Stroud.
Hosier, H. W.	Holloway College, N.
Jaques, H. P.	The College, Broadstairs.
Lewns, A. T.	Rye Grammar School.
Lumaye, G. J. W.	The Polytechnic S., Regent St.
Trick, P. W.	Hemel Hempstead Grammar S.
Wood-Hill, H. G.	26 Chepstow Villas, Bayswater.
Conolly, J. E.	St. Joseph's High School, Cardiff.
Fuller, W. F.	Rye Grammar School.
Lotery, J.	Beaufort College, St. Leonards.
Smith, G. F.	Taplow Grammar School.
Tucker, G.	Taplow Grammar School.
Adams, F. E.	Trafalgar House S., Winchester.
Ingram, H.	Tooting College School.
Kitching, J.	Archbishop Holgate's S., York.
Lawson, A. H. D.	Ashton High S., Ashton-on-Mersey.
Mason, H.	Thorne Grammar S., Doncaster.
Needham, F. G.	Milton College, Ullesthorpe.
Browning, S.	Bussage House, Stroud.
Collier, A.	Taplow Grammar School.
Knapp, A. L.	Chiswick Collegiate School.
Macqueen, F.	Taplow Grammar School.
Morgan, V.	Taplow Grammar School.
Needham, J. G.	Eton House, Hull.
Short, C.	Taplow Grammar School.
West, J.	Tooting College School.
Day, A.	Ashton High S., Ashton-on-Mersey.
Ferguson, A. J.	Private tuition.
Jennings, R. L.	Hoe Grammar School, Plymouth.
Lavender, L.	The Grammar S., West Bromwich.
Mathias, V. S. W.	High Schools, Charlton-c.-Hardy
Niall, E.	Tooting College School.
Robinson, C. E.	Queen Eliz. Gram. S., Gainsboro'.
Sharp, L. C.	Central High S., Queen's Coll., B'ham.
Thain, O.	The College, Burnham, Somerset.
Ward, N.	Vermont College, Clapton.
Calcott, A. B.	Percy House S., North Shields.
Davison, R. H.	St. Bede's College, Sunderland.
Eales, P. J.	Towcester School.
Owen, J. L.	St. Asaph Grammar School.
Reed, H.	The Collegiate School, Barnstaple.
Rudge, J. A.	Halesowen Grammar School.
Spinks, A. K.	Queen Eliz. Gram. S., Gainsboro'.
Sutcliffe, W.	Brighton House Coll. S., Oldham.
Walsh, G.	St. Joseph's Acad., Kennington Rd.

[*The following obtained Special Certificates, having each obtained a General Certificate at a former Examination.*]

Bakewell, C. H.	*bk.*	Collegiate School, Belper.
Glover, B. H.	*bk.*	Collegiate School, Belper.
Stutfield, V. C.	*a. f.*	St. Catharine's S., Broxbourne.
Wickett, C.	*ch.*	Truro College.

PASS LIST OF CANDIDATES FOR CERTIFICATES OF PROFICIENCY IN MERCANTILE SUBJECTS.

Hannam, J. D.	*sp. Book-keeping*	Woodhouse Grove School.
Smith, H. W.	*sp. Shorthand and Book-keeping*	Woodhouse Grove School.
Waters, E.	*sp. Shorthand and Book-keeping*	Loughborough College, Brixton.

GENERAL CLASS LIST—GIRLS.

N.B.—The small italic letters denote that the Candidate to whose name they are attached obtained a Special Certificate in the subjects specified.

(*For list of abbreviations see page* 98.)

FIRST CLASS.—HONOURS DIVISION.

Trüdinger, C. Girls' High S., Spring Grove, W.
s. e. a. al. eu. tr. ger. ph.
Chapman, A. S. Victoria College, Belfast.
e. eu. tr. f. ger. ph.
Moore, K. V. M. C. Private study.
e. f. nat. p.
Berry, E. *s. e. f. ger.* The College, Huddersfield.
Waters, E. Clapham Pk. Ladies' Coll., S.W.
s. e. f. ger.
Griffith, K. L. *e.* Private tuition.
Murray, A. M. *e. f. l.* Victoria College, Belfast.
Richardson, L. M. The College, Huddersfield.
s. e.
Aked, H. F. *s. d. mu.* Girls' High S., Spring Grove, W.
Ward, A. M. *f.* Belmont House S., Richmond.
Milledge, M. *f.* Manor Mount S., Forest Hill.

FIRST CLASS.—PASS DIVISION.

Smith, M. S. *s. f. ger. d.* Private tuition.
Mabbs, B. M. *s. p.* Stroud Green High School, N.
Wood, E. M. *s, e.* Claremont House, Notting Hill.
Goodwin, F. *e. f.* Higher Tranmere High S. for Girls
Mackereth, C. M. *s.* The High S., Sutton, Surrey.
Vincent, M. E. *s. d.* Private tuition.
Crowe, E. L. C. *s. f.* Fern Bank, Wandsworth Comm.
Turnbull, J. *s.* City of Durham S. for Girls.
Cleveland, C. E. Girls' Coll. & High S., S'hampton.
e. mu.
Hill, J. C. *d. mu.* Wintersdorf, Southport.
Godsmark, F. M. *s.* Wintersdorf, Southport.
Hogg, M. D. *s.* Abney Park College, N.
Buckle, G. *s. f. p.* Camperdown, West Dulwich.

GIRLS, FIRST CLASS—*Continued.*

Taylor, E. E.	*s.*	Princess Helena Coll., Ealing.
Woodcock, E.	*s f. d.*	Clapham Pk. Ladies' Coll., S.W.
Leese, G.	*d.*	Wintersdorf, Southport.
Daniel, E.		Milford House, Abergavenny.
Robinson, G. E.	*e.*	Oakhurst Coll., E. Dulwich Rd.
Ascroft, M.		Private study.
Waddell, A. J.		Grosvenor College, Bath.
Furness, M. E.		Private tuition.
Robson, E. A.		St. Andrew's House, Hove.
Grierson, E. C.		7, Hyde Terrace, Tollington Pk.
Benn, A. M. R.	*p.*	All Saints' Highgate Mid. Class S.
Noble, I.	*d.*	Wintersdorf, Southport.
Gent, E. J. C.	*e.*	Datchelor Coll. S., Camberwell.
Kynaston, E. F.	*s.*	36, Balmoral Rd., Fairfield, L'pool.
Joslin, E. M.		Wintersdorf, Southport.
Disteli, M.	*f. ger.*	Queen's College, Wood Green.
Culverhouse, M.	*e.*	Grosvenor College, Bath.
Pegler, E. M.		Knightsville College, Lewisham.
Taylor, S.		The College, Huddersfield.
Evans, G. M.	*f.*	Fern Bank, Wandsworth Comm.
Carter, M.		Wintersdorf, Southport.
Cook, E. E.		48, Trinity Square, Borough.
Edmonds, A. L.		Stafford House S., Clapham.
Shillington, M. C.		Wintersdorf, Southport.
Tilley, F. L.		The Hollies, Handsworth.
Johnson, A. I.		Woodcote Villa, W'dcote, Epsom
Whitehead, A. I.	*s. d.*	Wintersdorf, Southport.
Fisher, E. M.		Ladies' College, Goudhurst.
Short, E. M.		Hamilton College, Sidcup.
Chamney, M. E.		7, Hyde Terrace, Tollington Pk.
Cooke, A. B.		Wintersdorf, Southport.
Kozel, E. A.		Datchelor Coll. S., Camberwell.
Laumonier, L. A. V.	*bk. f.*	Private tuition.
Miers, E. A.		Granville Coll., West Croydon.
Whitworth, C. S.	*s. d.*	Ladies' Coll., Water Orton.
Haigh, S. E.		Fern Lea, Fallowfield, M'chester.
Mason, B. M.		Girls' Collegiate S., Bexley Heath.
Robinson, M. H.		Granville House S., Hornsey Rise.
Smith, M.		Private tuition.
Watson, A. M.	*d.*	Collegiate School, Sunderland.
Cox, D. C.		Cashiobury House, Southend.
Russell, M.	*mu.*	Victoria College, Belfast.
Williams, A. E. W.		Grosvenor College, Bath.
Underwood, C.		Knightsville College, Lewisham.
Donald, L. E.		Southolme H. S., Whalley Range.
Greaves, E. D.	*d.*	Wintersdorf, Southport.
Mackie, E. K.	*f.*	Datchelor Coll. S., Camberwell
Buckley, E. F.		Wintersdorf, Southport.
Hopwood, E. M.		The College, Huddersfield.
Picton-Warlow, V. M.	*f.*	Ryeford Hall, Stonehouse.
Apperly, R. C.	*d.*	Stroud Ladies' College.

SECOND CLASS.—1ST DIVISION.

Wilkins, R. C.	*f.*	Private study.
Underdown, L.	*mu.*	Wm. Gibbs' Middle S., Faversham.
Marles-Thomas, M.		Girls' Collegiate S., Carmarthen.
Berry, R.		The College, Huddersfield.
Lotz, L. A.	*d.*	Maidenhead High School.
Butler, R.	*mu.*	High School for Girls, Tisbury.
Westlake, W. A.		Private tuition.
Whiting, E.		Wm. Gibbs' Middle S., Faversham.
Chettle, M. A.	*ed.*	Grosvenor College, Bath.
Mason, A.		Private study.
Harding, A.		Private study.
Mew, E. L.	*s. e. d.*	47, Ladbroke Grove, W.
Todd, M. E.	*s.*	The Vicarage S., Clapham Comm.
Heaton, L. M.	*s.*	Oakfield, West Dulwich.
Wetherell, F. M.	*f.*	Hr. Trammere High S. for Girls.
Bentley, C. J.	*s. d.*	Wintersdorf, Southport.
Fry, M. R.	*d.*	Private study.
Miller, N. M.		Ashchurch Pk. Collegiate S., W.
Mossop, M.		Queen's College, Wood Green, N.
Davis, E.		Milford House, Abergavenny.
Grant, L. S.		Stroud Green High School, N.
Smith, M. M.	*d.*	The Laurels, Wetherden.
Patching, M.	*d.*	Jermingham H., Tunbridge Wells.
Rawstron, M. H.		Stroud Green High School, N.
Black, L. S.		Stroud Green High School, N.
Henry, J.		Ladies' S., Gordonville, Coleraine.
Evans, E. M.		Fern Bank, Wandsworth Common.
Simson, A. E.		Private study.
Walkom, C. A. P.		Ashchurch Pk. Collegiate S., W.
Bullock, B.	*d.*	Merevale House, Newport, Salop.
Gaiger, F. A.		9 Kingsgate Street, Winchester.
Weston, A.		Wm. Gibbs' Middle S., Faversham.
Bournes, H. M.	*e. d.*	Private study.
Graham, M.	*d.*	Whetstone House S., Hr. Trammere.
Martin, F.	*f. d.*	Southfield School, Hessle.
Grundy, E. M.	*d.*	Private tuition.
Harris, M.	*d.*	Merevale House, Newport, Salop.
Tilly, K.		10 Kingsgate Street, Winchester.
Austen, F. J.	*d.*	Stroud Green High School, N.
Stuart, M.		Queensborough Coll., Notting Hill.
Watkins, C.		Stratford Abbey College, Stroud.
Brierley, F. E.	*d.*	Private study.
Syson, H.	*d.*	Edgworth House S., Finsbury Pk.
Chabot, J. O.		Oakfield, West Dulwich.
Schenk, M. P. E.	*d.*	Beaufort Villa, South Norwood.
Simon, S. S.	*s.*	Wintersdorf, Southport.
Bartlett, M. L.		The Vicarage S., Clapham Comm.
Brierley, M. H. B.	*s. e.*	Glebe Land School, Rochdale.
Galloway, G.		Ellesmere Road School, Eccles.
Nisbett, M. M'K.		Oakfield, West Dulwich.
Hunt, G.	*mu.*	Wm. Gibbs' Middle S., Faversham.
Morgan, D.		Hampden Lodge, Moseley.
Sones, F. E.		The Vicarage S., Clapham Comm.
Thomas, E. E.		Girls' Collegiate S., Carmarthen.
Whiting, M.	*mu.*	Wm. Gibbs' Middle S., Faversham.
Epps, E.	*d.*	Manor Mount School, Forest Hill.
Dutton, E. M.	*d.*	Private tuition.
Tyler, T.		Bishopsgate Girls' School, E.C.
Deakin, B. A.		The Hollies, Handsworth.
Methley, A. M.	*d.*	Castledine, Anerley Park, S.E.
Stokes, K. E.		Moseley High School for Girls.
Ferrar, G.		Camperdown, West Dulwich.
Ireland, A. E.		The Hollies, Malvern.
Peat, E.		Chertsey House, Red Hill.
Hill, C. H.		3 Snowden Terrace, Oundle.
Blenkarn, M. A.		Hr. Trammere High S. for Girls.
Britten, L. M.		The Grammar S., Maidenhead.
Broadfoot, M.		The Old Grammar School, Thame.
Cohen, M.		Brighton House, Edgbaston.
Fernie, J. M.		Private study.
Hobday, M.	*d.*	Wm. Gibbs' Middle S., Faversham.
Ironside, E. M.	*f.*	Manor Mount School, Forest Hill.
Clapperton, M.		Pelican Ho. Coll., Denmark Hill.
Stone, E. M.		The Hollies, Handsworth.
Welsh, E. L.		Friars House, Hereford.
With, O. B.		Private tuition.
Marchant, E.		Hereford Ladies' College.
Mycock, K. J.		Newton Hall, Middlewich.
Andrews, C. E.		High School for Girls, Radcliffe.
Berry, E. H.		Clapton & Hackney High School.
Bonham, L.		210 Tufnell Park Road, N.
Buckingham, H. E.		Acacia House, Harleston.
Crick, A. E.	*d.*	7 Hyde Terrace, Tollington Park.
Swanwick, I.		Private tuition.
Hughes, F.		Girls' Collegiate S., Carmarthen.
Plowright, H. I.		Pelican Ho., Coll., Denmark Hill.
Duckworth, G.		Datchelor Coll. S., Camberwell.
Manton, M.		Hampden Lodge, Moseley.
Sauber, I. E.	*ger.*	Birklands, Holland Park Gardens.
Watkins, G.	*d.*	Milford House, Abergavenny.
Watson, A.		Wintersdorf, Southport.
Hanna, R.		Victoria College, Belfast.
Stainforth, M. J.		Stroud Green High School, N.
Boyd, M.		Ladies' S., Gordonville, Coleraine.
Tarrant, E. F.		Bishopsgate Girls' School, E.C.
Turner, E. E.		Bishopsgate Girls' School, E.C.
Williams, S.		Girls' Collegiate S., Carmarthen.
Baron, E.		Pelican Ho. Coll., Denmark Hill.
Bray, M. R. M.		Private tuition.
Britten, F. H.		The Grammar S., Maidenhead.
Calvert, F.		Glebe Land School, Rochdale.
Chancellor, J.		Victoria College, Belfast.
Holmes I.		Clifton House School, Bracknell.
Jackson, M.		Ladies' S., Gordonville, Coleraine.
Skelton, E. E.		Pemberton College, Highgate.
Brailsford, M. R.		Wintersdorf, Southport.
Pitcher, E.		The Old Grammar School, Thame.
Walton, B.		Grosvenor College, Bath.
Braithwaite, H. M.	*f*	Argyle Road School, Southborough.
Flambert, A.		Girton House, Yeovil.
Maedonald, F.		210 Tufnell Park Road, N.
Atkins, E. I.	*mu.*	Great House School, Cowbridge.
Couzens, E. R.		Alexandra College, Taunton.
Dannatt, E.		The College, Huddersfield.
Diehl, T. A.	*d.*	Highfield, Highbury Place, N.
Taylor, E. M.		Stroud Green High School, N.
Downey, B.		Summerland House, Honiton.
Kirk, M.		The College, Huddersfield.
Ramage, F. M.		Broomfield High S., Manchester.
Seal, F. J. E.		Cleveland College, S. Hackney.
Todd, B.		The College, Huddersfield.
Whiteway, S. E.		Girton House, Yeovil.
Banbury, E. A.		Devonia House School, Exeter.
Bell, M. J.		S.W. London Coll., Clapham Rise.
Bull, E.		The Laurels, Wetherden.
Clifton, F.		Oakhurst, Great Grimsby.
Power, E. A.		Victoria Road School, Harborne.
Saxon, F. M.		Private study.
Nichols, C.		Bishopsgate Girls' School, E.C.
Parslow, E.		Ivy House Coll. S., Crouch Hill.
Porritt, E.		The College, Huddersfield.
Coates, M. E.		Victoria College, Belfast.
Devereux, E.		High S. for Girls, Tewkesbury.

SECOND CLASS.—2ND DIVISION.

Bartlett, F. E.		The Vicarage S., Clapham Comm.
Otter, A. E.		High S. for Girls, Tewkesbury.
Breakell, C. I.		Crofton House, Cheetham.
Browne, F. I.		Maidenhead High School.
Hearder, E. S.	*d.*	47 Ladbroke Grove, W.
Kirk, L. H.		The College, Huddersfield.
Rennie, B.		Brighton House, Edgbaston.
Whitley, E. G.	*d.*	Fern Bank, Wandsworth Comm.
Cameron, H.		Birklands, Holland Park Gardens.
Hall, K.		Mount Pleasant School, Barnsley.
Henderson, M. J.		Forest Hall S., Newcastle-on-Tyne.
Polsue, M. L.		Queen's Coll., W. Kensington Pk.
Redgrave, F.		N. Camberwell High Schools, S.E.
Wood, J. K.		Stroud Green High School, N.
Worts, A. M.		Pelican Ho. Coll., Denmark Hill.
Henley, H. P.		Dartmouth Girls' School.
Hughes, L.		Ladies' S., Gordonville, Coleraine.
Perkin, J. K.		Betley Ladies' College.
Smeeton, L.	*d.*	Convent of Mercy, Chelsea.
Allsop, H. C.		Jerningham Ho., Tunbridge Wells.
Edmondson, A.		Norwood College, Withington.
Thorpe, A. F.		Westbourne House S., Chiswick.
FitzRoy, E. S. L.		S.W. London Coll., Clapham Rise.
Judge, J. E.		Chess Vale House S., Chesham.
Rollinson, A. R.		Bishopsgate Girls' School, E.C.
Atkins, M. E.		Pelican Ho. Coll., Denmark Hill.
Culverhouse, H.		Grosvenor College, Bath.
Goode, B.		Hampden Lodge, Moseley.
Shenton, J.		Belmont House S., Richmond.
Sparshott, A. L.		Brownhills House, Southampton.
Stanton, H.		Bishopsgate Girls' School, E.C.
Wright, A. S.		Wylde Green S., Birmingham.
Bott, B. M.		1 St. John's Terrace, Chelmsford.
Goodall, E. A.		2 St. Stephen's Villas, W. Norwood.
Hearder, L. S.		47 Ladbroke Grove, W.
Hinchliffe, A. N.	*d.*	Craigholm, Buxton.
Keighley, A. M. M.		7 Clapton Square, N.E.
Richards, L.		Lansdown House School, Stroud.
Whitelaw, H.		7 Hyde Terrace, Tollington Park.
Gardner, L. E.		The Old Grammar School, Thame.
Heaton, P.		The College, Huddersfield.
Levin, E. M.		Private tuition.
Smedley, A. M.		Birklands, Holland Pk. Gardens.
Allan, M.		Russell House, Plymouth.
Grundy, M.		Broomfield High S., Manchester.
Smith, L. L.		Museum Terrace S., Chelmsford.
Thompson, E.		Victoria Road School, Harborne.
Thomson, J. D.		Manor Mount School, Forest Hill.
Underdown, G.	*d.*	Wm. Gibbs' Middle S., Faversham.
Hepple, L. C.		Private tuition.
Milling, E. N.		86 Ladbroke Grove Road.
Smith, J.		Private tuition.
Smith, M. L.		Grosvenor College, Bath.
Wild, M. G.		Manor Mount School, Forest Hill.
Binnie, E. F.		Girls' High S., Spring Grove, W.
Bonham, K.		210 Tufnell Park Road, N.
Haigh, M. L.		Fern Lea, Fallowfield, M'chester.
Hitchman, C. L.		Rose Hill House, Whittington.
Smart, M. E.		Pelican House Coll., Denmark Hill.
Bridgland, B.		Jerningham Ho., Tunbridge Wells.
Britten, E. E.		The Grammar S., Maidenhead.
Brumleu, O. C. W.		Private tuition.
Davies, A. E.		Boughrood House College, Brecon.
Ewen, C. M.	*d.*	Southfield School, Hessle.
Garman, M. E.		Pelican House Coll., Denmark Hill.
Gay, E. A.		Brownhills House, Southampton.
Hardy, M. E.	*d.*	Clermont House, Cranbrook.
Kendall, M.		Granville College, West Croydon.
Ryan, M. E.		Private tuition.
Harrod, K. E.		Oxford College, Gunnersbury.
Marman, M. B.		3 Park Villas, Salisbury.
Murray, M.		Millburn School, Forest Hill.
Robson, M.		Ladies' School, Spilsby.
Slater, A.		Clevedon House, Stoke Newington.
Coates, B.		Brighton House Coll. S., Oldham.
Mansell, R. B.		Tooting High School.
Shaw, F. E.		Private tuition.
Atkinson, M.		Oakhurst, Great Grimsby.
Davies, M. J.	*mu.*	Great House School, Cowbridge.
Griffin, L.		The Elms, Coventry Park, S.W.
Shaw, A.		The College, Huddersfield.
Tupper, B.		Cranleigh Ho., Adelaide Rd., N.W.
Wheeler, E. C.		Deacon's School, Peterborough.
Marsh, L.		Bishopsgate Girls' School, E.C.
Archer, D.		Farington Ladies' Coll., Blackpool.
Burrows, E.		The Hall School, Billingborough.
McLean, S. B.		4 Princess Gardens, Belfast.
Smith, J. E.		Glebe Place S., Stoke Newington.
Woodcock, M.		Whetstone Ho. S., Hr. Tranmere.
Bray, M. C.		Thornhill College, Barnsbury.
Brooksbank, A. M.		1 Grinfield Terrace, Liverpool.
Wood-Hill, K. M.		3 Pembridge Gardens, Bayswater.
Lougher, C.		Saint Andries, Penarth.
Orton, E. K.		Kenilworth College, Hastings.
Prentice, E. M.		Acacia House, Harleston.
Radcliff, E. G.		36 Balmoral Rd., Fairfield, L'pool.
Syer, A.		Highfield, Highbury Place, N.
White, M.		Brincliffe, Nottingham.
Whitney, A. N.		Ladies' College, Goudhurst.
Anderson, E.		Ladies' School, Ballymena.
Ellis, B. S.		Cecile House, Crouch End.
Flyter, L.		Elgin College, Bayswater.
Hotten, E.		High School for Girls, Tisbury.
Moss, H. L.		Stroud Green High School, N.
Seaward, A. E.		Oroolong House, Colyton.
Aulton, M.	*d.*	Private tuition.
Brown, L. B.		South College, Kettering.
Cooper, R.		Palmerston House, Ross.
Folson, E. E.		Mayall College, Brixton.
Fox, M. M. S.		The Hawthorns, Ealing Common.
Johanning, L. C.		Finsbury Park High School, N.
Lewis, A. A.		The Hollies, Handsworth.
Mead, M. B.		Cashiobury House, Southend.
Paradise, F.		Milford House, Abergavenny.
Sherren, A. C.		Alpine Villa S., Sunninghill.
Watkins, G.		Fern Bank, Wandsworth Common.
Withers, J. M.		St. Mary's School, Wantage.
Daniels, A. G.		Stratford Abbey College, Stroud.
Harris, A. M.		Girton House, Yeovil.
Mercer, E.		Acres House, Edenfield, Bury.
Stagg, E.		Farington Ladies' Coll., Blackpool.
Knights, L. R.		Stanley House, Norwich.
Nichols, C. P.		Grosvenor College, Bath.
Raven, M.		Mornington Ho., W. Kensington.
Robinson, F. P.		Eden Lodge, Handsworth.
Saunders, E. M.		Belgrave Ho. S., Wandsworth.
Whittle, S. G.		Boughrood House Coll., Brecon.
Davis, M. L.		Brighton High School.
Deacon, E. J.		Park House, Belmont Park, Lee.
Early, E. H.		Wintersdorf, Southport.
Haagensen, C.		Oakhurst, Great Grimsby.
Hall, A.		Anglo-French School, Leamington.
Ireland, L. C.		Glemham House S., Southport.
Montgomery, E. J.		4 Princess Gardens, Belfast.
Roy, C. M.		9 St. John's Park, Blackheath.
Alexander, E.		Ladies' School, Ballymena.
Franklin, G.		9 Kingsgate Street, Winchester.
Greenway, C.		54 Kensington Gardens Sq., W.
Jupp, C		Belgrave Collegiate School, S.W.
Langdon, M. L.		Burlington House School, Clifton.
Mackinder, A.		Westgate House, Peterborough.
Russell, K.		Brookside School, Walsall.

GIRLS, SECOND CLASS—*Continued.*

Tailby, M. L.	Chiswick High School for Girls.
Collins, E.	Lime House, Kensington.
Mullett, B. C.	High S., Wood Vale, Forest Hill.
Waters, M. L.	5 Abbeville Rd. N., Elms Pk., S.W.
Yoyce, K.	Ashdeane College, Croydon.
Allen, A.	South Front Acad., Southampton.
Brown, L.	Ladies' Col., Gordonville, Coleraine.
Coates, M. M.	High S., Chorlton-cum-Hardy.
Collier, A. L.	Brownhills House, Southampton.
Garnham, C. A. L.	Ilmorran Lodge, Upper Norwood.
Pitt, E.	The College, Huddersfield.
Sherman, E. E.	Ashchurch Park Collegiate S., W.
Bartlett, H.	Grosvenor College, Bath.
Bennett, E. A.	Chorley Grammar School.
Dodgson, C. L.	Private study.
Parsons, N.	Stroud Ladies' College.
Sprange, E. A.	Stoke Newington Rd. High Cl. S.
Clutten, E.	St. Mary's School, Bungay.
Jamieson, J.	The Elms, Belmont, Belfast.
Vaughan, M. E.	Glemham House S., Southport.

SECOND CLASS.—3RD DIVISION.

Bloxsidge, M.	Elgin College, Bayswater.
Eldridge, K.	Private tuition.
Ireland, M. A.	The Highlands, Lewes.
Lovibond, B. D.	Alexandra College, Taunton.
Mock, L.	Grosvenor College, Bath.
Smith, A.	High S. for Girls, Herne Bay.
Turner, J. M.	Ladies' Coll., Little Qn. St., W.C.
Walter, F. *d.*	5 Binswood Avenue, Leamington.
Ware, E. A. *d.*	Longford Girls' School, Bristol.
Belton, G.	The College, Huddersfield.
Davey, L. M.	Westgate House, Peterborough.
Kemp, S. *d.*	Wintersdorf, Southport.
MacArthur, K. L.	Up. Lichfield Grove, Finchley.
MacMunn, N. E.	Private tuition.
Pounden, J.	4 Princess Gardens, Belfast.
Wilson, M. E.	Clevedon Lodge, Reading.
Aldwinckle, F.	Ivy House Coll. S., Crouch Hill.
Cousins, A.	Ladies' College, Frenchay.
Paton, E. M.	Highfield, Highbury Place, N.
Abercrombie, E.G.L.	Stroud Ladies' College.
Adames, L. M.	Clifton House School, Bracknell.
Brierley, E.	Private study.
Harvey, E.	Queen Eliz. S., W. Kensington.
James, E. L.	Bellevue, Binstead.
Ladler, L. N.	Belmont House S., Richmond.
Reid, A. M.	Glebe Land School, Rochdale.
Hawkins, M.	Grosvenor College, Bath.
Jacob, A.	The Hollies, Malvern.
Kemp, A. M. *d.*	Wintersdorf, Southport.
Littlewood, H.	The College, Huddersfield.
Smith, E. C.	2 St. Stephen's Villas, W. Norwood.
Chapman, D. A.	4 Princess Gardens, Belfast.
Crisp, W. B.	The Hollies, Handsworth.
Kaberry, E.	Private tuition.
Lowe, L. K.	Hamstead Hill S., Handsworth.
Nice, E. S.	Ropergate, Pontefract.
Simpson, M. E.	Craigholm, Buxton.
Taylor, E.	Osmond House, Botesdale, Diss.
Toy, E. M.	Middle Class S., Littlehampton.
Wilkerson, G. E.	3 Cranford Villas, Maidenhead.
Coates, A.	Camperdown, West Dulwich.
Gimson, E.	Chiswick High School for Girls.
Rattey, H. E.	Askow College, Uxbridge Rd., W.
Ball, O.	Girls' School, Ashby-de-la-Zouch.
Beaven, M.	Stratford Abbey College, Stroud.
Bennett, L. E.	Carlton House, Bristol.
Bushby, A. V.	The Bryn, Ruabon.
Dugdale, K. J.	Kelvedon Lodge, Sideup Hill.
Harral, E.	Conv. of Ladies of Mary, Croydon.
King, E.	High S. for Girls, Tewkesbury.
Margarson, R.	Fairfield House S., E. Dereham.
McFaul, M. K.	St. Joseph's Con., Claylds Rd., S.W.
Molineux, A. E.	Preston Classical & Comm. S.
Stevenson, M. E. V.	32 Westbourne Park Villas, W.
Beaumont, A.	Oak Hill School, Huddersfield.
Cooper, A. G.	Irvine House, Derby.
Kimmins, W. E. G.	Ryeford Hall, Stonehouse.
Lotz, F.	Belmont House S., Richmond.
Shaw, F. D. *d.*	Girls' High S., Spring Grove, W.
Shaw, S.	Kenilworth College, Hastings.
Caldwell, K. E.	Victoria College, Belfast.
Clarke, M.	Ivy House Coll. S., Crouch Hill.
Hindley, M.	Beech House School, Eccles.
Kennard, B. E.	Belgrave House School, Lee.
Speedyman, M. A.	314 Romford Road, Forest Gate.
Cheeswright, E. S.	Holmeroft, Loughton.
Knight, B.	Pelican Ho. Coll., Denmark Hill.
Pearce, A. J.	St. Mildred's, W. Cromwell Rd. S.W.
Adcock, M. F.	Godolphin Ladies' S., Salisbury.
Brand, G. M	The Grove, Hooe, Pevensey.
Cudlipp, C. A.	Private tuition.
Griffiths, B.	Stroud Green High School, N.
Kyle, I. T.	Longford Girls' School, Bristol.
Lewis, E.	Private tuition.
Mayers, E. M.	Oakfield, West Dulwich.
Osborne, H. L.	St. John's College, Ashbourne.
Robinson, B.	Brincliffe, Nottingham.
Rogers, L.	Eastgate, Hillmartin Road, N.
Spencer, F. A.	St. Joseph's Co., Claylands Rd. S.W.
Thompson, E. W.	Private tuition.
Barnes, H. M.	18 Britannia Square, Worcester.
Bates, D.	3 Park Villas, Salisbury.
Blyton, H. J.	Point View S., Higher Broughton.
Chardon, E.	Elgin College, Bayswater.
Fowler, N.	Oakhurst, Great Grimsby.
Gath, M.	Grosvenor College, Bath.
Patterson, J.	The Elms, Belmont, Belfast.
Prockter, F. C. E.	Avondale College, Bowes Park, N.
Stringer, A.	Kelvedon Lodge, Sideup Hill.
Callaghan, H.	Conv. of Ladies of Mary, Croydon.
Kentish, N.	Gresham College, Brixton Road.
Morley, A. E.	Knightsville College, Lewisham.
Stent, E. L.	"Berrima," Ferne Park Rd., N.
Sutton, G. A.	Park Crescent High S., Worthing.
Tompson, L.	Ryeford Hall, Stonehouse.
Agard, G. H.	All Hallows Orphe., Ditchingham.
Buskin, A. G.	Private tuition.
Gregory, L. A.	Avondale College, Bowes Park, N.
Parton, M. E.	Betley Ladies' College.
Tarratt, K.	Collegiate House, Leicester.
Clark, A. M.	Brookfield House S., Manchester.
Clarkson, M.	Hereford Ladies' College.
Hibberd, G.	Belmont House S., Richmond.
Longland, P.	The Rookery, King's Norton.
Macdonald, M. G.	Ladies' S., Gordonville, Coleraine.
Shaw, M. J.	Victoria College, Belfast.
Thompson, M. H	10 Wallace Terr., Ryton-on-Tyne.
White, H. M.	Sherringham House S., Mansfield.
Worth, B. M.	Private tuition.
Hitt, B.	Summerland College, Honiton.
Ketton, L. M.	Fairbank, Fulwood Pk., Preston.
Morgan, M. H.	Clarendon Girls' School, Kineton.
Robertson, R. M.	Granville House S., Hornsey Rise.
Brown, E. S.	Westgate House, Peterborough.
Dickinson, A. M.	Knightsville College, Lewisham.
Eglinton, M. M.	Market Place School, Reepham.
Hooper, E. A.	"Y. Garn," Bromley, Kent.
Studdert, C.	Oakfield, West Dulwich.
Taylor, S. A.	Dalestorth House, Mansfield.
Thompson, M.	Osmond House, Botesdale, Diss.
Watson, F. R.	High School for Girls, Herne Bay.
Young, A. C.	The Hawthorns, Ealing Common.
Davies, A.	Olinda, New Brighton.
Eachus, F. H. E.	Private tuition.
Grigor, A. G.	Cashiobury House, Southend.
Hare, M. A.	Ladies' Seminary, Crook.
Lamb, B.	Harrow Ho. Coll., Tollington Pk.
Lloyd, G.	New Prospect Ho., Southampton.
Sapsford, E. D.	Bishopsgate Girls' School, E.C.
Jackson, E. E.	Abney Park College, N.
Lees, H.	Victoria Road School, Harborne.
Weekes, H.	Summerland College, Honiton.
Broad, A. E.	17 Tavistock Place, Plymouth.
Green, D.	Wintersdorf, Southport.
Rush, A. M.	Acacia House, Harleston.
Trickett, A. J.	Woodhouse Hall, Leeds.
Endall, E. M.	St. Helier's College, Shifnal.
Worts, F. A.	Pelican House Coll. Denmark Hill.
Davis, K.	Milford House, Abergavenny.
Heap, E. B.	Glebe Land School, Rochdale.
Bullock, N. F.	Knightsville College, Lewisham.
Coombs, F. K.	The Abbey, Beckington, Bath.
Sisterson, R.	Martin's Villa S., Sandhurst, Berks.
Wenn, L. M.	Mayall College, Brixton.
Dunelow, E.	Girls' School, Ashby-de-la-Zouch.
Waddington, W. L.	Ropergate, Pontefract.
Williams, F. E.	Foveran, Wavertree, Liverpool.
Dickie, E. J. M.	"Airedale," Streatham Common.

THIRD CLASS—1ST DIVISION.

Hare, M. A.	Private tuition.
Gardiner, M. *ph., d.*	Datchelor Coll. S., Camberwell.
Puzey, M. J. *d., mu.*	Heathfield Ho., Norton, Malton.
Wotherspoon, M. R.	Stroud Green High School, N.
Jones, F. S.	Private study.
Herbelet, M. *f.*	Private tuition.
Tremlett, E. J.	Bishopsgate Girls' School, E.C.
Kemp, A. *f.*	Wintersdorf, Southport.
Smith, N.	Private tuition.
Armstrong, S. *d.*	Elwy Hall School, Rhyl.
Atkins, L. L.	Private study.
Henderson, A.	Gravesend Proprietary School.
Plummer, E.	Ashdeane College, Croydon.
Wilford, E.	Datchelor Coll. S., Camberwell.
Hodgson, M. T. *d.*	The Manse, Malvern Wells.
Williams, M.	Grosvenor College, Bath.
Donaldson, L.	S.W. London Coll., Clapham Rise.
McGowan, A. G. *mu.*	Wintersdorf, Southport.
Winder, M. *d.*	Private study.
Russell, J. G. *d.*	Brookside School, Walsall.
Sidford, M. *d.*	The Vicarage S., Clapham Common.
Beard, E. E.	Cheltenham Ladies' College.
Whyatt, L. M.	Southolme High S., Whalley Range.
Evans, A. A. *d.*	Elwy Hall School, Rhyl.
Pickford, A. H.	Barnfield House, Hyde.
Swanwick, E. M. *d.*	Private tuition.
Halstead, M.	The College, Huddersfield.
Makin, N.	Lyndthorpe, Romford.
Challiner, F. M. *d.*	Betley Ladies' College.
Goddard, M. L.	Gravesend Proprietary School.
Wadsley, M. A. L.	Pelican House Coll., Denmark Hill.
Williamson, E. L.	St. Winifred's, West Hampstead.
Archer, A.	Gravesend Proprietary School.
Varwell, G.	36 Balmoral Rd., Fairfield, L'pool.
Nicholson, M.	Convent of Mercy, Chelsea.
Onyon, L. *d.*	Clermont House, Cranbrook.
Edwards, C. S.	West View, Caterham Valley.
McElderry, E. M.	Victoria College, Belfast.
Prince, M. E.	Private tuition.
Dakin, M. S.	The Old Grammar School, Thame.
Goss, M. E.	Boughrood House College, Brecon.
Perry, F.	High School, Wood Vale, Forest Hill.
Close, E. M. M. *d.*	Cambridge Coll., Shepherd's Bush.
Dutton, A. B.	Private tuition.
Hargreaves, E. M.	Alderhurst, Sale.
Ferguson, S. P.	Carlisle High School for Girls.
Simmons, E. S.	High School, Wood Vale, Forest Hill.
Walser, A.	Stroud Green High School, N.
Hepple, E. B.	Private tuition.
Pinchin, A. M.	Private study.
Chanler, E.	Grosvenor College, Bath.
Dunstan, E. L.	16 Edward Street, Sheerness.
Quaile, E. P.	Higher Tranmere High S. for Girls.
Williamson, C. A. *d.*	The Roystons, Grove Pk., Chiswick.
Wilson, A. M.	Private tuition.
Worger, A. M.	Private study.
Baker, F. *d.*	Brighton House, Edgbaston.
Dixon, A. M.	Airethwaite School, Kendal.
Foulds, E. J.	Ribblesdale College, Hastings.
Cowan, M.	Wellington Pk. Ladies' S., Belfast.
Curling, C. *d.*	Wm. Gibbs' Middle S., Faversham.
Eedes, I. M.	Ladies' College, Goudhurst.
Ferguson, V. M.	Carlisle High School for Girls.
Hardy, L. C.	Stroud Green High School, N.
Jones, M. L.	Betley Ladies' College.
Sage, B.	Grosvenor College, Bath.
Sanderson, K.	Craigholm, Buxton.
Plowman, F. E.	The Ridgway School, Enfield.
Shaw, M.	Airethwaite School, Kendal.
With, A. D.	Private tuition.
Yeomans, F. *d.*	Merion House, Brierley Hill.
Dyson, M.	Elwy Hall School, Rhyl.
Hatch, L. C.	9 St. John's Park, Blackheath.
Kirker, M. A.	Victoria College, Belfast.
Stuttard, F. K. *d.*	Crofton House, Cheetham.
Webb, A.	Ladies' College, Goudhurst.
Beckingsale, M.	Public Day School, Cheltenham.
Brandenburg, M. S.	Manor Mount School, Forest Hill.
Chappel, H. C. E.	Private tuition.
Cooper, M.	The Old Grammar School, Thame.
Lovell, V. E.	St. Winifred's, Clifton.
Mosby, E. G.	Clifton House School, Swinton.
Allen, B.	Broomfield High S., Manchester.
Church, L.	Grosvenor College, Bath.
Goodwin, E. A.	South College, Kettering.
Ross, A. C.	Higher Tranmere High S. for Girls.
Siegle, E.	Oakfield, West Dulwich.
White, M. L.	Russell House School, Grimsby.
Wotherspoon, A. H.	Stroud Green High School, N.
Hill, S.	4 Princess Gardens, Belfast.
Mackie, C.	Grosvenor College, Bath.
Pope, W. E. D.	Surbiton High School.
Severs, D.	Airethwaite School, Kendal.
Thorne, E. H.	Alexandra College, Taunton.
Woodrow, E. M.	Inglewood, Bramhall, Stockport.
Barber, M. N.	16 Edward Street, Sheerness.
Ebel, M. A.	Rectory Place School, Woolwich.
Steede, H.	Private tuition.
Thomas, M. A.	Grosvenor College, Bath.
Coulson, M. K. E.	Stroud Green High School, N.
Holme, L.	Stroud Green High School, N.
Stewart, E. R.	1 Sidlaw Terrace, Bognor.
Tepper, P. E.	Tooting High School.
Bushell, L.	Westbourne House S., Chiswick.
Goodacre, M. L.	Regent House School, Leicester.
Kelly, M. E.	Grosvenor College, Bath.
Rhodes, A.	Airethwaite School, Kendal.
Sawyer, H. C.	Private study.
Turner, A. M.	Mill Street School, Oakham.
Wallace, S.	Ladies' School, Ballymena.
Crennell, E. A.	Upland College, Aintree.
Evans, E. H.	Fern Bank, Wandsworth Common.
Ground, C.	36, Balmoral Rd., Fairfield, L'pool.
Groves, N.	Western House School, Nottingham.
Rhind, J. H.	Claremont House, Sunderland.
Sharpe, E.	High School for Girls, Radcliffe.
Warwick, M. E. *d.*	Elmhurst, Broxbourne.
Adams, M.	Hampden Lodge, Moseley.
Alcock, H. E. E.	St. Mary's School, Bungay.
Bannister, M.	Bridge House, Lewes.
Blackman, F. M.	Brownhill's House, Southampton.
Greene, M. V.	Private tuition.
Hick, H.	Bishopsgate Girls' School, E.C.
Higgins, E.	Edgworth House S., Finsbury Park
Major, S. G.	Higher Tranmere High S. for Girls.
Ord, M. A.	Private tuition.
Partington, G. F.	Vernon House S., Willesden.
Sedgwick, M.	The College, Huddersfield.
Williams, W. W.	Gravesend Proprietary School.
Brown, D. C.	N. Hackney High S., Stamford Hill.
Croot, E.	Grosvenor College, Bath.
Ducker, B. S.	Onslow Hall, South Kensington.
Feilmann, A. G.	Western House S., Nottingham.
Roberts, M.	Jernigham Ho., Tunbridge Wells.
Smiles, M.	The College, Huddersfield.
Stokoe, E.	Private tuition.
Thomson, B.	Saint Andries, Penarth.
Wrigley, F.	Glebe Land School, Rochdale.
Bishop, A. M. J.	St. Joseph's Conv., Claylands R., S.W.
Carter, M.	Boldmere Ladies' Coll., Erdington.
Edington, E. G.	Pemberton Coll., Highgate Hill.
Esplin, M. *d.*	Wintersdorf, Southport.
Gething, E. M.	3 Arthur Terrace, Prestwich.
Horton, F.	Hampden Lodge, Moseley.
Lindsay, L. M.	Olinda, New Brighton.
Martin, E.	Bishopsgate Girls' School, E.C.
McAlister, E. A.	Higher Tranmere High S. for Girls.
Pottinger, R. J.	Manor Mount School, Forest Hill.
Pring, B. C.	Belmont House S., Richmond.
Raczek, F.	Wm. Gibbs' Middle S., Faversham.
Schlimper, E.	52 Acre Lane, Brixton.
Slinn, A. M.	Milton House, Plympton.
Adamson, P.	Victoria College, Belfast.
Annesley, A. T.	Private tuition.
Davies, C.	Mornington House, W. Kensington.
Farr, F. F.	High School for Girls, Tewkesbury.
Fuller, M.	The Vicarage S., Clapham Comm.
Hockey, S. F.	Maidenhead High School.
Mackey, M.	Ladies' S., Gordonville, Coleraine.
Moth, F. K.	Stroud Green High School, N.
Norris, J.	Conv. of Faithful Virgin, Norwood.
Swain, J.	Elgin College, Bayswater.
Wheatly, F. E.	Surbiton High School.
Groves, A. E.	Manor Mount School, Forest Hill.
Moran, E.	Conv. of Faithful Virgin, Norwood.

GIRLS, THIRD CLASS—*Continued.*

Stretton, F. E.		Holdstock Coll., Pemberton Gdns.
Warren, M. P.		44 Angell Road, Brixton.
Boswell, I. M.		Anglo-French School, Leamington.
Braithwaite, L.		Airethwaite School, Kendal.
Clark, B. S.		Highbury & Islington High School.
Cremer, J.		Wm. Gibbs' Middle S., Faversham.
Downer, F. E.		Willesden Park College, N.W.
Fish, E.		Wanstead High Grade School.
Franklin, G. E.		Irvine House, Derby.
Greig, M. J.		St.James'Terr.S.,Newland,Lincoln.
Ingoldby, E. M.		Highbury & Islington High School.
Morgan, A. E.		TheRoystons,GrovePark,Chiswick.
Patterson, W. M.		High S., Wood Vale, Forest Hill.
Rogerson, A. M.		The Hawthorns, Ealing Common.
Burgis, E.		Soho Hill School, Birmingham.
Jones, E.		The Collegiate School, Oswestry.
Kenyon, F. M.		Acres House, Edinfield, Bury.
Margitson, E.		St. Mary's School, Bungay.
Myhill, M. G.		Wolverton House, Broadstairs.
Nunn, J.	*d.*	40 St. Paul's Road, N.W.
Perkin, R. A.		Betley Ladies' College.
Powell, E.		The Vicarage S., Clapham Common.
Blight, E.		Seaton House School, Mutley.
Bowkett, A. E.		St. John's Colleges, Brixton.
Buchanan, M. B.		Wintersdorff, Southport.
Carlton, M. C.		Oakwood House, Brighton.
Gregory, A.		Ladies' School, North Walsham.
Hamer, E.		Norwood College, Withington.
Hartill, L.		Stanhope House School, Harborne.
Heywood, F. E.		High School, Chorlton-cum-Hardy.
Ireland, K. M.		Hamilton College, Sidcup.
Jenkins, A. M.		Gravesend Proprietary School.
Robinson, E.		Stratford Abbey College, Stroud.
Short, E. M.		Hamilton College, Sidcup.
Wiglesworth, G.	*d.*	Private tuition.
Bovis, E. B.		Campden Hill College, Kensington.
Dyson, B.		Elwy Hall School, Rhyl.
Campini, E. I.		32 Westbourne Park Villas, W.
Carse, L.		Victoria College, Belfast.
Cranke, E. E.		Private study.
Monsarrat, E. L.		Airethwaite School, Kendal.
Sims, A. G.		Abbotsford College, Stroud.
Taylor, T.		Stroud Green High School, N.
Walter, A. M.		Holmfels College, Redhill.
Woodley, E. N.	*d.*	Clermont House, Cranbrook.
Brewis, E. E.		Ladies' College, Goudhurst.
Careless, B. A.		Elmhurst, Broxbourne.
Cook, M.		Wanstead High Grade School.
Evans, M. M.		The Hollies, Handsworth.
Harry, M. M.		Leylands, Stockwell Road, S.W.
Holder, M.		High S. for Girls, Tewkesbury.
Lang, I.		51 Hope Street, Liverpool.
Lees, H. S.		Holly Terrace School, Liverpool.
Liles, B.		Private study.
Perkins, B.		Hampden Lodge, Moseley.
Ruddock, E. M.		Hr. Tranmere High S. for Girls.
Whitford, F.		Chorlton House Acad.,Leamington.
Wood, E.	*d.*	Collegiate Day School, Malton.
Allsop, K.		Jerningham Ho. Tunbridge Wells.
Asher-Smith, L. M.		"Airedale," Streatham Common.
Bickell, E.		The College, Huddersfield.
Bishop, S. L.		Ivy House Coll. S., Crouch Hill.
Bond, M. E.		Private tuition.
Davies, A.		Summerfield Hall, Maesycwmmer.
Dawson, F. R.		1 Ashwood Terrace, Headingley.
Dobbs, E. A.		Montpelier Girls' School, Bristol.
Fordham, F.		Bishopsgate Girls' School, E.C.
Moore, M. L.		Albert College, Upper Holloway.
Morris, M. L. J.		The Abbey, Beckington, Bath.
Ruffle, M. H.		Knightsville College, Lewisham.
Williams, J.		Boughrood House College, Brecon.
Barney, M.		Lancaster Mansion, Margate.
Bogle, C. du T.		Private tuition.
Bumstead, L.		Stroud Green High School, N.
Close, E. C. M.		Cambridge Coll., Shepherd's Bush.
Croker, H. M.		Private tuition.
Hill, E.		Highbury and Islington High S.
Kendon, E. A.		Ladies' College, Goudhurst.
Lock, A. G.		Roath Cottage School, Cardiff.
Munyard, J.		Avondale College, Bowes Park.
Myall, M.		7 Hyde Terrace, Tollington Park.
Postance, E. C.		Newnham House, Liverpool.
Rice, W. E.		Betley Ladies' College.
Richards, L. E.		Glebe Land School, Rochdale.
Rorke, A. E.		Western House S., Nottingham.
Rose, E. E.		Llandaff House, Norwich.
Rowe, R. E. C.		Addiscombe High School.
Sherratt, E.		Private tuition.
Sims, E. F.		Abbotsford College, Stroud.
Wise, L.		Stratford Abbey College, Stroud.
Wright, V. C. S.		Grosvenor College, Bath.
Breuer, C.		Private tuition.
Buchanan, E.		S. W. London Coll., Clapham Rise.
Curtiss, R. F.		St. Cloud, Southsea.
Dunn, M.		Wm. Gibbs' Middle S., Faversham.
Exton, L.		Wm. Gibbs' Middle S., Faversham.
Hunt, M. C.		Maidenhead High School.
Kitchiner, E. M.		Warehousemen & Clerks' S., Purley.
Legg, A.		Girton House, Yeovil.
McCaw, I.		Manor Mount School, Forest Hill.
Muir, E.		Private tuition.
Seaton, M. G. T.		St. Mary's Hall, Brighton.
Sharman, H. M.		Manor Mount School, Forest Hill.
Alexander, W.		7 Hyde Terrace, Tollington Park.
Becket, E.		Brincliffe, Nottingham.
Clark, H.		Lewisham Middle Class Schools.
Crosse, K. W.		Carlisle High School for Girls.
Ellis, L. A.		Woodland House School, Thirsk.
M'Ilquham, M.		Alexandra College, Taunton.
Peters, F. H.		Holly Terrace School, Liverpool.
Potous, E.	*d.*	Chiswick, High School for Girls.
Severs, B.		Airethwaite School, Kendal.
Spouse, K. L.		Manor Mount School, Forest Hill.
Whitley, F. M.		Fern Bank, Wandsworth Common.
Wilson, B.		Summerland College, Honiton.
Backshall, L.		Woodcote Villa, Woodcote, Epsom.
Balkwill, M. E.		Manor Mount School, Forest Hill.
Braddock, E. B.		Broomfield High S., Manchester.
Briant, F.		Manor Mount School, Forest Hill.
Bryer, F.		Manor Mount School, Forest Hill.
Carter, M. E.		Eldon House, Stoke Newington.
Cartwright, A.		Whetstone House S.,Hr. Tranmere.
Cole, E.		Rye Collegiate School for Girls.
Culverwell, E. M. A.		Great House School, Cowbridge.
Emley, M.		59 Brixton Hill, S.W.
Evans, B.		Summerfield Hall, Maesycwmmer.
Herger, E. V.		Ryeford Hall, Stonehouse.
Hockley, L. D.		28 Vanbrugh Park, Blackheath.
Howell, R. M.		Surbiton High School.
Kekwick, C.		Carlisle High School for Girls.
Leaver, A.		Fortuna, Boscombe, Bournemouth.
Morris, E.		Higher Tranmere High S. for Girls.
Morton, H.		Melbourne House Coll., Clapton Sq.
Ostler, L.		Montpelier Girls' S., Bristol.
Patching, S.		Wm. Gibbs' Middle S., Faversham.
Pond, J.		Holborn Estate Middle Cl. S., W.C.
Ringland, M.		Victoria College, Belfast.
Say, E. M.		Rougemont School, Exeter.
Sewell, E. M.		Dawson Sq. Ladies' S., Tynemouth.
Squire, B.		Farington Ladies' Coll., Blackpool.
Webster, E.		Wintersdorf, Southport.
Wohlauer, K.		35 Dulwich Road, Herne Hill.
Balding, C. M.		Albert College, Upper Holloway.
Carter, L. F.	*d.*	Holborn Estate Middle Cl. S., W.C.
Choice, M. R.		Brent Hill Collegiate S., Hanwell.
Davies, M.		Saint Andrics, Penarth.
Elfick, M.		Wm. Gibbs' Middle S., Faversham.
Guinan, C.		Convent Day School, Birkdale.
Jago, G. M.		Bredgar Villa, Wanstead.
Jones, M. F.		The Collegiate School, Oswestry.
Juggins, C.		The Old Grammar School, Thame.
McInnes, A. L.		Ladies' College, Goudhurst.
Paine, R. I.		The Ridgway School, Enfield.
Robinson, F. A.		Surbiton High School.
Stallybrass, R.		Oakhurst, Anerley Road, S.E.
Stokes, E. H.		Clermont House, Cranbrook.
Wermelinger, P. E.		Private tuition.
Adam, A. M.		Airedale House School, Gravesend.
Beddington, E. R.		Private tuition.
Dobie, B.		Camperdown, West Dulwich.
Dunn, A. E.		Stroud Green High School, N.
Edwards, G.		Wm. Gibbs' Middle S., Faversham.
Fletcher, B.	*d.*	Holmedune, Blundellsands.
Gamble, K. M.		3 Arthur Terrace, Prestwich.
Hawkins, E. E.		The Hollies, Handsworth.
Hill, L. M.		Eversley House S., Southport.
Holland, G.		Whetstone House S., Hr. Tranmere.
Jones, A. P.		Private tuition.
Jones, W. E.		Albert College, Upper Holloway.
Leslie, A. G.		Belmont House, Derby.
Liddelow, B. M.		Private tuition.
Loveitt, A. M.		Trinity High School, Coventry.
Martin, E. S.		Oxford College, Gunnersbury.
Partington, M. L.		Vernon House S., Willesden.
Robinson, G.		Whinrey House, Ealing.
Sotham, E.		The Old Grammar School, Thame.
Taylor, M. M.		The Hollies, Malvern.
Trewin, A.		Marlborough College, Exeter.
Westlake, M. P.		Alexandra College, Taunton.
Worsey, A.		Riversdale, Acock's Green, B'ham.
Brooks, E. S.		Ladies' Coll., Little Queen St., W.C.
Cleverton, J. A.		Westlands, Saltash.
Duggleby, A. I.		18 Railway Street, Beverley.
Earnshaw, A. H.		Private tuition.
Gabb, F.		Bishopgate Girls' School, E.C.
Harcourt, K.		The Roystons, Grove Pk., Chiswick.
Heath, E. K.		9 St. John's Park, Blackheath.
Lomas, L.		Warden Court School, Cuckfield.
Mansfield, L.		Gravesend Proprietary School.
Nicol, A. de l'O.		16 Dalmeny Road, Tufnell Park.
Panton, E. S.		Manor Mount School, Forest Hill.
Parkes, E. S.		Private tuition.
Seed, A.		Whetstone House S., Hr. Tranmere.
Spooner, V. L. R.		Godolphin Ladies' S., Salisbury.
Stancombe, L. A.		17 Tavistock Place, Plymouth.
Vivian, A. L.		Private tuition.
Baldry, K.		High S., Wood Vale, Forest Hill.
Barrett, L. M.		Highbury & Islington High School.
Berry, J.		Wm. Gibbs' Middle S., Faversham
Breach, M. A.		South Bristol Girls' High School.
Button, E.		9 Cambridge Gardens, Hastings.
Chevallier, E. E.		Girton House School, Bexhill.
Crimpe, E. L.		28 Vernon Terrace, Brighton.
Day, D.		9 St. John's Park, Blackheath.
Dunford, E. M.		Rose Hill House, Whittington.
Ford, A. M. M.		Forest Hill Middle Class S., S.E.
Gover, R.		Seaton House School, Mutley.
Hall, M.		Collegiate House, Leicester.
Jones, M. H.		Private tuition.
Knight, M. E.		Montague College, Salisbury.
McConnell, A.		Victoria College, Belfast.
Nixon, C.		Whinrey House, Ealing.
Paige, H. P.		Elm House Collegiate S., Enfield.
Robinson, F.		59 Brixton Hill, S.W.
Scharschmidt, V. E.		Ladies' College, Goudhurst.
Scott, B. A.		Abney Park College, N.
Webb, E. M.		Grove House, Southend.
Whiteside, F. H.		The Vicarage S., Clapham Common.
Williams, M. L.		Gravesend Proprietary School.
Wright, B.		Sherringham House S., Mansfield.

THIRD CLASS.—2ND DIVISION.

Adams, J.		Holborn Estate Mid. Class S., W.C.
Bull, L. M.		Surbiton High School.
Cleare, M. M.		Holmfels College, Redhill.
Davy, M.		The George Green Schools, Poplar.
Frankenburg, J.		3 Montague Terrace, Hr. Broughton.
Gibson, K.		Rastrick Grammar School.
Gill, E.		Girls' High School, Walsall.
Goddard, M. M.		Private tuition.
Grant, I. A.		Stroud Green High School, N.
Groves, F. M.		Collegiate Day School, Malton.
Hargreaves, E.		Alderhurst, Sale.
Holford, E.		Lime House, Kensington.
Imray, C.		Oakfield, West Dulwich.
James, L. E.		St. Helier's College, Shifnal.
Johnson, E.		7 Hyde Terrace, Tollington Park.
Kaye, M. H.		The College, Huddersfield.
Longman, E.		The Abbey, Beckington, Bath.
Mackaig, H. M.		Oroolong House, Colyton.
Mackrill, M. M.		Collegiate School, Gosport.
Moon, E. L.		Strood Hill School, Rochester.
Oliver, C. E.		Warehousemen & Clerks' S., Purley.
Painter, E.		Summerland College, Honiton.
Pirouet, E. A.		Bloomsbury Ho. S., Southampton.
Smith, E.		Belmont House School, Richmond.
Smith, E. A.		Private tuition.
Smith, E. F.		Belmont House, Norwich.
Sullivan, K. M.		Ribblesdale College, Hastings.
Tanner, G. M.		Stroud Ladies' College.
Butler, N.		Conv. of Ladies of Mary, Croydon.
Cook, M. C.		Kensington House, York.
Davies, E. M.		Highfield, Highbury Place, N.
Esdaile, F. L.		Highfield, Highbury Place, N.
Evans, E. M.		Askew College, Uxbridge Road, W.
Farley, L.		Rocklands, St. Leonards.
Gare, E.		West Lydford Coll. S., Somerton.
Glendinning, J.		1 Ashwood Terrace, Headingley.
Hancock, B. C.		47 Ladbroke Grove, W.
Jones, E. G.		Ronhilda Ladies' School, Rhyl.
Laycock, L.		The Bryn, Ruabon.
Payne, J.		Bishopsgate Girls' School, E.C.
Ryde, E. M.		Cambridge House, St. John's, S.E.
Smith, E. M.		Oakhurst, Great Grimsby.
Smith, F.		Belvoir Mount, Heaton Moor.
Strong, E. L.		Whinrey House, Ealing.
Thompson, M.		Private tuition.
Wasson, A.		Ladies' School, Ballymena.
Whitham, J.		Sunny Bank, Haulgh, Bolton.
Witney, M.	*d.*	75 Brixton Hill, S.W.
Brewer, M. F.		Gresham College, Southsea.
Churchyard, A. E.		N.W. London Coll., Primrose Hill
Dean, A.		Convent Day School, Birkdale.
Dudley, L. K.		Private tuition.
Eastwood, M. E.		Brighton House Coll. S., Oldham.
Hains, E. W.		South Liverpool High S. for Girls.
Hazel, L.		N. Camberwell High Schools, S.E.
Reynolds, M.		Brookfield Villa, Highgate Rise.
Vinson, I.		Park House, Belmont Park, Lee.
Whitford, M. E.		Amble College, Streatham.
Wilkinson, N.		Crofton House, Cheetham.
Wolters, F. A.		44 Angell Road, Brixton.
Woolley, E.		59 Brixton Hill, S.W.
Young, F.		Surbiton High School.
Batten, G. A. M.		Private tuition.
Beharell, F.		Cambridge House, Leyton.
Chadwick, M.		Glebe Land School, Rochdale.
Forbes, A.		Seaton House School, Mutley.
Harding, A.		Whetstone House S., Hr Tranmere.
Harrison, E.		Norwood College, Withington.
Heafield, S. E.		Girls' School, Ashby-de-la-Zouch.
Jacob, H.		The Hollies, Malvern.
Kendall, L.		18 Canterbury Road, Brixton.
Lake, E. A.		9 Kingsgate Street, Winchester.
Laurence, E. H.		Private tuition.
Lee, M. A.		Private tuition.
Morris, A.		The Hollies, Handsworth.
Owles, E. C.		Osmond House, Botesdale, Diss.
Packer, E.		Wm. Gibbs' Middle S., Faversham.
Saqui, E.		Craigholm, Buxton.
Shaw, K. H.		Private tuition.
Smith, A.		Hereford Ladies' College.
Smith, T.		4 Summerhill Villas, Chislehurst.
Thurston, G. M.		Acacia House, Harleston.
Topp, G.		Fulford Field House, York.
Westwood, M. J.		Warehousemen & Clerks' S., Purley.
Atherden, E.		Wm. Gibbs' Middle S., Faversham.
Blacker, M. B.		Fern Bank, Wandsworth Common.
Davies, C.		Summerfield Hall, Maesycwmmer.
Dove, E. R.		Girls' Modern S., N'castle-on-Tyne.
Dow, D. A.		Havelock House S., Southsea.
Ellis, C. M.		Higher Tranmere High S. for Girls.
Epworth, E. A.		Oakhurst, Great Grimsby.
Ewing, H.		The Elms, Belmont, Belfast.
Garman, M.		Pellican Ho. Coll., Denmark Hill.
Gay, M. M.		Brownhill's House, Southampton.
Henson, F. E.		High Street School, Petersfield.
Laurence, M. H.		Private tuition.
Nunn, E.		40 St. Paul's Road, N.W.
Parkes, C.		Private tuition.
Rattenbury, C. A.		Girls' Modern S., N'castle-on-Tyne.
Simmonds, A. M.		West Green College, Tottenham.
Trench, A. H.		Ladies' College, Goudhurst.
Walton, D. M.		Ringstead School, Catford, S.E.
Webb, E.		Greenfield House, Waltham Cross.
Wilkinson, H. L.		Woodland House School, Thirsk.
Wragg, G.		Borough Collegiate S., Rotherham.
Atkins, J.		Highbury & Islington High School.
Bagshaw, M.	*d.*	Norwood College, Withington.
Baveystock, M. A. E.		7 Clapton Square, N.E.
Bradwell, J.		Western House S., Nottingham.
Chamberlain, L.		High School for Girls, Herne Bay.
Davis, A. S.		Tyrwhitt College, St. John's, S.E.
Lee, I.		Ladies' College, Goudhurst.
Martin, M. E.		Stroud Green High School, N.
Righton, E.		Craigholm, Buxton.
Shreeve, B.		Ladies' School, North Walsham.
Smee, L.		Up. Lichfield Grove, Finchley.

GIRLS, THIRD CLASS—*Continued.*

Stapledon, E.	Merchant Taylors' S., Gt. Crosby.
Tracy, M.	The Ridgeway School, Enfield.
Wastle, J. A.	78 Waterloo Road, Blythe.
Whale, S. M.	Private tuition.
Whittingham, H. A.	Palmerston House, Ross.
Willis, O. M.	31 Sussex Place, Queen's Gate, S.W.
Wright, L. M. B.	Private tuition.
Adams, K.	Winford Villa School, Bristol.
Blackwell, G. A.	Keswick House, Putney.
Bloomer, E. M.	Oxford College, Gunnersbury.
Bohers, E. J.	Westbourne House S., Chiswick.
Campini, I. M.	32 Westbourne Park Villas, W.
Cracknell, E. M.	Melbourne Ho. Coll., Clapton Sq.
Craven, A. M.	Highbury and Islington High S.
Elliott, A.	Wm. Gibbs' Middle S., Faversham.
Fitzpatrick, M. E.	Tanshelf Hall, Pontefract.
Hallett, E.	Milton House, Plympton.
Hutchinson, M. J. M.	St. Mary's Hall, Brighton.
Markham, E.	High School, Wood Vale, Forest Hill.
Nicol, G. R. B.	St. Kilda, Reigate.
Percival, L.	Ropergate, Pontefract.
Porter, E.	Summerland College, Honiton.
Rudkin, A. J.	Warehousemen & Clerks' S., Purley.
Sanderson, E.	The College, Huddersfield.
Spark, B. V.	Private tuition.
Stancombe, F. E.	17 Tavistock Place, Plymouth.
Williams, A.	Stratford Abbey College, Stroud.
Ashby, E. M.	Hurst Leigh School, Southampton.
Bell, M. A.	1 Richmond Terrace, Liverpool.
Bishop, C. M. G.	St. Joseph's Conv. Claylands R., S.W.
Britton, F. E.	Oxford College, Gunnersbury.
Brough, E. M.	Belmont House School, Richmond.
Bumstead, C.	Northolme College, Hastings.
Coombs, D. H.	The Abbey, Beckington, Bath.
Davis, G.	Lyndthorpe, Romford.
French, E. L.	Anglo-French School, Leamington.
Hudson, A. L. A.	Stroud Ladies' College.
Kirton, C. T.	The Hollies, Handsworth.
Lovell, E. J.	Airedale House School, Gravesend.
Salisbury, L. E.	Merion House, Brierley Hill.
Smith, A. C.	Warehousemen & Clerks' S., Purley.
Townshend, M.	Hampden Lodge, Moseley.
Ullyatt, E. M.	Fulford Field House, York.
Warren, B. N.	Borough Collegiate S., Rotherham.
Webb, G. M.	Clarendon Girls' School, Kineton.
Wells, A. P.	Highbury and Islington High S.
Wilcox, K. E.	Oxford College, Gunnersbury.
Worger, G.	Private study.
Adams, G. A.	Hill House College, Brixton Hill.
Allen, E. M.	Ladies' College, Goudhurst
Ashby, B. M.	Wintersdorff, Southport.
Birnbaum, K.	Private tuition.
Bone, F.	Moravian Ladies' School, Fairfield.
Burnet, E.	Hampden Lodge, Moseley.
Carryer, H. M.	Regent House School, Leicester.
Cosbie, J.	Ladies' School, Ballymena.
Cotterell, E. A.	Private tuition.
Evans, E. E.	Alexandra College, Taunton.
Inge, A. F.	Holloway College, N.
Jones, E. M.	Boughrood House College, Brecon.
Lake, B. E.	Private study.
Rees, E.	St. Mary's School, Bungay.
Roofe, I. L.	Market Place School, Reepham.
Seymour, L. K.	Manor Mount School, Forest Hill.
Tall, K. L.	Northolme, Gainsboro'.
Thomas, A. J.	Boughrood House College, Brecon.
Trethowen, E.	Alexandra College, Taunton.
Walker, E.	59 Brixton Hill, S.W.
Ward-Jones, G.	Langmead, Greenheys, Manchester.
Weymouth, M. L.	Private tuition.
Whalley, A.	Beech Hill Ladies' Sch, Southport.
Wright, A. L.	Bredgar Villa, Wanstead.
Aitken, L.	Ellesmere Road School, Eccles.
Atkins, A. G.	Great House School, Cowbridge.
Chamberlain, M. L.	St. Winifred's, Clifton.
Chaudet, F.	Bishopsgate Girls' School, E.C.
Cole, E. L.	Albany School, Brighton.
Englehart, G. P. J.	Tower Ho. Coll., Brockley Park, S.E.
Ford, H. B.	Private tuition.
Garson, M. T.	The George Green Schools, Poplar.
Gleadell, E.	Northolme, Gainsboro'.
Godwin, E. M.	Clarendon Girls' School, Kineton.
Grose, A. I.	Manor Mount School, Forest Hill.
Howard, E. D.	47 Ladbroke Grove, W.
Hurst, S. P.	Private tuition.
Lough, E.	Keswick House, Putney.
Marsden, E. F.	Wintersdorf, Southport.
Pearson, E.	Fulford Field House, York.
Saunders, L. A.	Belgrave House S., Wandsworth.
Shaw, F.	Oakfield, West Dulwich.
Simmonds, E. S.	West Green College, Tottenham.
Turner, L.	36 Hilldrop Road, N.
Waite, M. A.	City of Durham School for Girls.
Warner, F. S.	Cricklewood High School, N.W.
Westcott, E.	Seaton House School, Mutley.
Wilkinson, B. A.	Glebe Land School, Rochdale.
Wilson, A. G.	Ladies' School, North Walsham.
Wood, E.	210 Tufnell Park Road, N.
Cottrill, F.	3 Montague Terr., Hr. Broughton.
Dines, A.	Wanstead High Grade School.
Dutton, E.	Inglewood, Bramhall, Stockport.
Fowler, A. M.	Windsor High School, Liverpool.
Furber, E. S.	Windsor High School, Liverpool.
Howling, E.	9 Kingsgate Street, Winchester.
Kendrick, A. M.	Peterborough House, Handsworth.
King, C. M.	Highbury & Islington High School.
Landsberger, F. A.	Hartland House School, Penge.
Paine, E.	The Ridgway School, Enfield.
Parkinson, L.	The Bryn, Ruabon.
Pasmore, F. L.	Private tuition.
Powell, A. B. C.	Amble College, Streatham.
Searle, E. M.	Stroud Green High School, N.
Spence, A. M.	10 Wallace Terr., Ryton-on-Tyne.
Underwood, M. C.	Private study.
Andrew, M.	Old Abbey School, Derby.
Bennett, A. C.	Elmhurst, Broxbourne.
Bentley, G. M.	Hope Lea, Heaton Norris.
Bond, R. M.	Private tuition.
Cooke, E.	City of Durham School for Girls.
Cooper, I. D.	Girton House, Yeovil.
Curle, M. A.	Grove House, Southend.
Dinn, B.	Mostyn House, West Kirby.
Gamlin, E. B.	Hr. Tranmere High S. for Girls.
Harvey, E.	Edgworth House S., Finsbury Pk.
Heath, E. L.	Park Crescent High S., Worthing.
Ireland, B. L.	Alderhurst, Sale.
Jackson, R.	Public Day School, Cheltenham.
Judd, E. B.	Belgrave House S., Wandsworth.
Kingsbury, E. M.	Moravian Ladies' School, Fairfield.
Knowles, J. M.	14 Barrack Street, Devonport.
Morgan, E.	17 Tavistock Place, Plymouth.
Napier, M.	Victoria College, Belfast.
Needham, M. A.	Montgomery House, Tunb. Wells.
Oliver, A.	Oakhurst, Great Grimsby.
Perkins, L.	Peterborough House, Handsworth.
Pettitt, E. A.	Chiswick High School for Girls.
Sweatman, H. E.	High School for Girls, Tisbury.
Theobald, K. M.	Belgrave House S., Wandsworth.
White, C. K.	St. John's Colleges, Brixton.
Williamson, A. L.	The Roystons, Grove Pk., Chiswick.
Webb, F.	Chorlton House Acad., Leamington.
Wood, L. R.	Whetstone House S., Hr. Tranmere.
Woodbridge, M. L.	Bishopsgate Girls' School, E.C.
Adcock, L.	Wm. Gibbs' Middle S., Faversham.
Anthony, K.	Collegiate School, Belper.
Battley, E. B.	Montague House, Gt. Dover St., S.E.
Bowkett, F.	The George Green Schools, Poplar.
Brown, L.	Glebe Place S., Stoke Newington.
Carbutt, K. A.	Maidenhead High School.
Cockrem, M.	The Highlands, Lewes.
Collier, M. E.	Private tuition.
Dale, L.	Private tuition.
Dixon, E.	Northolme, Gainsboro'.
Doran, K. M.	2 Grove Place, Swansea.
Griggs, G. H. M.	Montgomery House Coll., Dalston.
Hanna, C. L.	Holdstock Coll., Pemberton Gdns.
Hellyer, A.	Seaton House School, Mutley.
Holt, F.	Glebe Land School, Rochdale.
Hordern, F. E. H.	Edgerton House, Huddersfield.
Howes, E. H.	Private tuition.
Levy, A.	Denbigh Lodge Coll. S., Edgbaston.
Longmore, A. B.	Ladies' S., Russell St., Wednesbury.
Orman, A. H.	Private tuition.
Robinson, E. M.	Surbiton High School.
Sayer, F. E.	Kenilworth College, Hastings.
Seaton, A. E.	Marlborough College, Exeter.
Walton, E.	Grove House, Heaton Chapel.
Waters, F.	Rye Collegiate School for Girls.
Berry, W. H.	Belmont House School, Richmond.
Cartwright, F.	Whetstone House S., Hr. Tranmere.
Edgar, E. B.	Girton House, West Brighton.
Eedes, M. E.	Ladies' College, Goudhurst.
Elliott, G. A.	Glebe Land School, Rochdale.
Fuller, E. M.	Ladies' School, North Walsham.
Huntly, D. J.	Private tuition.
Innes, M. C.	Holdstock Coll., Pemberton Gdns.
Jennings, K. M.	St. Mary's Hall, Brighton.
Johnson, H. J.	Eldon House, Stoke Newington.
Margarson, E.	Fairfield House S., East Dereham.
Mash, E.	Ladies' College, Goudhurst.
Maxted, F.	Lancaster Mansion, Margate.
Parkinson, E.	Fairbank, Fulwood Pk., Preston.
Peace, B. H.	Wintersdorf, Southport.
Philpot, E. M.	Hill House College, Brixton Hill.
Sandes, F.	9 St. John's Park, Blackheath.
Selfe, W. L.	Manor Mount School, Forest Hill.
Street, F.	Montague College, Salisbury.
Sworder, L.	Wm. Gibbs' Middle S., Faversham.
Tacon, J.	Modena House, Ramsgate.
Tilley, F. C. F.	Oxford College, Gunnersbury.
Wakeham, M.	Victoria Road School, Harborne.
Welch, E.	Edgworth House S., Finsbury Pk.
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Austin, E.	Private tuition.
Bicknell, F. E.	The Abbey, Beckington, Bath.
Buchanan, E.	Cranleigh House, Adelaide Rd., N.W.
Camidge, J. G.	Windsor High School, Liverpool.
Charge, E. W.	Private tuition.
Coggan, M. E.	Private tuition.
Cooper, M. A.	"Airedale," Streatham Common.
Darling, E. D.	1 Richmond Terrace, Liverpool.
Davis, L. E.	Private tuition.
Edwards, M.	Wm. Gibbs' Middle S., Faversham.
Heape, N.	Glebe Land School, Rochdale.
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Williams, B. M.	Private study.
Williams, E. M.	27 Nelson St., Chorlton-on-Medlock.
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Taylor, H.	Farington Ladies' Coll., Blackpool.
Warren, F.	Wanstead High Grade School.
Westcott, A.	Winford Villa School, Bristol.
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Bristow, B.	Oakfield School, Handsworth.
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Dore, E. M.	Stroud Green High School, N.
Evans, K. M.	Victoria Road School, Harborne.
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Gilmour, L.	Windsor High School, Liverpool.
Glass, K.	Private tuition.
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Holton, L. S.	Hartland House School, Penge.
Hudson, E. M. L.	Stroud Ladies' College.
Jarvis, C. E.	Woodbridge House, Moseley.
Milnes, A.	The College, Huddersfield.
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Spink, E. A. M.	Ferrers College, New Wandsworth.
Yeats, J.	Avondale College, Bowes Park, N.
Acheson, G.	Private tuition.
Beach, E.	Private tuition.
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Burnett, A. M.	Knightsville College, Lewisham.
Butterfield, C.	Stratford Abbey College, Stroud.
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Darch, E. E.	Private tuition.
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Good, H. B.	Hurst Leigh School, Southampton.
Grist, L. M.	The Old Grammar School, Thame.
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Longworth, M. G.	Vale House, Whalley.
Mayo, F. L.	The Old Grammar School, Thame.
Mill, J.	Seaton House School, Mutley.
Ransome, H. E.	The Laurels, Wetherden.
Robertson, I. H.	Acacia House, Harleston.
Smith, A. S.	Wm. Gibbs' Middle S., Faversham.
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Vialou, J. C.	7 Hyde Terrace, Tollington Park.
Watkinson, A. M.	Woodland House School, Thirsk.

THIRD CLASS.—3RD DIVISION.

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Bond, E. L.	Private tuition.
Collin, I. M.	Cashiobury House, Southend.
Cross, A. J.	Clydesdale High S., East Finchley.

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Erskine, M.	Queen's College, Wood Green.
Fitch, M. A.	Private tuition.
Hancock, L.	Surbiton High School.
Hart, E. M.	Stroud Green High School, N.
Johnson, L.	Collegiate School, Ilfracombe.
Lake, M. H.	Higher School, Barnstaple.
Leach, E. M.	Girton House, Yeovil.
Livesay, E. K.	Private tuition.
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Penney, F.	Victoria Road School, Harborne.
Ridler, E. F.	Cashiobury House, Southend.
Ryan, R.	2 St. Mary's Terrace, Grassendale.
Tilbury, A. L.	The Highlands, Lewes.
Watt, M. M. J.	Carlisle High School for Girls.
Arundell, E.	Westholme, Maidenhead.
Barons, M. L.	Langnead, Greenheys, Manchester.
Baskerville, B. C.	Lonsdale S., Coventry Park, S.W.
Beard, P. A.	Warehousemen & Clerks' S., Purley.
Blowfield, M. A.	Westholme, Maidenhead.
Chandler, E.	South Bristol Girls' High School.
Coughlin, R. M.	Grammar School, Cardiff.
Fisher, M.	Ivy House Coll. S., Crouch Hill.
Jenkins, A. M.	Elm House Collegiate S., Enfield.
Johnson, K.	Granville House, Aylesbury.
Johnson, M. M.	Albany School, Brighton.
Kidd, M. L.	Holly Terrace School, Liverpool.
Lancaster, M.	Melbourne House Coll., Clapton Sq.
Lawson, J. I.	Forest Hall S., Newcastle-on-Tyne.
Lea, B.	The Hollies, Handsworth.
Leachman, H.	St. Mary's Hall, Brighton.
Mackie, S. K.	The Abbey, Beckington, Bath.
Moffat, B.	Tinwald, Rock Ferry.
Reynolds, A.	Collegiate House, Leicester.
Samuel, F.	Addiscombe House, Brighton.
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Scott, E. I.	Vernon House School, Willesden
Shelley, H.	Modena House, Ramsgate.
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[*The following obtained Special Certificates, having each obtained a General Certificate at a former Examination.*]

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Francis-Williams, M.	*f.* Camperdown, West Dulwich.
Hunt, M. L.	*d.* Camperdown, West Dulwich.
Lowry, E.	*d.* Edgworth House S., Finsbury Pk.
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THE

EDUCATIONAL TIMES,

AND

Journal of the College of Preceptors.

Vol. XLII.] New Series, No. 341. SEPTEMBER 1, 1889. {Registered for Transmission Abroad} *Price to Non-Members, 6d By Post, 7d.*

COLLEGE OF PRECEPTORS.—
EXAMINATIONS FOR 1889.

1. DIPLOMAS.—The Christmas Examination of Teachers for the Diplomas of the College will commence on the 31st of December.

2. CERTIFICATE EXAMINATIONS.—The Christmas Examination for Certificates will commence on the 3rd of December.

N.B.—The Higher Certificates of the College are recognised by Her Majesty's Judges, and by the General Medical Council, as guarantees of good general education; and consequently the holders of them, who may be intended for the Legal and Medical Professions, are exempted from the necessity of submitting to the Preliminary Literary Examinations held by the Incorporated Law Society, and by the various Medical Corporations of the United Kingdom. The Lords of the Committee of Council on Education admit the holders of the same Certificates, without further examination, to the Competition for allowances granted to Students of the Junior Training Class of the National Art Training School. All the College Certificates above the Third Class, the holders of which have passed an Examination in Latin, are also recognised by the Pharmaceutical Society and the Royal Veterinary College.

3. EXAMINATIONS FOR CERTIFICATES OF PROFICIENCY IN MERCANTILE SUBJECTS.—The next Examination will take place on the 2nd of December.

4. PROFESSIONAL PRELIMINARY EXAMINATIONS.—These Examinations are held in March and September. The next Examination will commence on the 3rd of September, 1889.

5. INSPECTION OF SCHOOLS.—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

PRIZES.

Diploma Examination.—In addition to the Doreck Scholarship of £20, the following Prizes will be competed for: Theory and Practice of Education, £10; Classics (Greek and Latin), £5; Mathematics, £5; Physical Science, £5.

Certificate Examination.—The "Isbister Prize" will be awarded to the Candidate who stands First, and the "Pinches Memorial Prize" to the Candidate who stands Second in General Proficiency. Prizes of Books will also be awarded to the Third and Fourth in General Proficiency, and to the First and Second in the following subjects:—Classics, Mathematics, Modern Languages, Natural Science, English Subjects. The "Taylor Jones Memorial Prize" will be awarded to the best Candidate in Scripture History.

The Regulations of the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

PRELIMINARY EXAMINATION of MEDICAL STUDENTS.—The COLLEGE of PRECEPTORS will hold an Examination for Certificates recognised by the General Medical Council as qualifying for Registration as a Medical Student, on the 3rd, 4th, and 5th of September.

The Examination will take place in London, and at the following Local Centres:—Birmingham, Bristol, Leeds, Liverpool.

Examination Fee, 25s.

Regulations and Entry Forms may be obtained on application to the Secretary of the College of Preceptors, Bloomsbury Square, W.C.

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The College year begins September 18.

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COLLEGE OF PRECEPTORS.—
(Bloomsbury Square, W.C.)

The next Monthly Evening Meeting of the Members will take place on Friday, the 18th of October, when G. ARMITAGE SMITH, M.A., will read a Paper on "The Teaching of Economics in Schools."

The Chair will be taken at 7.30 p.m., and a discussion will follow the reading of the Paper.

Members have the privilege of introducing their friends. C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—
SCHOLARSHIPS FOR INTENDING TEACHERS.

With the view of encouraging the systematic training of teachers for their profession, the Council have established four Scholarships (two for male and two for female candidates), which will be offered for competition at the Certificate Examination in June, 1890.

The value of each of these Scholarships is £45 for a single year, or £30 a year for two years, if the candidate should determine to extend the period of training over more than one year.

The Scholarships are tenable

(*a*) At any Training College for Teachers in Secondary Schools, either at home or abroad, that may be approved by the Council; or

(*b*) At any school of established reputation, approved by the Council, which is prepared to offer such facilities for training as may be satisfactory to the Council; it being open to the Council to require the attendance of the scholar at such lectures on the Theory and Practice of Education, and to require him or her to pass such examinations in the Science and Art of Teaching, as the Council may determine.

Candidates (who must not be under 18 or over 24 years of age at the date of the Examination) are required to declare their intention of competing for these Scholarships prior to the Examination, and to submit such testimonials of character as may be considered satisfactory by the Council.

The Scholarships will be awarded to those candidates who, having fulfilled the above conditions, obtain the highest places in the Honours Division of the First Class. C. R. HODGSON, B.A., *Secretary.*

UNIVERSITY DIPLOMA FOR WOMEN.

THE UNIVERSITY OF ST. ANDREWS grants Diploma and Title of L.L.A. to WOMEN. *Subjects of Examination and Examination Papers* include those for the M.A. Degree. For Prospectuses, apply to the SECRETARY L.L.A. Scheme, The University, St. Andrews, N.B.

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The Calendar (price 1s.), containing the Regulations, Copies of Examination Papers, Lists of Graduates, &c., is published by Mr. J. E. CORNISH, Manchester, and by Messrs. MACMILLAN & Co., London.

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For particulars of the above, see next page.

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For Advertisements, see pages 356, 357, 359, 377, 378, 379.

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Two Entrance Science Scholarships of 125 guinras and £60 respectively, open to all first-year students, will be offered for competition. The examination will be held on the 25th, 26th, and 27th September, and the subjects will be Chemistry and Physics, with either Botany or Zoology, at the option of Candidates.

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Special Classes are held throughout the year for the Preliminary Scientific and Intermediate M.B. Examinations of the University of London.

All hospital appointments are open to students without extra charge.

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Prospectuses and all particulars may be obtained from the Medical Secretary, Mr. GEORGE RENDLE.

E. NETTLESHIP, *Dean.*

WESTMINSTER HOSPITAL MEDICAL SCHOOL,

CAXTON STREET, S.W.

The WINTER SESSION will commence on October 2nd. Introductory Address by Dr. P. S. ABRAHAM, at 4 p.m., followed by Distribution of Prizes.

TWO ENTRANCE SCHOLARSHIPS, value £80 and £40, and one of £20 for Dental Students, on Examination, September 23rd and 24th.

There are also numerous Prizes.

Fees: 100 guineas in one sum on entrance, or £110 in two payments, or £120 in five payments. The Hospital has a service of over 200 beds, and the usual special departments.

Information as to suitable residence and other particulars on application to

H. B. DONKIN, M.B. Oxon., *Dean.*

THE MIDDLESEX HOSPITAL MEDICAL SCHOOL.

The WINTER SESSION will open on Tuesday, October 1st, at 3 p.m., when the Prizes awarded during the previous Winter and Summer Sessions will be distributed by the Right Hon. Lord SANDHURST, and an Introductory Address will be delivered by J. BLAND SUTTON, Esq., F.R.C.S. At 4.30 a Reception will be held in the School Buildings.

The ANNUAL DINNER of the Past and Present Students and their friends will take place the same evening at the Holborn Restaurant, at 7 o'clock, Dr. DOUGLAS POWELL in the Chair.

HOSPITAL STAFF AND LECTURERS.

Consulting Physicians — Dr. Goodfellow, Dr. Henry Thompson.
Physicians — Dr. Cayley, Dr. Sidney Coupland, Dr. Douglas Powell, Dr. D. W. Finlay.
Assistant Physicians—Dr. J. K. Fowler, Dr. C. Y. Biss, Dr. J. J. Pringle, Dr. W. Pasteur.
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Aural Surgeon—Mr. Arthur Hensman.
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Dental Surgeon—Mr. Storer Bennett.
Assistant Dental Surgeon—Mr. W. Hern.
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For further information apply at the Hospital to the Resident Medical Officer, or to

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71

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21

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THE SECRETARY,

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English	The Principal.
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Mathematics	G. B. Mathews, M.A., Fellow of St. John's College, Cambridge.
Welsh	Lecturer—J. Morris Jones, B.A., late Scholar of Jesus Coll. Oxford.

II. *Science.*

Physics	Andrew Gray, M.A., F.R.S.E.
Chemistry	J. J. Dobbie, M.A., D.Sc., late Clark Fellow of Glasgow University.
Biology	R. W. Phillips, M.A. (Camb.), B.Sc. (Lond.), late Scholar of St. John's College, Cambridge.

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The College Courses include the Subjects for Degrees of London University in Arts and Science. The Chemistry and Botany Courses are recognised for Medical Graduation in the Universities of Edinburgh and Glasgow, and Students can make one Annus Medicus at this College. The Science Courses are recognised for two years of the three years' degree course of the University of Edinburgh.

Arrangements are being made for the opening of an Agricultural Department next Session.

The average cost of living (including College tuition fees) at Bangor for the Session (33 weeks) is from £30 to £40. A list of registered Lodging-houses is kept at the College. A Hall of Residence for Women was opened in October, 1888. For detailed information as to Courses, Entrance and other Scholarships, &c., apply to the Registrar,

Bangor, June 1, 1889. W. CADWALADR DAVIES.

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Fees from £30 to £40 for the College year, according to accommodation.

For further information apply to the Lady Principal.

N.B.—The College Courses include most of the subjects required for the Oxford Higher Examinations for Women, and the Cambridge Higher Local Examinations.

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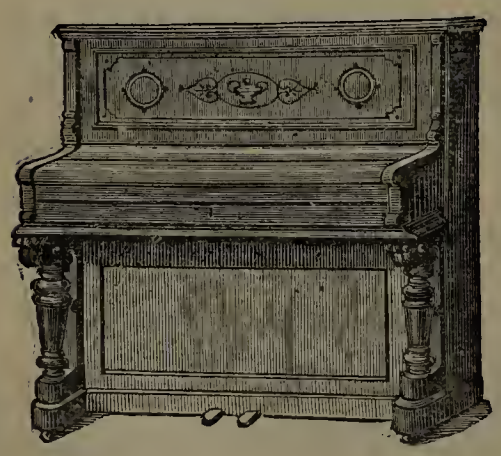

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By S. S. Laurie, M.A., LL.D.,
Professor of the Institutes and History of Education in the University of Edinburgh.

Lecture III.

Language as Substance of Instruction.—Method continued. Composition.

I trust I have made clear that in teaching language as a concrete or real subject we truly train the mind, although we cannot be said, in any strict sense, to discipline it. Further, I have endeavoured to put before you the right method of training in language in its earlier stages with a view to the expression of the individual life and thought, and the comprehending of the thought of others. [Training to the expression of thought will again be taken up in its proper place.] The question of method, as applied to training in the substance of languages, is far from being exhausted. Numerous subsidiary processes may be thought of by the teacher, and some of these I shall now bring before you, either to condemn or to commend them. Let us consider first, words, and then go on to complete sentences and paragraphs.

(1) *Word-building.*—The great majority of the words in use are not English, but Latin. Mere custom will give a knowledge of the signification of these foreign words, especially of those which have become thoroughly domesticated. But even with these, and still more with all the others, a thorough acquaintance can be gained only by a conscious analysis of their elements. The mere statement of the root helps very little. The word "element," for example, has just been used by me; but I get little light as to its signification by being told that its root is *elementum.* Better tell me the meaning at once, and then give me *elemental, elementary* as derivatives. It is clear that if we are to give boys effectually the derivatives of any simple word, we must introduce them to the prefixes and affixes, and exercise them in the precise signification of these. This is far more important, and (like everything that is important in education) far more interesting, than the Latin origin of the word, which in itself, and by itself, is often barren of all intellectual nourishment, except when it is part of the teaching of *Latin.*

With words, however, which are fruitful and have a progeny, the case is different. To confine ourselves to words used by myself here within the compass of a few lines, let us take "signification." It unquestionably is of great value in the acquisition of the language to know the root, "signum," a sign, and, having understood this, to build on this foundation signal, signify, signification, significant, significance, design, designation, &c., resign, resignation, &c., consign, and so forth. All these words are then bound together by a common root-idea, and are thus better remembered, and ever after more correctly used. So, "constitution": here we have *stare,* to stand, and out of it we have a numerous progeny. Can any one doubt the value of this kind of exercise? Is it not, indeed, indispensable, if we are to take possession of our own language—our sole vehicle of expressing our own thoughts, and understanding the thoughts of others? Let it be carefully noted that this kind of instruction is not to be given from text-books and in the form of lessons, but must arise casually out of the daily reading lesson, the pupils having note-books in which they enter all that is of value. Interest disappears the moment you leave the page before you and try to give a formal and didactic character to word-teaching, apart from the living use of language. The teaching, moreover, is easily forgotten, because of its being divorced from its natural associations.

Synonyms also, for advanced classes, as in the appendix to Whately's "Logic," fall under this section of method.

It may be objected that, while prefixes and affixes substantially retain their meanings wherever used, English words derived from the Latin, especially when they have come to us not directly, but through the French, frequently lose their primary meaning. But the fact that this is so, or that the primary meaning has acquired connotations in the course of daily use, gives them an additional claim on our attention, and additional importance as a mental training. The words we acquire by scientific study are like the words we acquire through an object-lesson—neither more nor less. White is white, horse is horse, and there is an end of it. But the words which carry down through the ages the thought of man, and not merely his fact-observation, are complex in their nature, subtle in their relations to each other, full of imagination, rich in history. They are the *mind* of Man in an objective form, and were we to substitute for them the boasted exactness of scientific terms we should destroy our inheritance. Mankind would have to begin over again: there would be nothing left but the "prairie value" of our opulent estate.

(2) *History of Words.*—These remarks naturally introduce us to our second subsidiary expedient under the head of method—the *history* of words. This is a most stimulating study for the young, especially in the secondary school stage. It is itself a kind of historical education, and calls forth and cultivates the imagination in a variety of ways.

The history of words is well handled by Archbishop Trench in his well-known book (whether he is always accurate or not is beside the present question). The moral and intellectual benefit to be derived from this kind of teaching is too obvious to require more than mention. Take for example "idiot," which means originally only a "private person"; then a man either careless of public duties or incompetent to exercise them; hence a man uneducated and with undeveloped intelligence; finally, an "idiot," in the present sense of the word. Much significant instruction, surely, for the young citizen here.

So also many lessons—lessons full of moral substance—may be drawn by the intelligent teacher from such words as "simple," "silly," "virtue," "honour," and so forth. These and numerous other words illustrate the history that is in all words, save those that record a sense fact. And yet we are told to teach "things," that is to say, realities of sense and not words in educating the young, and that words are barren. Why, it is through words first of all, as *vehicles* of things—things of the mind—that we learn all that is worth learning. Wendell Holmes well says, "By words we share the common consciousness of the race which has shaped itself in these symbols." Again, "Every word we speak is the medal of a dead thought or feeling struck in the die of some human experience."*

In further enforcing this teaching of word-history I cannot do better than introduce Archbishop Trench to plead for it. After speaking of "tribulation" as derived primarily from *tero,* to rub, from which came *tribulum,* a threshing-sledge (which was a wooden platform studded with iron teeth underneath), hence *tribulare,* to crush and oppress, he says:—

"This word some Latin writer of the Christian Church appropriated for the setting forth of a higher truth; and sorrow, distress, and adversity being the appointed means for the separating in men of whatever in them

* A Course of Six Lectures delivered at the University of Cambridge and at the College of Preceptors during the month of May, 1889.

* "Elsie Venner," Chap. xxviii.

was light, trivial, and poor from the solid and the true, their chaff from their wheat, he therefore called these sorrows and trials 'tribulations,' threshings, that is, of the inner spiritual man, without which there could be no fitting him for the heavenly garner. Now, in proof of my assertion that a single word is often a concentrated poem, a little grain of pure gold capable of being beaten out into a broad extent of gold-leaf, I will quote, in reference to this very word 'tribulation,' a graceful composition by George Wither, a prolific versifier, and occasionally a poet, of the seventeenth century. You will at once perceive that it is all wrapped up in this word, being from first to last only the explicit unfolding of the image and thought which this word has implicitly given; it is as follows:—

"'Till from the straw the flail the corn doth beat,
Until the chaff be purged from the wheat,
Yea, till the mill the grains in pieces tear,
The richness of the flour will scarce appear.
So, till men's persons great afflictions touch,
If worth be found, their worth is not so much,
Because, like wheat in straw, they have not yet
That value which in threshing they may get.
For till the bruising flails of God's corrections
Have threshed out of us our vain affections;
Till those corruptions which do misbecome us
Are by Thy sacred Spirit winnowed from us;
Until from us the straw of worldly treasures,
Till all the dusty chaff of empty pleasures,
Yea, till His flail upon us He doth lay
To thresh the husk of this our flesh away,
And leave the soul uncovered; nay, yet more,
Till God shall make our very spirit poor,
We shall not up to highest wealth aspire;
But *then* we shall; and that is my desire.'"

I may here aptly interpose the pregnant remark of Emerson—"Words are fossil poetry."

"Great will be our gains—our pupil's gain and ours," the Archbishop goes on to say, p. 42, "for teacher and taught will for the most part enrich themselves together—if, having these treasures of wisdom and knowledge lying round about us, so far more precious than mines of Californian gold, we determine that we shall make what portion of them we can our own, that we shall ask the words which we use to give an account of themselves, to say whence they are and whither they tend. Then shall we often rub off the dust and rust from what seemed to us but a common token, which, as such, we had taken and given a thousand times; but which now we shall perceive to be a precious coin bearing the image and superscription of the great King; then shall we often stand in surprise, and in something of shame, while we behold the great spiritual realities which underlie our common speech, the marvellous truths which we have been witnessing *for* in our words; but, it may be, witnessing *against* in our lives. And as you will not find (for so I venture to promise) that this study of words will be a dull one when you undertake it yourselves, as little need you fear that it will prove dull and unattractive when you seek to make your own gains herein gains also of those who may be hereafter committed to your charge. Only try your pupils, and mark the kindling of the eye, the lighting up of the countenance, the revival of the flagging attention with which the humblest lecture upon words, and upon the words especially which they are daily using, which are familiar to them at their play or at their church, will be welcomed by them. There is a sense of reality about children which makes them rejoice to discover that there is also a reality about words; that they are not merely arbitrary signs, but living powers; . . . not innumerable disconnected atoms, but growing out of roots, clustering in families; connecting and intertwining themselves with all that men have been thinking and doing and feeling from the beginning of the world till now.

"And it is of course our English tongue out of which mainly we should seek to draw some of the hid treasures which it contains, from which we should endeavour to remove the veil which custom and familiarity have thrown over it. We cannot employ ourselves better. There is nothing that will more help than will this to form an English heart in ourselves and in others."

(3) *Sentences and Paragraphs.*—I have already shown in the examination on a sentence from Herschell how we should proceed in order to secure full comprehension of a passage by the pupil, but I introduce the subject here again for the purpose of saying that, as boys grow in years, much more may be aimed at and accomplished than I have yet suggested. If you wish to see what this "more" is, I refer you to Locke's "Conduct of the Human Understanding"—a book too seldom read by teachers and others. And I shall here hold it as read, and so save space and time.

Paraphrasing.—To facilitate the full comprehension of difficult sentences and paragraphs, the exercise of paraphrasing came into general use in this country about twenty-five years ago. Paraphrasing consists in the turning into commonplace language, which "any fellow may understand," the verses of a poet or the succinct prose of Bacon or Browne. A more detestable exercise I do not know. It is an impious and unholy use of pen and ink. One would, of course, submit to it as an unhappy necessity were there no other way of showing that we understand an author. But this is very far from being the case. To paraphrase Milton or Shakespeare is to turn the good into the inferior or bad, and to degrade literature. Moreover it is false. For the youth who has done it imagines that his bald sentences give all that is in the passage of Milton or Bacon. If this were so, then there would, alas! be no such thing as literature, no such thing as Art in language. When all is done you have no longer got Bacon or Milton, but only your much lesser self. I believe that this exercise is based on a misunderstanding of the whole situation. Teachers were vaguely groping for some way of assuring themselves that their pupils really saw their way through the organism of a piece of poetry—terse, elliptical, and frequently inverted in the *ordo verborum.* But this object can quite well be attained by a process which I would call "Resolution," or, to please those fond of big words, Dialysis. It simply consists in the writing out of the piece of poetry in grammatical prose order, supplying words understood, but *always preserving the language of the poet.* This prevents a boy from contenting himself with that vague knowledge which is not knowledge at all, but mere impression made by dim disconnected images, or, it may be, by the mere musical sounds or rhythm of language. It compels him to be exact, and may, perchance, startle him for the first time into the perception that poets, after all, talk plain sense, and so awaken his critical faculties.

(4) *Reading and Elocution.*—To read well is difficult. It is a rare accomplishment: nowhere more rare than among teachers of elocution.

The secret of good reading lies in the practice of distinct articulation (even a little exaggerated) and deliberateness, in the case of very young children; and secondly, in the full comprehension of the sentence read. In this way we secure reading that is articulate, intelligent, and intelligible. Emphasis comes next—the emphasizing not merely of a word, but of a clause, so as to bring out its importance relatively to the other clauses.

All this is quite teachable and attainable in the lower-primary stage, and may be much improved in the upper-primary. But more than this we cannot expect (save where there is a genius for reading), and we ought not to try to get more. If we call upon children to add to intelligibility and emphasis, the emotional and imaginative as dramatic elements, we at best secure a wooden imitation of somebody or other—a falsetto elocution. Nothing can be more hurtful or more offensive. The teacher, however, may so read the passage to them as to bring out its full meaning, *if he can.*

After the age of puberty, that is to say, in the secondary school stage, we may begin to aim at really good reading. We shall finally attain our aim only when there is a combination of physiological, intellectual, and emotional conditions, which, though not so rare as the conditions of good singing, is in truth a gift of nature. We may approximate to it in a good many cases, however. To begin with, it is based on imitation, and yet it is not to be got by the mere imitator. There is always a certain originality in it which your elocution master never respects, but which has to be respected if we are not to call forth mere slavish imitation of a model which is an external thing. Good reading comes from within. It is not acting—no, not even when reading a drama. The reader has to subordinate himself to his author and let *him* speak.

As to the reading of ordinary prose, I think perfection consists in the approximation which the reading makes to *saying* the sentences as if direct from yourself. But it is difficult to appropriate from a printed page what another says, and then say it as from yourself. It is a complex psychological process.

But all this about Reading is intended in the interests of language-teaching. For, by reading well, training in language as the expression of thought—as a mental process uttered—is largely aided, not only in the case of the reader, but of those who hear him. Good class-reading is thus one of the most valuable of the imitative processes by which a boy acquires language.

Expression of Thought in Language.—Composition.

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The growth of mind, if it is to be an effectual growth, must be at the same time the growth of language. In many and subtle ways they act and re-act on each other. This must be so, because language is merely the externalizing of the inner life of mind.

(1) *Oral Composition.*—In giving rules for language-teaching in the infant school I had to include the synthetic exercise of putting words together so as to form sentences as both an oral and a written exercise, but above all as an oral exercise.

I am not going here to repeat what I then said; but I must assume that through the whole period of education the rules which I laid down are referred to and are daily observed. Much may be done to aid oral composition by always requiring a complete sentence from the pupil in reply to questions. However scurvily we adults may treat our noble language, content to convey our meaning in any sort of way, the process of education assuredly demands that language, simply as language, be respected.

(2) *Transcription.*—To make boys and girls sit down and write out, with due attention to distinct writing and punctuation, prose paragraphs and poems from celebrated authors, is an admirable exercise. There is no strain in it. At all ages, but especially in the earlier years of language-teaching, this exercise should be almost a daily one. Why should we dwell on the many advantages that belong to this practice? Is it because it is so simple that teachers disdain it? Much of teaching and much of learning is unnecessarily laborious because teachers will not do what is simple and natural and obvious.

In connection with transcription we naturally mention the learning of good pieces of literature by heart. It is these two exercises, along with much intelligent reading and intelligent conversing, that constitute the imitative in language-education; and they are as remarkable for not overstraining the powers of mind as they are for building up these powers in the healthiest possible, because most natural, way.

(3) The next stage in training to the expression of thought is the formation and writing of sentences from words *given*, or in answer to some question naturally arising out of the reading-lesson, or recording some incident of the day. Though I am opposed to the early beginning of formal grammar, I think that at a very early age, say eight, the attention of pupils should be directed to the fact that a proposition or sentence is an affirmation regarding something or other, and the distinctions of "subject" and "predicate" be taught. *By frequently giving numerous examples on the blackboard*, children quickly learn this logical groundwork of the sentence, and their knowledge can then be used to correct the sentences which they themselves are required to write on their slates. In this way they will very soon get a firm and solid hold of the structure of a sentence. In examining the sentences made, the teacher should invite the children to inspect each other's productions, and he should always select some sentence shown up to him which contains a typical blunder, and place it on the blackboard for the criticism of the class. It is well also to select the sentence which he considers the best and write it on the blackboard, and if he can improve on it himself to do so there and then.

In all such lessons Composition text-books are to be avoided. They are not only superfluous, but hurtful. Children should learn to express themselves in connection with the ordinary reading-lessons and history and geography. Exercises should always arise, as a matter of course, out of the day's work. The moment we formulate processes in a text-book and give the book to the children, the formal, pedantic, and formidable aspect of the subject frightens the pupil, and misleads him into the notion that he is required to do something very hard and uninteresting. The elements of composition should be acquired without the children knowing that they are acquiring them. It is a most natural exercise.*

(4) *Abridgment and Narrative-Writing.*—The next stage is to accustom the pupils to write *consecutive* sentences which contain an abridgment of the day's reading-lesson, or of the lesson in geography or history, or which reproduce something read to them. The stories read should, up to the beginning of the upper-primary period, be "Æsop's Fables," and this class of books. This for many obvious reasons which I need not trouble you by giving in detail. In order to compel the children to see when they have made a complete sentence, each sentence should be written for a time as a separate paragraph. This abridgment and reproduction takes the form of *précis*-writing in the secondary stage; and by *précis*-writing I mean the reproduction of some historical narrative or some report so arranged as to bring out its leading points logically, and clearly, and briefly.

* The teacher should have one or two text-books for his own private guidance.

(5) *Translation.*—During the secondary stage of education, and indeed also in the last year of the upper-primary, advantage should be taken of the study of a foreign language for the purposes of English composition. The day's lesson should be written out in good English. There is, in my opinion, no exercise so useful as this for giving a command of the native tongue. In the first place, the materials are provided and the pupil has simply to think of the language he shall use. In the second place, the language to be used is suggested. In the third place, the contrast between the foreign and the vernacular comes into prominence and compels attention to the comparison of the two, thereby giving that consciousness of language which it is one of our aims to give. In the fourth place, the different turn of expression which must be resorted to, when translating into the vernacular, leads the pupil to *weigh* words and phrases and idioms, and to decide as to the right and wrong, the better and the worse. Thus not only is his range of English extended, but the critical faculty, as applied to language, is cultivated. The imagination, as well as the judgment, is exercised.

(6) *Imitation.*—About the close of the secondary stage it may not be a bad exercise to require youths to read a good deal of an author, such, say, as Addison, or Macaulay, or Burke, and to write on some subject in their style. But I cannot attach much importance to this exercise, though it had a leading place in the rhetorical schools of the ancients. In the case of a foreign tongue, on the other hand, whether ancient or modern, I am disposed to think that a youth who means to acquire style, in addition to grammar, should select a good author, and write in imitation of him.

(6) *Original Essays.*—Original essays on subjects prescribed, that is to say, themes, may be begun as early as the upper-primary period if you confine the subjects to a narrative of what has been experienced, or to a description of something which *has been seen.* Abstract subjects, such as Patience, Fortitude, Justice, and so forth, are wholly out of place, and indeed ridiculous, till the age of sixteen or seventeen at the earliest, and, even then, they should be written on the basis of essays by good writers on the same subject. They thus become essentially reproduction, and are harmless. They are also useful in so far as they enable boys to try to fly with their own wings, and if they should fall, they fall much to their own advantage, and not, like Lucifer, never to rise again. Letter-writing, giving an imaginary account of a journey, is a useful form of original composition, and I need scarcely say that no boy or girl should leave even a primary school without being taught to use the ordinary forms of business or social correspondence.

But whatever is done, let it always arise out of the daily work and occupations, and be natural and not forced. And always remember that it is by the extensive and critical reading of good authors, chiefly, that we get possession of our own or any other language. It is true that we cannot be said to possess language, or anything else, till we can *use* it; but we must first have the language to use: and this we shall never get out of the miserable scraps read in school, even when supplemented by boys' books of adventure.

I shall now speak of language-instruction in its Formal or Abstract character, *i.e.*, as Grammar.

THE INTERNATIONAL CONGRESS AT PARIS.

PRIMARY EDUCATION.

Towards the end of 1888 the Minister of Commerce and Industry, as the chief commissioner of the Exhibition of Paris, announced a *Congrès International de l'Enseignement Primaire*, and appointed a committee of organisation to draw up regulations. The committee fixed the date of the Congress from the 11th to the 16th of August, and invited (1) foreign delegates; (2) delegates elected by their colleagues in numerical proportions named, to represent masters, mistresses, directors, professors, and inspectors engaged in connection with elementary schools and normal schools in France and the colonies; (3) general inspectors and others officially connected with education.

The Congress was held in the amphitheatre of the Sorbonne and adjacent rooms. It appeared as a fitting prolongation of an interesting function, namely, the inauguration of the New Sorbonne by President Carnot as the part first completed of the new University of Paris.

The old Sorbonne owed its origin to Robert de Sorbon, who was born in 1201, and died in 1274. This Robert was of humble

origin, and is described by a contemporary as the "*fils de villain et de villaine*." Being fond of study he took up his abode with other poor scholars who even at that date attended the colleges of the Quartier Latin. He succeeded in his studies, and obtained a doctor's hat. He then became a priest and rose in the favour of Louis IX. He soon showed himself full of solicitude for the poor students whose difficulties and privations he knew so well, and set to work to ameliorate their condition. He instituted an association of "secular ecclesiastics," who, working in groups, gave gratuitous instruction to poor students. Louis IX. approved of the benevolent effort, and granted a charter "ceding to Master Robert de Sorbon as a dwelling for poor scholars a house and stables which had belonged to one Jean d'Orleans." On this site Robert founded his college.

While London has been considering whether or not it shall have a University, Paris has been at work reconstituting and enlarging its own. As far back as 1855 it was resolved to remove the sombre pile of the old Sorbonne; but it was not until 1881 that the State resolved to take in additional ground, and to give to the University a building adequate to the wants of the day, and in style and character worthy of its purpose. A grant of nearly a million pounds (22 million francs) was made, and the first stone was laid in 1885.

The new Sorbonne will, when completed, cover about 6½ acres in a rectangle bounded by the Rue des Ecoles, Rue Saint-Jacques, Rue Cujas, and Rue de la Sorbonne. It will comprise three parts, the Academy of Paris, the Faculty of Letters, and the Faculty of Sciences. The third part is not yet commenced, the second is in progress, and the first, namely, the Academy of Paris, is completed, and was inaugurated on the 5th of August. The Academy is an immense square building with a colossal façade in the Rue des Ecoles. It opens into a circular vestibule in which are statues of Homer and Archimedes, and from which two grand staircases rise, leading to a vast gallery adorned with paintings representing the history of progress of learning in France, on the left the Sciences, from Vincent de Beauvais to François Arago; on the right, Letters from the days of Abelard to those of Renan. From this gallery open the various council chambers.

The most remarkable room in the building is the amphitheatre, which will accommodate an assembly of over 3,000 persons. It would take long to describe the decorations and arrangements for comfort in this grand amphitheatre. Light, sound, and ventilation have been considered on all sides. The light comes through a transparent roof—in the daytime from the lantern above, and in the evening from lights between the transparent roof and the lantern. Hot or cold air, as required, can be turned on beneath each seat, so that an even temperature may be maintained. It was in this amphitheatre that the ceremony of the inauguration took place. The Congress was held in the older buildings, which still occupy the site which is to be covered by the Faculty of Sciences.

The Minister of Public Instruction received the delegates on Sunday, August 11th; he opened the Congress on Monday, the 12th, presided over the concluding sitting on the 16th, gave a dinner in the Salons of the Ministry in honour of the foreign members on the evening of Friday, the 16th, and held a general reception afterwards.

Although the questions propounded were of general importance and the discussions were always vigorous, and often heated, and even turbulent, the daily papers took little notice of them, thus showing a marked difference between the Press of France and that of this country. The only reference we noticed in any paper to the operations of the Congress was the following:—"Ce soir, à neuf heures et demie, M. Fallières offrira, dans les salons du ministère de l'instruction publique, un punch aux membres du Congrès de l'instruction primaire et secondaire." M. Fallières, in his speeches and conversations, produces the impression of being heartily in sympathy with the teaching profession. He is only in his forty-eighth year; he has been member of several Governments as Minister of the Interior, President of the Council, Minister of Public Instruction, and once, on M. Sadi Carnot's becoming President, he was charged by the President to form a Ministry. In February of this year he became again Minister of Public Instruction, choosing this portfolio in preference to others because of his liking for the work.

The President of the Congress was M. Gréard, member of the Institute and Vice-Rector of the Academy of Paris, a man admirably qualified to guide the deliberations of such a body. M. Gréard was born in 1828; he entered a normal school in 1849, and on leaving became Professor of Rhetoric at the Lycée of Metz, then at Versailles, and then at Paris. In 1866 he obtained the degree of Doctor of Letters, and his thesis on Plutarc written on that occasion is considered a gem on classical antiquity. He was then made Director of Primary Instruction for the department of the Seine, and immediately set about organising elementary education in his department, and his scheme has been adopted for the whole of France. He was subsequently made Inspector-General for secondary schools, and in 1879 was placed at the head of the Academy of Paris. He then gave his attention to University reform, and although this naturally moves slower than that of primary education, yet M. Gréard has here also succeeded in securing the approval and the gratitude of his countrymen. M. F. Sarcey, an able critic, says of him that he is "the most illustrious representative of an order of ideas which is gaining a higher and higher place in public opinion, namely, ideas included under the title of pedagogy. M. Gréard has written on primary and secondary education, and his reports and memoirs are *chefs-d'œuvre* of high reason and sound philosophy, of practical common sense, and, I must add further, of *style*." M. Ferry said of M. Gréard, "Je l'appelle volontiers le premier instituteur de France." Such is the President of the Congress. Another man to whose unostentatious administrative ability the success of the arrangements for the Congress is due deserves mention here, namely, M. Ferdinand Edouard Buisson. M. Buisson, who was the son of Protestant parents, after completing his education at Paris, went to Switzerland, and from 1866 to 1870 was professor at Neuchâtel. While here he published a number of pamphlets on religious questions. In 1871 he was appointed by M. Jules Simon Inspector of Schools, but the opposition of the clerical party, particularly of the Bishop Dupanloup, caused the appointment to be withdrawn. His report on the Education Section of the Vienna Exhibition in 1873, and of the Philadelphia Exhibition in 1876, attracted much notice, and in 1879 he was called by M. Jules Ferry, then Minister of Public Instruction, to the direction of primary education. Since 1879 M. Buisson, as permanent director attached to the Education Department, has been the adviser and co-worker of the different Ministers who have in succession taken charge of this department. He has thus assisted in the legislation of the past ten years on public instruction, and is the chief author of the programmes and circulars which have been the means of giving effect to that legislation. As Vice-President of the Congress, as well as in his position of Director of Primary Education, he has brought his administrative ability and experience to the service of the members, and it is due to him that their labours proceeded so smoothly and successfully.

We are now in a position to consider more minutely the questions discussed and the lessons they convey. The three general subjects proposed were: (1) Technical and Commercial Education in Primary Schools, (2) The Place of Women in the Work of Education, (3) The Training of Teachers. These questions were discussed in three separate sections, each presided over by its own elected president. Resolutions were formulated for presentation to the whole Congress, and then in two general sittings under the presidency of M. Gréard the resolutions were submitted, discussed, and voted on.

After the discussions in the sections, the third of these questions was dealt with first in the general sitting of Wednesday, and the twelve hundred members present were upon some points very evenly divided. On the question of the Independence of the Practising School, the inspectors and the teachers were manifestly on opposite sides. The resolutions ultimately arrived at were the following:—First, a practising school is a necessary adjunct to every normal school; second, the practising school should be annexed to the normal school, as is at present the custom. A very large minority, however, on this point supported the amendment of M. Letrait, to the effect that any school whatever in the town may be selected for the practising school; third, the practising school shall be of the type of school which is most common in the department where the teachers will, after the completion of their training, have to work. This was an amendment to a proposition giving to the training school a special organisation. Fourth, the headmasters of the practising schools should be chosen from amongst the most experienced and successful of the masters of public elementary schools, and it should be a condition that to qualify for candidature for the normal practising school, a master should have been at least five years in charge of an ordinary public elementary school. Other points, such as the title of the headmaster, his independence of action, his rank amongst the officers of the training college, and the staff which should support him, all aroused fierce and turbulent discussions without being settled

by decisive vote. The second question, namely, the part which women should take in primary education as teachers, mistresses, and inspectors, aroused much heat and feeling. The questions were somewhat prejudiced by the indiscretion of some of the advocates in favour of women, who lapsed into general arguments not only on the aptitude of women for teaching, but also their equality with men as regards capacity; and when it was proposed that women should be made inspectors of schools, a very decided fear seemed to come over the majority of male members that the motion tended to place in jeopardy an occupation at present in the hands of men, and ought therefore to be received with uncompromising hostility. The question of mixed schools was discussed apparently with the same feeling, and what Mr. Lyulph Stanley called the "*sentiment du pays*" was against mixed schools and the employment of women in these schools. The cause of the women was so far waning that one of the proposers of the resolution in favour of the employment of men and women teachers in mixed schools admitted that the women teachers, where there was a master, should be relatives of the master. At that moment Mr. Lyulph Stanley stepped to the Tribune in the defence of women, and succeeded in raising the discussion to a higher level. He spoke with an earnestness and an effect greater than we have ever noticed when we have heard him speaking in English. At the beginning of his address, when he declared that the moral tone in mixed schools in England was at least as high as that in any other schools, his statement was received with what might be called a sensation of incredulity; but at the conclusion he had brought the meeting into perfect sympathy with his views, and had it not been for the return of indiscretion in the next speaker, the vote would have gone more decidedly in favour of the women. We shall reserve the further account of these interesting discussions, particularly that on the first question, viz., Under what form and in what proportion should professional, technical, or commercial instruction be given in primary schools, elementary and superior, and in normal schools? We shall also give some account of the Normal Schools, Fontenay-aux-Roses and Saint-Cloud, which were visited as part of the programme of the Congress.

(*To be continued.*)

SECONDARY EDUCATION.

The somewhat difficult task of keeping a discussion on educational subjects among teachers gathered from all parts of the globe within the prescribed limits was accomplished at the Paris Congress by a set of admirable reports drawn up beforehand by members of the organizing committee. Speaking broadly, the five questions proposed were concerned with method in girls' schools, and the means of facilitating study abroad during the student's undergraduate life.

As far as a stranger could judge, the general level of scientific attainment in French schools for girls is below that of ours. The elements of algebra were considered necessary mainly as a means of simplifying some of the processes in arithmetic. Geometry was to be taught purely for its value in the training of the intellect, with as early an application as possible to exercises on the proposition. The elements of physics and chemistry were to be treated purely experimentally. By the side of these were placed natural science and cosmography; picturesque in the lower classes, and mathematical in the higher. The discussion on the teaching of modern languages naturally gave rise to an animated debate in which views diametrically opposed to one another were expressed. Miss Beale, Miss Buss, and Mr. Lyulph Stanley represented the English section, which was miserably deficient in point of numbers. It was deemed advisable to begin a foreign language as early as possible, at the age of 8 or 9, the instruction being almost entirely oral. After the requisite preliminary knowledge in the mother-tongue had been acquired, say at 12 or 13, the theoretical study of the grammar and syntax could begin. Particular insistance was laid on the necessity of making the teaching both practical and theoretical. A motion by Mr. Widgery to the effect that a knowledge of phonetics was necessary for the teacher was accepted.

The question of Latin came in rather a disguised form, under the report on the various forms of secondary education: what weight ought to be laid on the classics, modern languages, and science? The President, M. Gréard, the Vice-Rector of the Academy of Paris, and the leading writer on education in France, considered three types necessary. After an animated discussion, mainly on the proper terms to use, these three were baptised with more accuracy than elegance: 1st, Greco-Latin classical education; 2nd, Latin humanities; 3rd, modern secondary education. The proposal to do away with Latin in favour of Greek was held to be impracticable. For romance countries this is obviously true; but whether Teutonic nations might not follow such a course remains a question worth discussing. For the modern type Latin was ruled out altogether, a motion to make the subject optional being promptly negatived. An interesting pendant was the insistance on the necessity of science for all three types, the amount, of course, in the classical school being relatively small.

In the report the words "literary in a large degree" gave rise to an animated debate, in which a brilliant speech was made by M. Chappuis, the Rector of the Academy of Dijon, on the value of the literary spirit. Finally it was determined to alter the wording into "literary and scientific," both being placed on an equal footing. A supplementary motion by Mr. Lyulph Stanley to make the teaching in the lower classes practical, and in the higher literary, was accepted by the Congress.

The difficult question of the proper form of the examination intermediate between school and university was not advanced far towards a solution. In France the Baccalauréat has been attacked from many quarters, mainly because it completely ignores the student's training, a criticism to which our own matriculations are open. In Germany the examination takes place in the school in the presence of the masters, and the pupil's previous industry counts. So many difficulties, however, of a political and administrative nature lie in the way of a practical reform, that the Congress went no further than to assert the need for some intermediate examination.

A similar difficulty attended the discussion on the place to be assigned in the University curriculum to social and economic science. Here, again, the free and pliant constitution of the German Universities gave them the leading place in Europe. Under the head of "philosophy," new ideas and theories found a ready expression. Whereas in France the science would have to be made into a separate faculty, or some section, say of law, would have to be widened to admit it. The Congress contented itself with stating that the science deserved greater consideration at the University.

A truly international question was touched on in the question of the equivalency of degrees. With a remarkable unanimity of feeling, all the speakers deprecated the existence of the present barriers that prevent a student from studying or obtaining degrees abroad. To determine the exact relative value of the different diplomas granted by so many different bodies was obviously impossible, but we see no reason why a grade in one University should not free a student for the corresponding lower grades in another. Of course in the case of Law or Medicine, the possession of a foreign degree would be of a purely scientific value; it would confer no right to practise.

The Congress was unanimous in accepting the following resolutions:—1. It is desirable to maintain and establish the international equivalence of certificates necessary for proceeding to a University. 2. It is desirable, as an international custom, to permit students of Law to pass a part of their time at a foreign University. 3. It is desirable after the production of the proper certificates to admit their international equivalence from a scientific point of view as a condition for taking a higher degree.

After an admirable summing-up from the President, followed by a hearty vote of thanks to him, the members of the Congress reluctantly separated.

SCHOOL LIFE IN FRANCE.

Max O'Rell, in his new book, *Jacques Bonhomme*, gives the following somewhat cynical reminiscence of "school life in France":—

"Winter and summer the French schoolboy rises at five in the morning; or, rather, he is supposed to do so. The first bell rings at 5 a.m., to tell him he is to get up; a second rings at 5.25, to inform him that in five minutes he must be down; and a third bell, at 5.30, enjoins him to leave the dormitory. Of course he rises at 5.25, puts on his clothes with prodigious rapidity, gives himself a dry polish, *à la* Squeers, with a towel, or more often with his knuckles, and is quite ready at 5.30 to go down to the study-room. From this you will easily infer that a pint of water goes a long way in a dormitory of sixty French boys. In the study-room, under the supervision of an usher, called *pion*, and of whom I shall have more to say by-and-by, he prepares his lessons for the professors till 7.50. Breakfast is ready at eight. Considering what the

menu of this repast consists of, I have always wondered how it could take the cook so long to get it ready. During the free ten minutes that precede breakfast time, a few boys go and have a wash. These go by the name of *aristos* (aristocrats).

"The three meals of the day bear the grand names of breakfast, dinner, and supper. Breakfast consists of a plate of soup and a large piece of bread. Most boys keep chocolate or jam, or buy some of the porter, to eat with their bread. At 8.30 they have to be in their respective class-rooms with their masters. The class lasts two hours, after which they return to the study-room to prepare until twelve for the afternoon class. From twelve to one they dine and play. Both these words would convey to an English mind a meaning that it has not in French.

"The dinner generally consists of stews and vegetables swimming in mysterious sauces. The bread is *ad libitum*. When a boy has finished his piece, he holds up his hand as a sign that he is ready for another. A man holding a basket full of cut loaves is stationed in such a position as will allow him to fill all those pairs of empty hands as fast as they are put up. He flings, the boys catch; it is quite a dexterous game, I assure you. If a boy misses the piece intended for him, his neighbour not unfrequently catches and pockets it, partly as a precaution against possible pangs of hunger before the next meal, partly for the love of disobeying the rul s, one of which enacts that no food shall be pocketed. The drink is called *abondance*, and is made up of a good tablespoonful of wine in a decanter of water.

"As for play, it has to take place in a more or less large yard, surrounded by high walls, very much like a prison walk. Not a tree, not a blade of grass to be seen; a mere gravelled yard, nothing more. There the boys walk two by two, or in larger groups—the big ones talking politics and smoking cigarettes inside their coats while the usher is at a distance; the little ones indulging in a game of top or marbles in one of the corners. At one o'clock they are to be in their places in the study-room till two, when it is time to go to the afternoon class, which lasts till four o'clock. On leaving the masters, to be immediately handed over to the ushers, they each receive at four a piece of bread, which they are allowed to eat in the yard with whatever relish they may possess. They play till 5.30, when they return to the study-room to do their lessons for the following day. At eight o'clock supper is ready. To this, like to all their other meals, they go two by two, after having previously all formed into ranks in the yard. The supper consists of boiled beef, or a course or two of vegetables; sometimes an apple or a few cherries, according to the season, brighten the not very festive board. In my time cherries were the most popular dessert; after having refreshed the inner boy, it provided him with missiles, which were turned to good account on the spot, when the usher had his back turned. For drink, the mixture as before. After this frugal repast, the boys repair, two by two, to their respective dormitories. Those who care to indulge in a little washing may do so before going to bed, so as to be clean the following day. I say 'those who care,' for never will an usher make a remark to a French boy over twelve (when he is no longer under the supervision of a matron) because he is dirty, not even in the refectory. Provided he has a cravat on, nobody will scold him for having a dirty neck. If cleanliness is next to godliness, the French schoolboy is most ungodly.

"On Thursday he gets a holiday—that is to say, that no class is held; but he has to be in the study-room the whole morning and evening. In the afternoon he goes for a walk. Here, again, an Englishman would not understand, without some explanation, what is meant by the French schoolboy's walk. The college is divided into big, middle, and small boys. Each division is formed into ranks, and thus, two by two, accompanied by ushers, the boys are marched through the streets. Silence is compulsory while in town, and the ranks are not to be broken until the little battalion has reached the country. There they can play, walk, or sit on the grass, under the eyes of the ushers, for an hour or two, when the ranks are formed again, and they are marched back to what I have no hesitation in calling their barracks, not to say their prison. On Sundays the boy who has his parents or guardian in town is allowed to go home for the day, if he is not kept in for one of those thousand and one petty offences invented at pleasure by the ushers and their supporters. On leaving school on Sunday morning he receives an *exeat*, on which the hour of his departure is marked, and the parents are to write on it at what time he has reached home. He has to be back at school at 10 p.m. punctually, and again his parents have to write on the *exeat* at what time he left their house. He generally returns on Sunday night in a comatose state, and the home fare tells sadly on the work he does on Mondays. He gets fewer holidays than the more fortunate British schoolboy: two months in the summer, two or three days at the beginning of the year, and a week or ten days at Easter. Such is the happy life that boys lead in French public schools. Fortunately there is a great deal of gay philosophy in the French mind, and the close friendship that springs up between the schoolboys, and their *esprit de corps*, help them to endure this secluded life of hardship and privation."

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THE EDUCATIONAL TIMES.

LONDON, SEPTEMBER 1, 1889.

In the Blue Book recently issued by the Education Department, containing the reports on the training colleges for the year 1888, there is printed in an Appendix a most interesting and valuable paper by Mr. Fitch, entitled, "Notes on American Schools and Training Colleges." The object of the paper, as stated by its author, is to give "such of the chief facts and considerations" brought under his notice in the course of a visit to the leading schools and colleges in America as he "thought most likely to prove interesting and suggestive to teachers and school managers at home, especially to those who are concerned in the training of elementary teachers." The comments of an experienced and sagacious observer on the contrasts presented by the aims, methods, and results of the educational systems of the two great English-speaking communities cannot fail to be instructive to the educationists of both. The comparative method finds its justification in this, that, as a matter of fact, educationists of different countries pursue frequently the same end by different means. For example, we have a national system of elementary education in this country, with a State department to administer it. In America there is no such system, but each of the forty-two States that now constitute the Union has a school system of its own which it conducts in its own way.

The explanation of this dissimilarity, as of some other features of British and American education, is an historical one. The thirteen British colonies who achieved their independence in 1783 were in no mood to surrender their separate autonomy and become one consolidated State of thirteen counties or provinces. They, in fact, regarded the central authority, which the exigencies of the moment compelled them to set up, with so much jealousy and distrust that they failed to provide it with the means of enforcing its decrees, and it was found after a few years' experience utterly ineffective for its purpose. A new Constitution was adopted in 1789, which still left the States sovereign in all matters not distinctly reserved for the Federal Government. So it happens that Education is not a concern of the national Government, but of the States, in America. The Educational Bureau at Washington is hardly an exception to what has been stated, for, although this institution is maintained by the Federal Government, its function is merely to collect statistics and distribute information. It has no power to call upon the authorities of any State to supply it with facts or figures, much less to act as a controlling or advising body to the State authorities.

The drawback to a decentralised system of this sort is undoubtedly that to which Mr. Fitch points, when he says:—

"But if a local educational authority chooses to accept a narrow and poor ideal of education, or to make a grudging and insufficient appropria-

tion of public money for its support—if, for example, its law is satisfied with country schools which are open only six or even four months in the year or contains no provision for enforcing attendance—there is no central authority which can exercise any influence upon it, or which is entitled to declare that the educational provision is insufficient."

It is to be expected that much diversity will exist in educational arrangements dictated by the exigencies, real or imaginary, of so large a number of local bodies. Yet the plans of instruction adopted by the various American States have a family likeness. The schools are all secular; the classification of the scholars by age is the prevalent one.

The grading of American schools differs widely from that which obtains here. The elementary school is divided into two departments, the *primary* and the *grammar*, the ages of the scholars ranging from six to ten in the former and from ten to fourteen in the latter. Above the *grammar* school is the *high* school, an institution which has no exact equivalent with us. "It is essentially," Mr. Fitch says, "a continuation school, and is in close organic connection with the primary or grammar schools. It does not receive pupils until the age of fourteen, and all its arrangements presuppose that before entering it the pupil has gone successfully through the 'grammar' grades." In an English grammar school, the pupils are of a different social rank to those attending the elementary school, are destined to fill very different positions in after-life, and so from the first they are subjected to a course of instruction that does not enter the curriculum of the elementary school at all. An English boy, therefore, who remained in an elementary school until he had completed the course of instruction there given, could not then enter a grammar school and take up his studies where he left them off in an elementary school; the continuity would be broken. The contrast presented between his position and that of an American boy draws from Mr. Fitch this significant comment:—

"But in America the ladder is differently constructed. The end of the grammar school curriculum coincides with the beginning of that of the high school. Both schools are generally under the same management; and, except for the fact that it is the poorest parent who is compelled to withdraw his child earliest for labour, both are attended by the same class of pupils. Hence a good deal of the waste of power in England, owing to the separation of children of different social ranks into distinct schools during the period of purely elementary education, is avoided. Our 'higher' schools are higher, not because they are occupied in doing advanced work, nor because relatively to the needs of a scholar in the early stage of his education they are giving better elementary instruction, but partly because they contemplate the extension of the studies to a later age, and mainly because they are attended by pupils whose parents are rich enough to pay for their education, and therefore do not need the help of a Government grant."

We doubt whether the American system has, on the whole, any very great advantages over our own, or that the waste of power above alluded to does really take place. Even if the State were to establish secondary schools, we doubt whether it would be feasible, paying due regard to the facts of our social life, to so construct a curriculum for these as to make them continuation schools. Social inequalities would still remain, and would find expression in our educational arrangements.

There are many other interesting topics which this paper raises for discussion, but of these we can now only select one for a brief notice, viz., "Lessons in Patriotism." Special lessons, Mr. Fitch tells us, are everywhere given on the American Constitution, on the rights and duties of American citizens, of the President, of Congress, of the Senate, and of the States. And the regulations of the New York School Board prescribe that, on the days immediately preceding the 4th of July and the 22nd February (Washington's birthday) in each year, "the principals of all the grammar schools in the city shall assemble the pupils of their respective schools, and read or cause to be read to them, either the Declaration of Independence or Washington's Farewell Address to the people of the United States, combining therewith such other patriotic exercises as may be advisable." Such lessons, no doubt, not only familiarise the school children with the character of the institutions under which they live, and prepare them betimes to use their political privileges intelligently, but beget in them a pride and affection for their country.

There is a famous collection of letters, *The Federalist*, written by three of the founders of the American Republic—Hamilton, Jay, and Madison—in explanation and defence of the Federal Constitution of 1789, whilst still awaiting the national acceptance, which is not only the best treatise in existence on Federal Government, but contains as much political wisdom as is anywhere to be found within the same compass. This excellent treatise is a text-book in the collegiate institutions and universities of the United States, and no doubt has an immense influence in steadying and sobering political speculation and practice, and inspiring respect for the existing order of government.

We have long thought it a great defect in our own educational programmes that so little regard is paid to our laws and constitution. Our people have now as much political power as those of the United States; our laws and institutions have been brought into their present shape by the aid of political experience, sagacity, and patriotic devotion of no mean order; and yet no adequate attempts are made in our school courses to give instruction even about political institutions and laws that are beyond the sphere of party contention.

In connection with the teaching of physical or natural science, facts are frequently thrust upon us which would justify the inference that the prevailing opinion is that it does not matter in the least in what order the sciences are studied. It would seem to be believed that each science is rounded off and isolated from the rest, and that one in point of difficulty is very much as another. Even the training colleges, where a better knowledge of the sequence of studies is to be looked for than in schools, are not free from such mistakes. There is no excuse for such errors when committed in institutions which profess to study the science of Education. Writers on this science lay much stress, and rightly so, on a proper sequence of studies. Professor Bain, *e.g.*, gives the order to be observed in the study of the five fundamental sciences thus: mathematics, physics, chemistry, biology, and psychology; and in the natural history sciences, mineralogy, botany, zoology—mineralogy following on physics and chemistry, and botany and zoology being one aspect of biology. He adds that psychology, properly taught, would succeed biology. Professor Huxley gives very much the same order; he would take physics after a knowledge of elementary mathematics had been acquired. "Now there are two kinds of physical science," he goes on to say: "the one regards form and the relation of forms to one another, the other deals with causes and effects. In many of what we term our sciences these two kinds are mixed up together; but systematic botany is a pure example of the former kind,

and physics of the latter kind of science. Every educational advantage which training in physical science can give is obtainable from the proper study of these two." He expresses himself satisfied with these two, botany and physics—which he apparently regards as of equal value, and to be taken at the same stage of the student's progress—if they, added to "Erdkunde," formed the whole of the scientific curriculum of the school. But he would be better pleased if chemistry and an elementary acquaintance with human physiology could be added.

Here, then, we have a clear indication of the order which so high an authority as Professor Huxley would consider the proper one for the study of these sciences, viz., botany or physics, chemistry, physiology.

He elsewhere expresses the opinion that systematic teaching in biology cannot be attempted with success until the student has attained to a certain knowledge of physics and chemistry.

The same view as to the necessity of a preliminary training in physics and chemistry before the study of physiology can be profitably undertaken, finds expression in a Report, on the Training Colleges, to the Science and Art Department by Professor Michael Foster, of Cambridge. He says: "I have visited Whitelands College at Chelsea, Southlands at Battersea, and the College at Saffron Walden, having in each case interviews with the principal or vice-principal, and the teacher in physiology. The causes of want of success seem to me so much the same in all three cases that I can treat the three together." And then first among the causes he enumerates this:—"The students for the most part take up the subject of physiology without any, or without an adequate, previous training in chemistry or physics. This tells in two ways. In the first place they are ignorant of matters with which, in studying physiology, they ought to be familiar; and in the second place they miss the advantage of the more rigid scientific training, of the acquiring a scientific attitude and habit of mind which is more easily obtained through the more exact sciences of chemistry and physics than through physiology itself."

It is quite true that a large stock of facts in chemistry, physics, and physiology may be acquired as information; the statements in regard to these facts may be correct, the conclusions from scientific laws may be seized and applied accurately, and yet the peculiar mental discipline which science is capable of imparting be wholly missed.

Again, it may be conceded that, if our science-teaching is to stop short at the teaching of facts as instruction, it matters comparatively little in what order such groups of facts are presented to the mind of the student. Physiological facts are as interesting and as easily understood as chemical facts or physical facts. Professor Foster, in explaining the second of the causes to which he considers the failure of the students in training due, lets us see how fallacious undigested facts may prove. "The number of new facts and new ideas," he says, "which a teacher, desirous of telling the pupils everything which might be asked for in an advanced paper, is led to place before the pupils in a year's course, is distinctly too much for an ordinary mind to grasp without previous preparation. The result is, as indeed is shown by the answers sent up, that the pupils, while remembering technical names and formal statements, do not really understand the subject, and thus frequently make gross mistakes without being at all aware of their doing so." A result such as this is surely the *reductio ad absurdum* of teaching science as information. Professor Foster's remarks on another defect in the physiology-teaching of the training colleges are equally applicable to the schools which teach this science. "The appliances," he says, "for the practical teaching of the subject are not adequate, and in consequence the practical teaching suffers." In illustration of what he would regard as essential, he continues:—"The great lack was in experiments of a chemical nature. I regard it as most important that not only the advanced, but also the elementary pupils, should see for themselves some of the simpler experiments in chemical physiology, such as those relating to the characters of the constituents of the body and food, proteids, starch, glycogen, &c., those relating to artificial digestion, &c. . . . I am very confident that a series of simple experiments of this kind, especially if they were repeated by the pupils themselves, would keep the pupils from making many of the mistakes which, being made, lead to rejection."

Psychology, the last in order of the sciences we have named, is not a subject of study in schools; it is, however, studied in training colleges as furnishing the principles which underlie and govern the rules of teaching. Now, as this science is one which taxes the powers of the acutest and most highly trained intellects, it is not to be studied scientifically without preparation in sciences whose facts and laws are less complex than its own. As physiology is based on physics and chemistry, so in turn it becomes the basis of the still more difficult science of psychology. As John Stuart Mill remarks, "Physiology is the first science in which we recognise the influence of habit—the tendency of something to happen again merely because it has happened before. From physiology, too, we get our clearest notion of what is meant by development or evolution." Moreover, it is now proved beyond the possibility of dispute that, as far as human experience goes, mind is only known to us as associated with the brain—a brainless animal is a mindless animal. The student, therefore, of the mental operations, and of the laws which govern these, cannot dispense with a knowledge of the structure and functions of the nerves and brain which are concerned in the processes of sensation, perception, emotion, thought, and volition.

The Reports for 1888 of Her Majesty's Inspectors of Schools have just been published. They do not appear to be uniformly satisfactory as regards the performances of pupil-teachers—intellectual performances, we mean. We are not, it is true, very much surprised; for the average pupil-teacher does not know very much when he starts on his career, and he has very little time during his apprenticeship to extend and improve his education. Here is what one of the reports says about some of the results in pupil-teachers' English work:—

"'I have been much surprised by the amount of bad English and worse spelling, and the wonder to me is that many of the candidates have ever survived to reach an admission examination.' Paraphrasing seems to have been a subject bristling with difficulties for many of the examinees, and some ludicrous specimens are given. Thus: 'There is in souls a sympathy with sounds' was rendered, 'In spirits there is pity with vibrations,' 'The conscience answers when it hears any sonorous sounds, because it has a liking for pleasant noises,' 'In souls there is a feeling with symphonies,' 'In some people is planted a kindness it can be found

out when they speak,' 'In the inner part of mankind there is a sort of desire for sounds,' &c. Such answers, as a rule, are only found in the worst papers; but it seems astonishing that any boy or girl who has been pupil-teacher for four years should show such absolute want of education."

Of course it would not do to lay too great a stress on this matter of interpreting an author's language. The passage may be given in such a way that, divorced from its context, not even Matthew Arnold himself could say what it meant. Or its subject-matter and point of view may be wholly beyond the reach of the unfortunate candidate called upon to interpret. Nevertheless, Matthew Arnold was right in the main when he said that the clearness, accuracy, and appreciation of a learner's interpretation of a passage of good poetry formed an admirable gauge of the reality and ripeness of his work, or, to use the Arnoldian word, his culture. But, after all, the pupil-teacher even at his worst has something to say on his side. It is hard to believe, even with the regulations before us, that though pupil-teachers are examined in the last year of their apprenticeship in the *history* of the language and literature, they are not required all through their course to study a single English author. The sum of their knowledge of English literature, as represented by the requirements of the Code—and they seem to have quite a religious scruple about going outside those requirements—is ability to recite and understand 350 lines of English poetry. Even the wonderful New Code we have heard so much about seems to make things no better.

A short while ago it might have been questioned, with even some slight show of justice, whether literature should be taught in schools at all; and it might at least have been pleaded that we knew little about results, and still less about methods, of teaching literature. But now the case is wholly different. Our girls' schools—in this as in so much else—have gone ahead while we were talking; have actually taught English literature, and a good deal of it; and have produced excellent results. A very short glance at the reports of the schools of the Girls' Public Day School Company, and other schools of a like nature, would soon convince any doubter of the reality and value of the literature teaching given, and of its power to enlighten and refine. There is much in these schools, and in our great Public Schools for boys, which we can never hope to give to pupil-teachers. But this thing we can give; and we ought to give it without delay.

THE summer gatherings at Oxford have again proved a great success. The first began early in August, and the lectures delivered were of a general and stimulating character. The second was inaugurated a fortnight later, and the lectures aimed more definitely at consecutive and connected instruction. Both were largely attended; the first somewhat better than the second. But even for the second something like 1,200 students came into residence. Most of the visitors were of course women; and from morning to night the "High" and the colleges and college gardens were as gay and as crowded as if Oxford was keeping one long "Commem." One could almost have fancied that one was dreaming; that all things were changed; that it was the women who went to college and the men who stayed at home—so much did the women predominate everywhere, overflowing into the halls and chapels, and even debating freely in the sacred Union itself. That they were enjoying themselves no one could doubt who saw them, and that the enjoyment was being combined with decided intellectual benefit must have been obvious to any one who entered the large but crowded lecture-rooms, and listened to the admirable lectures provided. There are not many better lecturers in existence than Mr. R. G. Moulton and Mr. Mackinder. To hear the former dramatically expound *The Agamemnon*—hellenizing his vast audience without a word of Greek—or the latter explain what earth-knowledge is, and its bearing on the history and progress of mankind, was a thing to be remembered, and the memory of which could not but bear useful fruit. Moreover, as Professor Stuart pointed out in his inaugural address, the place itself and the atmosphere of the place must have counted for much. It was something to pass out from the humdrum of everyday life and to move awhile in a society in which intellect holds its rightful place, and where one can hardly lift one's eyes without seeing some memorial of intellectual desire or achievement in the past or present. It is, indeed, in the direction of stimulation and of imparting a sense of union and fellowship with others whose needs and longings are the same as ours, that these great gatherings are likely to do their best work—in lifting learners out of ruts, and in inspiring them, as far as may be, with a sense of how large and noble and wonderful a thing true learning is. In the bustle, and toil, and littleness of everyday life, it is not easy to get this—and Oxford or Cambridge can give this, and give it as no other places can. While, on the other hand, in the short time at their disposal the actual instruction itself given by the lecturers can never amount to much—even when restricted wholly to laying the foundations of courses of study to be continued hereafter by the students themselves. Let the Universities therefore seek to do this, and not vainly imagine that even were their courses of lectures twice as long as they are they could do more, or do anything else which we should value more highly.

REVIEWS, NOTICES, &c.

The Dictionary of National Biography. Edited by Leslie Stephen. Vols. XVII.—XIX. (*Smith, Elder & Co.*)—The three latest volumes of this truly national work, which gains in importance and solidity as it advances, comprise names which range alphabetically from "Edward" to "Forman." It is, therefore, particularly rich in historical memoirs; for in addition to a hundred pages of the Saxon and Plantagenet Edwards, which have been entrusted to the Rev. W. Hunt, Professor Tout, and Mr. S. L. Lee, we have a majority of the earlier English monarchs (Edward, Egbert, Ethelbert, Ethelred, Ethelwulf), and Dr. Jessop's delightful chapter on Elizabeth. There is more of a literary flavour in this last contribution than the other historical items of the Dictionary, but we do not see that it loses in accuracy or fulness on that account. Take two sentences as a justification for this remark. "Her life was the life of a man, not of a woman; she could hunt all day, dance or watch masques or pageants all night, till the knees of strong men trembled under them as they wearily waited in attendance upon her person; yet she never seemed to suffer from the immense tension at which she lived. With her amazing energy, her want of all sympathy for weakness, her fierce wilfulness and self-assertion, and a certain coarseness of fibre, it was inevitable that she should be unfeminine." The editor supplies a somewhat bald account of Henry Fawcett; and it is surely a little misleading, or at least unnecessary, to say of a man who died in 1884 that "he was utterly opposed to Home Rule." He had never had the opportunity of considering the subject as an actuality of imperial politics; but no doubt it is probable that he would have dissented from Mr. Gladstone's proposals in 1886. From Fitzailwin to Fitzwilliam, the bearers of the Norman patronymic prefix occupy a hundred and fifty pages of the last volume under notice. Whether of royal origin or otherwise, the

Fitzalans, Fitzgeralds, Fitzwilliams, and the rest have played a prominent and often a very romantic part in the social and political development of the country; and several of this group of biographies are amongst the most interesting chapters in Vol. XIX. We can do no more than acknowledge the special value and attraction of certain literary, scientific, and artistic memoirs, such as the Faraday of Professor Tyndall, the Farquhar and Fielding of Mr. Stephen, the Nicholas Ferrar of Professor Tout, the Flaxman of Professor Colvin, and the Fletcher of Mr. Bullen. Professor Laughton's sketch of Captain Matthew Flinders is a good example of judicious and adequate biographical treatment, within the scope assigned by the original plan of this Dictionary; and precisely the same recognition is due to Dr. Garnett's admirable notice of Albany Fonblanque.

On the Teaching of Composition: a Lecture. By Arthur Sidgwick, M.A. (*Rivingtons.*)—This is another little eighteen-penny book of the same size and shape as Mr. Sidgwick's *Form Discipline* and *On Stimulus*, both of which must be well known to our readers. Mr. Sidgwick's charm and brightness of style are enough to make any subject interesting—even Greek and Latin Composition; and from beginning to end of this booklet there is not a dull page. The only drawback in Mr. Sidgwick's manner of treating a subject is that after all the entertainment we are frequently left somewhat puzzled as to what he would precisely have us do. In this case, however, we have no cause to make such a complaint, though it is true that a good deal of the advice is by no means new to us. It is amusing moreover to find that, after assuring us that he disapproves of verses, and that verses are not to be his subject, Mr. Sidgwick devotes very nearly as much space to telling us what to do when we are teaching verses as he gives to the teaching of prose composition. We do not propose to discuss the plans set forth by Mr. Sidgwick; but we would remind readers of the book that there are other good plans which seem to have escaped his notice. Amongst these we may mention the following: (*a*) A modified form of re-translation, in which a *fresh* narrative is constructed out of the material (vocabulary, syntax, idiom, &c.) of the recent translations, to be put back into the original language by the help of a little thoughtfulness—this fresh narrative being always kept up to date without dropping the former lessons. (*b*) Oral composition in full class, for which, amongst other things, the narrative just mentioned can be used with excellent effect. (*c*) The preliminary canter over the ground in the case of a new bit of prose, just to get the pupils' minds into the right tone, and to make them aware of some of the difficulties. Every teacher knows only too well the admirable unconsciousness of danger and obtuseness to real difficulties which boys are capable of showing. This preliminary survey will often very usefully disturb their serenity. We will not continue our appendix, but bid our readers get and enjoy and profit by Mr. Sidgwick's little book, merely bidding them bear in mind—what Mr. Sidgwick has forgotten to mention—that it is of the utmost importance to correct composition at once, on the spot, if possible. It stales even sooner than oysters.

Friedrich Froebel's Course of Paper-Cutting. Edited and Supplemented by Eleonore Heerwart. (*Swan Sonnenschein & Co.*)—All kindergarten teachers in England and America should be grateful to Fräulein Heerwart for collecting and arranging Froebel's complete course of paper-cutting, which hitherto has been known to us in fragments only. By securing the aid of Fräulein Schellhorn of Weimar, Frau Froebel of Hamburg, and Herr H. Hoffman of Altona, and by consulting the records which she has kept of the time (1853-4) when she herself was a pupil of Froebel's at Keilhau, Fräulein Heerwart has made her collection of designs as trustworthy and authentic as it could possibly be made. Nor is this all. The ten plates of designs are preceded by several pages of introductory remarks and advice—simple, direct, business-like, and full of suggestions. No one has had a longer or more varied experience of kindergarten work, both in England and Germany, than Fräulein Heerwart, and young students cannot do better than trust to her ripe judgment and sound good sense. While at home, also, mothers will find much in the course which will enable them to provide pleasant and instructive occupation for their little ones. In the directions given they will find all the help they need.

Strength: How to Get Strong and Keep Strong; with Chapters on Rowing and Swimming, Fat, Age, and the Waist. By Richard A. Proctor. (*Longmans & Co.*)—The title of this small book is so comprehensive that our readers will quickly gather what its contents are, especially if they are already acquainted with Mr. Proctor's clear and lively style. There are twelve chapters and nine illustrations. The first seven chapters deal with the chest and the muscles generally—explaining their nature and mode of doing their work, and giving full descriptions of various exercises by means of which they may be made and kept healthy and strong. Then follow three chapters on "Fat," "Advancing Years and Weakness," and "Nature's Waist and Fashion's." Even the "divided skirt" comes in, and is discussed in a letter (a very sensible letter) by a lady. She pleads for a "divided *petticoat*," not a divided *dress*, and gives her experience of its comfort and warmth. Lastly, we have two chapters on "Rowing" and "Learning to Swim" respectively. As we have already hinted, the book is written in a clear and lively way, and is marked throughout by sound common-sense. We fancy that a good many of the chapters appeared in *Knowledge* shortly before Mr. Proctor's death. But even if this be so, the readers of that excellent periodical will be glad to have the papers collected and arranged in this prettily bound and well-printed little volume.

Drink and Poverty. By Councillor Alexander McDougall. (*Manchester: United Kingdom Alliance.*)—Every social reformer will be indebted to Mr. McDougall for his researches into the condition of the poor in Manchester; he has made the best possible use of his position as Vice-Chairman of the Board of Guardians, and has devoted years of labour to the collection of the statistics now given to the world. In this pamphlet there is an utter absence of rhetorical exaggerations; the author is evidently anxious not to overstate his case. Prolonged investigations into the circumstances of the recipients of parochial relief in Manchester have established the fact that 51·24 per cent. of the *pauperism* is due *directly* to drinking habits, while a large part of the remainder is *indirectly* due to drink. It is, therefore, a fair conclusion that one-half of the total *poverty* of the nation is due, either directly or indirectly, to habits of intemperance. Mr. McDougall corrects many false impressions widely prevalent; he shows, for example, that there is very little hereditary pauperism; extended inquiries into the circumstances of all aided at Manchester showed that the percentage of paupers, who were the children of paupers (*i.e.*, who were themselves supported out of the rates during some part of the period of infancy, or the first three years of life) was only 1·48; this is an eloquent testimony to the success of the poor-law school system; and it indicates, as we might expect, that it is "more difficult for persons who have come down from competence to poverty, to rise again, than for those born in poverty to struggle and overcome adverse circumstances." Mr. McDougall shows that while 9·78 per cent. of the population are from time to time in receipt of parochial relief, the average percentage at any one date is 2·81. We urge our readers to send a couple of stamps to the offices of the *Alliance*, and to study for themselves this most interesting and valuable collection of facts.

OUR LIBRARY TABLE.

The School and College Examination Arithmetic. By John Bowick, B.A., LL.D. (*Relfe Brothers.*)—This is an Arithmetic (price 3s. 6d.) as like numerous other Arithmetics as possible, except that it claims to have adopted the recommendations of the Standards' Commission with regard to Weights and Measures. Something is also said about giving the pupil a thorough grasp of principles, which seems practically to mean giving statements in words of the actual working of sums; and this seems to us a very different thing. The book is copiously supplied with examples and sets of examination papers.

Coin of the Realm: What is it? By E. C. Sharland, with an Appendix by J. H. Norman. (*Waterlow & Sons.*)—This book (which costs 2s.) is full of instruction and very readable, especially that part of it by Miss Sharland, which consists of talks about gold and silver coins. A few practical lessons are added based on Mr. Norman's "Single Grain System." In the Appendix, Mr. Norman, who has long since made himself an authority on coinage, gives us some useful tables, and several papers on bi-metallism, an exchange calculus, and other kindred subjects. There is also a paper added explaining the "Single Grain System," which is a method for determining the par value of all moneys of account and gold and silver coins between all countries. Teachers who wish to add interest and liveliness to their lessons on Arithmetic and commercial work generally will do well to get the book, and if they cannot climb to the rugged heights of bi-metallism, they will at least be able to get much that is both instructive and entertaining from Miss Sharland's talks, which touch upon everything connected with the precious metals, and much else besides.

Mind: A Quarterly Journal of Psychology and Philosophy, No. LV., July, 1889. (*Williams & Norgate.*)—Mr. G. F. Stout continues his able series of papers on Herbart's System, this time dealing with "The

Psychological Work of Herbart's Disciples." Prof. Bain also contributes an article on "The Empiricist's Position," which he read early this year before the Aristotelian Society. There is the usual number of good critical notices and notes on new books, amongst the former of which we would call attention to Mr. Alfred W. Benn's criticism of Mr. W. L. Newman's "Politics of Aristotle," and Mr. J. Venn's discussion of Mr. F. Galton's "Natural Inheritance," while amongst the latter a note on Mr. Wallace's "Darwinism" is capital in its way.

Familiar Lessons on Phrenology, designed for the use of Children and Youth. By Mrs. L. N. Fowler. (*John Heywood.*)—We had thought that Phrenology had followed the example of that old nigger Uncle Ned, and gone dead long ago. But here is a little pamphlet (price 6d.) to tell us we were wrong, for it is in its eleventh edition. Evidently "children and youth" have found the treatise to their liking. We doubt, however, whether adults will find much in it that is useful. It abounds with assertions for which no evidence is given, and for which it would be extremely difficult to find any.

Matriculation Directory, No. II., June, 1889. (*Clive & Co., Booksellers Row.*)—This is one of the University Correspondence College Tutorial Series. The matriculation in question is that of the London University. Part I. (of about nine pages) contains a short introduction and an abstract of matriculation regulations. Parts II. and III. (of 18 pages) deal with text-books to be used. Part IV. contains the papers of questions set in June, 1889. And lastly, Part V. gives the solutions to these examination papers in the same order as Part IV. There can be no doubt that this little book will be found useful by those who aspire to matriculation at London University.

Celestial Motions: a Handy Book of Astronomy. By W. T. Lynn. (*Edward Stanford.*)—This excellent little book has now appeared in its sixth edition, revised and re-arranged. It is but a very short account of the most important facts which have been discovered with regard to the motions of the celestial bodies, and the dimensions of those belonging to our own system; but it is written brightly and clearly, and can be depended on for its accuracy. We notice that in this new edition a chapter has been added on "The Calendar." Small as the book is, it nevertheless contains a good deal of information, and that not unduly crowded; and it is provided with an index.

Aytoun's Lays of the Scottish Cavaliers: Edinburgh after Flodden. With Notes. (*Blackwood & Sons.*)—This is one of a series (price 2d. each number) of annotated booklets for the use of junior classes. The introduction seems carefully done, and the notes are full and useful. The "Lay" itself is too well known, and too well liked, to need any fresh praise of ours. The boy or girl who is not roused by it must indeed be dull.

Colomba, par Prosper Mérimée. Edited by C. H. Parry, M.A. (*Rivingtons.*)—This edition is intended for the use of the upper-middle forms in schools. The notes have been carefully written, and give many renderings of the text which would not be discovered in a small dictionary.

Reports on Elementary Schools, 1852–1882. *By Matthew Arnold, D.C.L. LL.D. Edited by the Right Hon. Sir Francis Sandford, K.C.B.* (*Macmillan & Co.*)—This volume contains the nineteen General Reports of Matthew Arnold to the Education Department on Elementary Schools in this country.

Everybody's Book of Jokes. (*Saxon & Co.*)—This is a small book of retorts, jokes, rhymes, anecdotes, bulls, puns, conundrums, and aphorisms. It is a collection of good things, but we should have liked to see them classified. There is the good-humoured wit at which even the victim can laugh heartily, and there is the clever and incisive, but cruel and uncalled-for retort which must make the victim wince, and may rankle in his memory for ever. Things that are in good taste are here mingled with others that are in execrable taste. But we can suggest an educational use of the book: it may be used as an exercise-book, the task being to arrange the jokes, &c., in three classes—positive, neutral, and negative—as regards taste; and then as regards interest or other forms of merit.

We have also received—

The Cornhill and *English Illustrated Magazines; St. Nicolas; The Boy's* and *Girl's Own Papers*; *Cassell's Technical Educator*, Part 18, and *The Old Testament Commentary*, Part 59; *The Sunday at Home* and *Leisure Hour*, of the Religious Tract Society.

IMAGINATION.

II.

(*Continued from page* 173.)

Some general remarks on "Imagination" were contained in the April number of this Journal. It is proposed now to consider the subject further, with special reference to the conditions under which this faculty is brought into play to meet the various exigencies of civilized society. These conditions may be regarded as falling, broadly, into two classes: (1) Those dominating the active affairs of life, which must, of necessity, be carried on under the pressure of circumstances, and often with very uncertain knowledge; and (2) those which concern the work of science, which, with unwearying patience, resists every temptation to accept conclusions until its investigations are thorough and complete. The statesman, the jurist, the warrior, and those engaged in what Mr. Bagehot termed the higher commerce, are among those who are subject to the former, and though their labours may leave few of those definite results which can be clearly identified, they preserve the continuity of political existence, and may do much to develop national character by moulding those institutions which affect the progress of civilization.

The term Science bears two meanings, which, from our present standpoint, are essentially different. In one sense it refers to a body of facts and doctrines, so amply verified and so accurately defined that they may reasonably be accepted as affording a secure basis for further deductive reasoning. These are the lasting gains which Science gives to humanity. It is used also to denote the *method* of scientific investigation, of which it may be truly said that it is often most required in dealing with those subjects which are, as yet, very imperfectly brought within its domain. Professor Huxley has tersely described this method of science as "organised common-sense"; accepting this, the term "mobilised common-sense" may be used to denote the method more immediately applicable to that surging tide of events which has just been referred to. It need hardly be said that the use of one of these methods is by no means held to exclude the use of the other. They are rather two twin processes, which cannot be too clearly distinguished in the mind, or too closely associated in practice.

Our thesis is, that in both these ranges of thought and action the validity of the imagination determines the relative value of the work done in them respectively; and, regarded from the psycho-physiological standpoint, "common-sense" is the outcome of a strong and well-trained imagination. The argument must needs be stated in general terms. It may be very true that no "image" can be formed in the mind of what are, strictly speaking, termed "concepts," and the word "ideation" is more appropriate to these advanced products of thought. Still, we are permitted to say that we "see" ideas, even of the most abstract kind, and as no other word more aptly expresses our meaning, "imagination" will be used in a somewhat extended sense without fear of confusion or misapprehension, and as regards the work of early education we are concerned rather in showing the continuity of the growth of the faculty generally considered, than in defining the differences which arise later on in the forms of its manifestation.

Mr. Romanes has recently introduced a new and very useful word into the vocabulary of mental science. Regarding "percepts" and "concepts" as the more active work of the mind, he uses the word "*recept*" to indicate those impressions which are spontaneously received rather by simple observation, than by any conscious process of reasoning upon the things observed. Without touching upon the questions which may be raised as to the "origin of human faculty," it will be admitted by all that he has conclusively shown how intimately this "receptual" faculty is associated with the early development of intelligence. It leads up also to the *prudens interrogatio* of Bacon, though never superseded by it, and these two types of mental activity must advance together, each modified and extended to meet the demands made upon it by the other. The "division of labour" implied is moreover a growing necessity, to enable us to grapple with the higher problems of life and of Nature. We must needs take the work, as it were, in sections, mutually accepting the results achieved—subject always to the tests of further investigation and experience. For with this increasing specialization there arises (as Herbert Spencer teaches) an increasing interdependence between all those who form a part of the organised body politic.

This great truth is very generally realised by those leading minds in which imagination has been fully developed, but too often it is conspicuous only by its absence among those whose range of view is more narrowly bounded by their own immediate surroundings. The "scientist" knows nothing of affairs, and the mere "man of business" knows nothing of science. It is not intended, nor is it possible, that any one worker should know all the details and difficulties which have to be mastered by others, even when their interests are closely associated together. To aim at independence of this barbarous kind would be to undo the whole fabric of civilized life. But some common "understanding" of the aims and methods of others, some knowledge of what results can reasonably be expected from them, may, and ought, to form a part of all liberal education. To put the point in economic terms, an irrational and ignorant demand *must* be met by an unsuitable supply, and the waste of resources thus engendered is incalculable—and all because we cannot "imagine" what other

people really want, and cannot, therefore, put two and two together in our dealings with them, unless the items are immediately present to our senses. Imagination, undeveloped in social and political life, leaves us, in many respects, in the isolated condition of the mere savage. Its association with the higher reasoning powers is required to call into life the noblest functions of its maturity. The two faculties are inseparable, and both are equally fallible; their strength is in their union.

Nevertheless, the *first* elements of training are common to both. Strictly speaking, a child should not be called upon to *think* prematurely, but rather to *reflect*, in the most simple sense of the word, that is, merely to receive the images impressed on its senses, with just so much attention as is required to distinguish them clearly. To attain this end, it may, at first, be advisable rather to restrict than to extend the number of objects presented to it. Too many toys may be as great a disadvantage as too few, if they are suffered to lead to the evil habit of *not observing* beyond the mere vague promptings of caprice. But a child may be led to look at both sides of a thing, and to see a good deal about it, without going beyond that "receptual" stage which is suitable to its capacity. And to see anything, however simple, fully and clearly, is instinctively to see also its likeness or difference to other things which are also familiar. Whether the next steps are made in the way of analysis, or of more extended and critical observation, it is on this basis only that we begin to think truly and carry out our thoughts to valid conclusions. Roughly speaking, the former process is the forerunner of scientific investigation, the latter of that "intuition by inspection" (Anschauung) which is predominant in the management of the current affairs of life, and to this mode of the imagination much attention has been well directed of late years.

This brings us, though by somewhat hasty steps, to the differences referred to at the beginning of this article—differences not so much existing generically in the faculties brought into use, as in the conditions under which they are applied. Ignorance of the aims and methods of science cannot be attributed to the want of lucid descriptions of them. It is needless to say more on this part of the subject. No one now denies that imagination is essential to the progress of science, or that its full strength is most specially required by those engaged in the highest work of original research. Wide as is the unknown field before them, baffled as they may be by the many difficulties which obstruct their course, tempted by every subtle form of fallacy which can lead the wisest astray, it is yet their privilege to be in a position to build up by sure degrees, and upon well-tested data, those valid theories which extend human insight into the laws by which all the phenomena of Nature are governed.

Those who are concerned with the pressing affairs of active life have to work under very different conditions. They have not only to consider, but to deal promptly with, facts of all kinds, imperfectly known, with a due regard to contingencies, the exact nature of which is still hidden in the womb of the future. To attempt a description in set terms of all the shifting data upon which action must be taken, would exhaust the subjunctive mood, but there is no time to apply the elaborate processes of science, or of formal reasoning, to the complex problems for which some practical solution must at once be found. Facts, scientifically determined, are accepted as a matter of course, and a man ignorant of them is, so far, ill prepared for his work. But he cannot at will split up his problem into convenient issues, and though the range of his observation must be extensive and accurate, he can deal only with those aspects which immediately concern him. He may not be able even to foresee what, and how far, approved rules of conduct may eventually serve for his guidance. Formal theories are seldom much in favour with the man of business affairs, for they can very rarely include the more shifting elements which modify his course of action in accordance with a very concrete judgment, based upon the many factors both certain and uncertain, in various degrees, which do bear, or may bear, upon the matter which he has in hand. Some of these he regards as operative and essential, others he sets aside as, for the present, of no appreciable weight, yet without losing sight for a moment—if a long word may be used for the sake of brevity—of their potentialities. He must run risks, and must also provide against them, and never "lose his head," even under the most unexpected and trying emergencies. He may not be able to see his way, but like an experienced traveller he must never "lose himself." There is much shrewd suggestion in the proverb, "Nothing happens but the unexpected." A new element may, at any moment, come into force requiring the modification, possibly the entire reconstruction of his whole scheme of action, whether in politics, in war, or in commerce. And every element assumes a new relative value in entering into a new combination. The imagination must needs epitomise, as it were, all the mental processes required in thus rapidly passing without misconception or confusion from one association of ideas to another, and further, numerous and shifting as these elements must be, no one in the keen struggle for life can afford to be mistaken about any one of them, as far, that is, as they affect his conclusions. He has not to do with static problems, or with any mere succession of problems, presented in static form, but with factors continuously developed in time, and subject to external influences from all sides, which he can neither extrude nor ignore. Moreover, the man of affairs is concerned not merely with facts and events, but, even more, with the opinions which other men may form upon them. So, until some Sociological Joule can determine the equivalent of human caprice, he can never hope to rival the forecasts of the exact sciences. Nevertheless, act he must in the "living present," and he who waits too long is hopelessly swept away in the hurrying tide of events.

There are, however, some very close resemblances between the use of that most powerful "philosophical instrument," the hypothesis, and that of the forecasts and schemes of policy which are framed by men of affairs. In both there is a very large basis of established truths and principles which are in no way impugned. There is much in evidence which cannot be set aside, though its full significance cannot at the moment be perceived. But where the man of science can say "I do *not* know, but will work on till I do know before coming to a conclusion," the man of affairs has often to say, "Though I do not and cannot know, I must act, but will act with my eyes open, and be prompt to adapt my course according to any further light which I may be able to gain hereafter." In some sense it may fairly be said that science selects its facts, but facts are forced upon those who have to deal with current affairs.

But in both cases it is common-sense, "organised" or "mobilised," which carries on all the best work of the world when inspired by that energy of imagination which sustains its continuous activity. Why this term has been applied to one of the rarest of human attributes, it is hard to say. It has, perhaps, taken up and satisfied instinctively several meanings which are thus concisely expressed. This "sense" does not despise common things, for the least of them may be essential to the completeness of its work. It is diffused in common over all things with which it is concerned, and is prompt in perceiving their relevency to the issues at stake. It can make use of expedients and even "makeshifts," while never forgetting their provisional nature. In a word, it is all the powers of a well-balanced mind working together in due correlation, to the best of their ability. Here, on the common ground of common-sense, modern science and sound practise are at one, nor is the range of imagination restricted by it from any heights to which mankind can aspire. During long ages "science" showed none of the attributes of life. It decried empiricism, forgetting that as all science is based upon experience, it was merely taking empiricism at second-hand. It was vivified by direct observation of the realities of Nature, and thus led on to the discovery of those great laws which so well serve those who know how to obey them.

On the other side, imagination was shut out from its proper sphere in the affairs of life, till its very name came to be regarded as a synonym for those untrustworthy fallacies and fictions which are its worst and crudest productions. Hence it is that the actions of men are still so largely governed by habits, customs, and precedents long after they have become meaningless, and should have become obsolete. Their limited significance was never fully realised, and still the conditions of the past, the present, and the future are alike imperfectly apprehended. Change is foolishly dreaded or courted because the imagination has not energy enough to realize the consequences of change, and timidity, recklessness, and procrastination are all the natural consequences of this one shortcoming. The pedantic teachings of the pseudo-"scientist" have done much to aggravate the evil. The imagination of the "doctrinaire," not being sufficiently "mobilised," cannot take account of the full course of events, and would fain arrest their course so that he may solve a problem which he is not able even to state in adequate terms. But the world goes on and the great "rule of thumb" prevails.

The great lesson which science has to teach in this range is thoroughness of investigation. As has been already remarked, a knowledge of its methods is often most needed in those regions which are, as yet, most imperfectly brought within its domain.

Still, there is much to be learnt on the side of simple observa-

tion. There are some who, without formal teaching of any kind, master the secrets of Nature by sheer dint of persistent and intelligent watching. They have learnt to *see* how things come, and go, and change, what they will do alone, and what, when put together in various ways. Granting that their notions are confined to visible phenomena, yet still these are so fully realized in imagination that they are thoroughly at command, and can be effectually utilized. How and by what mental processes this is done it is hard to explain, but it cannot be supposed that such powers will ever be generated by weak and inert minds, and, at least, we must take care that so rare a faculty is not dwarfed or discouraged by unsuitable training.

Lastly, is it not well in all difficult affairs, or in the higher deductions of science, to fall back sometimes for a while on the primitive receptual faculty of the imagination: to place the reasoning and critical powers for a while in abeyance, in order the better to review without bias or prepossession all those "recepts" which have been the first bases of our thought, and thus to verify our conclusions by careful comparison with the sources from which they were originally derived?

R. H.

A TEACHING UNIVERSITY FOR LONDON.

The following Petition of the Bishop of London on the above subject has somehow escaped the careful attention of the Royal Commissions. As we think that others, who are perhaps more interested in the subject than the Royal Commissioners, will be glad to know our Bishop's views, we here give the Petition in full. It showeth—

That your Petitioner, as Bishop of the Diocese of London, is deeply interested in the means of education provided for the inhabitants of his Diocese.

That there are a very large number of persons therein who could and would profit by an Academical Education if it were brought within their reach.

That most of these persons could neither afford the time nor the money to leave their homes for this purpose.

That the highest and best Academical Education is not supplied at present within the Metropolis.

That for such Education it is essential that the instruction and examination of the students should be parts of one whole, leavened with the same spirit, and conducted on the same general lines.

That, for instance, it would seriously hurt and lower the work done at Oxford if the examiners were always brought over from Cambridge, and the work done at Cambridge if the examiners were always brought over from Oxford. And still more hurt would be done if each of these Universities not only sent examiners but also prescribed the examination for the other.

That the University of London has chosen an Imperial in preference to a Metropolitan position, and is doing valuable service to a large number of educational institutions, and to many solitary students scattered over the whole Empire; but that this is not the kind of service required in a Metropolitan University, nor does it provide, nor help to provide, the best and highest kind of Academical Education.

That the two positions, the Imperial and the Metropolitan, cannot respectively be combined.

That it is therefore impossible to adapt the University of London to the needs of the Metropolis.

That the Metropolis, containing over four millions of people, ought not to be left without the best Academical Education for the sake of the University of London.

That, on the contrary, this vast population is quite sufficient to justify the existence of and to supply material for two Universities, framed on different lines.

That for these reasons your Petitioner earnestly desires the grant of a Charter to a Teaching University for the Metropolis.

And your Petitioner will ever pray, &c.

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

The Pass and Honours Lists of the Intermediate Examinations in Arts and in Science, and of the Preliminary and Intermediate Examinations in Medicine, appeared early in August. There seems to have been a falling-off in the number of the Arts candidates, but there has been a considerable increase in the number at each of the other examinations, so that the total of candidates at all the four has been above seventy more than last year's total.

At the Intermediate Examination in Arts the number of candidates is said to have been 613 (against 653 last year). The successful candidates, Pass and Honours together, number 328, or 53·5 per cent. of the number that entered (against 52 per cent. last year). Of ladies there were some 116 present (against 100 last year); and the total number successful is 65, or 56 per cent. (against 62 per cent. last year). The whole number in honours is 58 (against 30 last year), of whom 13 are ladies; and 5 of the whole number, 1 being a lady, take double honours. The Latin honours list shows 20 names, 2 being those of ladies; the exhibition goes to Mr. G. W. Steevens, of the City of London School and Balliol College, who carried off the first exhibition at Matriculation in January last; the second and third candidates (Mr. W. A. Stone, of Warrington Grammar School, and Mr. John Mercer, of Mount St. Mary's College) are also marked worthy of the exhibition. There are 25 candidates (4 being ladies) in English honours: the exhibition is assigned to Mr. W. A. Brockington, of Mason College; and again the second and third candidates (Miss Agnes Ewart, of Bedford College, and Mr. J. A. Flynn, a private student) are marked worthy of the exhibition; the first and second candidates also had assistance from the University Correspondence College. The French list contains 11 names (5 ladies): the prize is carried off by Miss Constance Bicknell, of the Royal Holloway College; two candidates (Miss E. S. Dugard, of Clapham High School, and Mr. Patrick Moran, of Stonyhurst) are bracketed second, and each is marked worthy of the prize; the fourth candidate in the first class is also a lady (Miss K. M. Baines, of the Clapham High School). The German list comprises five candidates (three ladies); the first candidate, Mr. Johann Joerg, a private student (with help from the Correspondence College), is disqualified by age for the prize; the other candidate in the first class is a lady (Miss A. F. Kershaw, of the Royal Holloway College). In the Mathematical list only two of the five candidates are Arts men: one, however, Mr. A. L. Dixon, of Worcester College, Oxford, stands second, and is marked worthy of the exhibition.

At the Intermediate Examination in Science there were 201 candidates (against 163 last year), and the passes and honours together number 125, or 62·2 per cent. (against 58 per cent. last year). It deserves mention that no less than 66 of the pass candidates are in the first division. Thirty-eight ladies entered, but only 19 are successful. The total number in honours is 29, of whom only two are ladies, and, of the 27 men, 7 take double honours. In Mathematics, out of 5 candidates 3 are Science men: the first, Mr. G. T. Walker, of Trinity College, Cambridge, who was at the head of the last list of wranglers, obtains the exhibition; the third candidate in the first class, Mr. G. A. Schott, also of Trinity, is a Science man, and is marked worthy of the exhibition. In the Chemistry honours list there are 12 Science men: the first class is a very remarkable one; it contains four candidates, all of whom showed themselves worthy of the exhibition, which, however, passes over the heads of the first three, viz., Mr. F. W. Short, of the Pharmaceutical Society and the Birkbeck Institution, Mr. William Tate, of the Midland Institute and the Normal School of Science, and Mr. J. T. Hewitt, of St. John's, Cambridge, who are all above twenty-two years of age, and is assigned to the fourth, Mr. J. A. Howard, of King's College and the Birkbeck Institution. In Experimental Physics 14 Science candidates obtain honours, and here Mr. Hewitt has succeeded in obtaining the first place, with the exhibition (the "Neil Arnott") and a medal. In Botany only two Science candidates are successful, and in Zoology only five, of whom two are ladies.

At the Preliminary Scientific Examination some 186 candidates took up the whole examination, against 147 last year: of these 127 (68·3 per cent.) have been successful—111 in the pass, and 16 in honours, of whom 1 takes double and 1 treble honours. Sixteen of the candidates were ladies, and of these no less than 15 have succeeded. In the honours lists, 4 Preliminary candidates appear in Chemistry, 4 in Physics, 2 in Botany, and 9 in Zoology. In the last-named list appear the names of the only two ladies in honours; but one of the two, Miss Laura R. Howell, of Girton (with help from the Correspondence College), is at the head of the list, standing alone in the first class, and being recommended for the exhibition, which, however, she is somewhat too old to receive. Besides the candidates who took up all the subjects, 37 candidates (out of 59), one being a lady, have passed in two subjects; and 32 (out of 39), three being ladies, have passed in one subject. It should be added that of the candidates for the whole examination, no less than 46 have also passed in the Mathematics of the Intermediate Examination in Science, and, like the successful candidates in Science, may proceed to the B.Sc. degree, besides going on in Medicine.

At the Intermediate in Medicine, 118 candidates presented themselves for the whole examination. Seventy (59·3 per cent.) of that number are successful, 54 in the pass and 16 in honours. Seven of the candidates were ladies, of whom 4 pass, and one other gets honours in Physiology. In the honours lists the most noticeable point is the unusual success of Mr. W. M. Stevens, of University College, who carries off three of the four exhibitions, with the three gold medals attached thereto—those namely in Anatomy, Physiology, and Materia Medica. The fourth exhibition, that in Chemistry, with its gold medal, is assigned to Mr. W. L. Andriezen, of University College, who also obtains good positions in the three other honours lists. Mr. Andriezen hailed originally from the Royal College, Colombo, Ceylon, where, in January, 1886, he obtained the Gilchrist Scholarship offered to the Indian group of centres. A second medal in Physiology is obtained by Mr. H. M. Richards, also of University College; and both in Chemistry and in Materia Medica the second candidates (Mr. G. S. Buchanan, of St. Bartholomew's, and Mr. Thomas Holmes, of Guy's) are severally marked worthy of the exhibition and

medal. Twelve other candidates passed without taking Physiology; and nine passed in Physiology only, thus completing their examination.

Two of the most distinguished of the medical graduates of the University, Dr. Quain, F.R.S., and Dr. George Johnson, F.R.S., have recently been appointed Physicians to the Queen.

[*Errata.*—In last month's "Intelligence," par. 4, line 3, read—(about 2 per cent. *more than* last year); and in line 7 read—(58·6 *per cent.*).]

OXFORD.

The electors of the Waynflete Professorship of Moral and Metaphysical Philosophy have elected Mr. T. Case, M.A., Fellow of Corpus, in succession to the late Prof. Chandler.

Mr. Hubert Herkomer has been re-elected to the Slade Professorship of Fine Art.

COLLEGES, SCHOOLS, &c.

Miss Ethel M. Conder, daughter of the Rev. Dr. Conder, of Leeds, and assistant classical mistress of the Leeds Girls' High School, has received the appointment of Principal of Milton Mount College, for the daughters of Congregational ministers at Gravesend. Miss Conder studied at Girton College, and obtained a second class in the Classical Tripos.

Mr. J. J. Beare has been appointed Professor of Moral Philosophy at Trinity College, Dublin.

Dr. J. Struthers has resigned the Professorship of Anatomy at Aberdeen, which he has held for more than forty-four years.

It is worthy of note that in the recent degree list of the Victoria University the highest honours were obtained by a woman, Miss Alice Crompton, who was placed alone in the first class in classics.

The Council of University College, London, have conferred the status of Emeritus Professor upon Mr. A. B. W. Kennedy, who recently resigned the Chair of Engineering and Mechanical Technology after a tenure of several years.

The Cameron Prize in Therapeutics at Edinburgh has been awarded to M. Pasteur, in recognition of the high importance and great value in practical therapeutics of the treatment of hydrophobia discovered by him.

EDUCATIONAL NOTES AND SUMMARY.

THE House of Lords' Standing Committee on Law has discussed the Cruelty to Children Prevention Bill. The Earl of Dunraven moved to omit the provision prohibiting the employment of children under ten years of age in theatres and music-halls. The Chairman opposed the amendment. The Lord Chancellor thought it went too far, but he suggested that some authority—say the factory inspector or the Lord Chamberlain—should be enabled to permit the employment of young children in theatres under particular circumstances. The Archbishop of Canterbury said that, having made inquiries of persons connected with schools and hospitals, he was informed that the combination of theatrical work with ordinary education placed such pressure upon children that they continually failed to pass their standards at school, and were often subject to nervous diseases. The amendment was negatived without a division. The Lord Chancellor subsequently proposed the following new clause:—"When it is proved to the satisfaction of the Lord Chamberlain that, having due regard to the health, comfort, and well-being of any child above seven years of age and under ten, such child may safely be permitted to take part in some public entertainment, it shall be lawful for the Lord Chamberlain to give his license to permit such child to take part in such public entertainment, and in such license it shall be specified during what number of hours and how many days in each week such child shall be permitted to take part in such performance; and such license shall provide conditions as to the custody, food, and education of such child during the period for which such license shall be granted." His lordship said that he intended to confine the operation of this clause to the metropolis. It was subsequently agreed that the Lord Chancellor should move his clause in the House. At a later stage the clause became part of the Bill.

"WE readily admit," says the *Lancet*, "the value of child actors in rendering certain plays; but cases of this kind must be quite exceptional, for which the ten years' limit does not make due provision. Even at this age, and still more certainly before it, the late hours, heat, and excitement of the theatre, added to the work of rehearsals, and often also to the tasks of school, cannot be regarded as conducive to health. The functions of the bread-winner should not be thrust upon children at this early period, and, however desirable it may be to cultivate a theatrical instinct, we must remember that an actor should not be less efficient for devoting his early years to ordinary school work. We are, therefore, of opinion that legislation such as that proposed by the new Act ought to accomplish much good, and can do but little harm. Compared with similar enactments in America and on the Continent it is a measure of the most moderate character."

THE *Era*, the chief organ of the theatrical profession, has also raised its voice against the employment of very young children on the stage. "We believe" (says the *Era*) "that, even in the case of a child with real talent for acting, it is injurious to the development of that talent to put its little possessor to work too early. The forcing process is always an unhealthy one, and many a boy or girl who might have developed into a clever actor or actress had his or her faculties been allowed proper time for their natural growth, has, we believe, been converted into a pert and transient precocity by being put on the boards too soon. We think with the public and Parliament, who have brought into operation the Act by which a child under ten years old cannot even legally be employed in a factory or in any place of business, or even as an errand boy, that it is not desirable that children below that age should be earning money by labour of any kind. If it is agreed, as we believe it now is generally and unanimously, that this arrangement is the best for the rising generation, why should an exception be made in the favour of a calling like that of the stage, which is admittedly one of the most exhausting and exacting both for nerves and body?"

AT Cambridge during the month of August about twenty elementary teachers have been in residence for a brief visit at Newnham College, and short courses of lectures were started in history, literature, and physiology, which might serve as a useful kind of university extension on a small scale. Full advantage was taken of the interesting lectures in history, literature, physiology, logic, and other subjects. The lecturers and students vied with each other in making their visitors' holiday as happy as possible, arranging walking and boating excursions, impromptu concerts, tea parties, and other forms of entertainment for them. The so-called old hall, the oldest of the three halls which now form the college, was given up to the visitors, who were under the care of two lady lecturers. The pretty rooms and tasteful decorations, the quiet and beauty which form the charms of an academic life, will doubtless be pleasant memories to those whose ordinary work lies in less beautiful places.

IT has come to be understood that the university extension gathering will in all probability take place annually at Oxford. It appears that the facilities offered by the place, such as the new schools, the general emptiness of the colleges, &c., are much greater than at Cambridge, and that the number of ladies attending these gatherings is likely to increase in future years. As a means of drawing women together, and giving an impetus to education, these meetings have already proved of great value. They supply an enthusiasm and a desire for knowledge and culture which can only be obtained by the gathering together of teachers and students. The actual instruction given can, of course, hardly be of consequence; but for this purpose the second part of the meeting, extending to the end of the month, during which lecturers continued in greater detail the subjects introduced during Part I., was probably found by the fraction of students who remained for it to have considerable educational value. Mr. Moulton, Mr. Mackinder, Professor Green, Mr. Churton Collins, Mr. Shaw, and Mr. Hewins were the lecturers who worked out in greater fulness the subjects which they had already dealt with in a more summary fashion.

THIS summer meeting at Oxford has been marked by an incident which may in time become quite famous. The debating hall at the Union has for the first time been invaded by lady speakers. This is, indeed, a sign of the times, which he who runs may read. In an audience of 600 a resolution in favour of Women Suffrage was carried by a majority of 3 to 1. The proceedings took place without official sanction, and were tainted with the grossest illegality; but yet the roof did not fall, as doubtless it should have done, had it retained a scrap of reverence for the monastic traditions of old Oxford.

The interest of continental countries in the women's colleges of Cambridge and Oxford increases every year. Last year a Norwegian lady was in residence at Newnham College, and quite recently some of her countrywomen visited the College. An Italian lady who spent a few days in hall last term, and was charmed with the life, left a general invitation to any Newnham student travelling in Italy to visit her in Rome or Naples, in both of which places she has residences, and to become honorary members of a society for women's lectures and readings which she proposes to start in Rome. Two students of one of the great French training colleges visited the College under the guidance of an English lady who lectures in the college to which they belong. Americans generally flock to the College during the May term, and the students of Wellesley Smith's and other women's colleges in the United States who have completed their course at Cambridge seldom fail to revisit Newnham when they return on a holiday to Europe.

At the Privy Council Office, Viscount Cranbrook, Lord President of the Council, received a deputation representing University and King's Colleges, London, to urge the desirability of establishing a teaching university for London. The deputation was introduced by the Bishop of London, who complained that the views of University and King's Colleges had been ignored by the Royal Commission on the subject of a university for London. His lordship detailed the advantages which would be afforded by a teaching university in London, which would provide the highest form of academical education. There was an increasing demand in the metropolis for such education, and this could only be provided by a teaching university independent of the present university, which was merely an examining body, and the value of some of whose degrees he submitted was much overrated. The deputation desired that a charter should be granted to such a body as could afford the highest academical education for the metropolis. —Sir George Young, Mr. Erichsen (president of University College), the Rev. Dr. Wace (principal of King's College), and Sir Henry Acland also spoke in support of the objects of the deputation.—Lord Cranbrook, in reply, explained that a reasonable time should be allowed to the University of London to consider the report of the Royal Commission, and whether they would apply for a charter. No such application had at present been received. When it was made it would, of course, have to be considered by the Government. In the meantime he would point out that the Royal Commission were to this extent in favour of the views of the deputation, viz., that they had reported in favour of a teaching university for London. The question was how it should be established. The deputation thanked his lordship and withdrew.

At the annual distribution of prizes at the City of London School, Dr. Abbott said that, after twenty-four years' connection with the school, this was the last opportunity he would have of delivering the annual address. He had elected to deal more particularly with the future prospects of the school, though he could not forbear saying that the institution had done excellent and progressive work for half a century. Although during this period the maximum number had been twice increased, the school had always been full. As to the future, some alarm had been expressed to him that the school was about to suffer a departure, and that the higher departments, which gave attention to classics, mathematics, and kindred subjects, were about to be superseded. There was, however, no reason for apprehension, for the Corporation would never allow the higher departments of the school to suffer. The Lord Mayor then addressed the meeting, referring especially to the resignation of Dr. Abbott. All, he said, who knew anything of the character of the previous history of the school would regret as much as he did that he felt himself constrained to resign, because they knew how ceaselessly he had laboured to sustain the reputation of the school. As they knew, some change in the character of the teaching had been decided on, and they sympathised with Dr. Abbott in the feeling that it was well that the new order of things should be begun by a new *régime*, unfettered even by good traditions and results.

In Austria the law assigns eighty scholars to a teacher; in Belgium the law says fifty or sixty—the practice is seventy or eighty. In France the maximum is fifty; in Holland forty; in Hungary the law says eighty—practice says sixty-four. In Italy the law says seventy—practice says from twenty-five to thirty. In Norway the average is sixty; in Prussia eighty. In Saxony the law says sixty, forty, or thirty, according to the rank of the class, and a teacher may have two classes. In Sweden the law says thirty or forty; in Berne the law says eighty—practice, thirty to seventy. In Geneva the average is fifty; in Ticino, sixty; in Vaud, sixty; in Zurich, one hundred; in Würtemberg, ninety.

In the public schools of the United States, 12,000,000 children are taught. Ten States and territories do not furnish the necessary data, but if these make the same progress as the others the yearly increase of pupils would be 305,772, or at the rate of 2·66 per cent. per annum. In only five States—New Hampshire, Vermont, South Carolina, Ohio, and Nevada—and one territory, Arizona, has the enrolment decreased. Dakota furnishes the largest per cent. of the increase, 11·70, followed by Indiana with 9·20. According to the most recent returns, the number of pupils attending all the public schools of the United States while they are in session is, on the average, 7,571,416. The greatest increase in average attendance is observable in the South, Florida leading in the greatest growth of this sort, with 13·94 per cent. The average attendance has decreased in six States, so far as reported —viz., Vermont, New Hampshire, Rhode Island, Connecticut, New York, and South Carolina. The greatest decrease, 3·64 per cent., took place in New Hampshire.

Russia is organising a system of technical schools of a very complete form. The schools are of three classes—lower and middle technical schools, and upper, or, as they are also called, trade schools. The first consist of three divisions, for mechanics, chemists, and builders respectively, and the instruction is strictly technical and manual. The second class is intended for assistant engineers and architects, foremen builders, and agricultural bailiffs. The courses of study cover four years, and the students must have completed their primary education before entering the schools. The subjects of study are drawing, mechanics, applied mathematics, and practical exercises bearing on the industry to be followed. These middle schools are divided into five kinds—technical schools of a general character, schools of chemistry, schools of agriculture, schools of architecture, and schools of mines. Some schools combine two or more of these functions, that of Nijni-Novogorod, for instance, two; that of Moscow, three; that of Krasnovodsk also two (agriculture and mining). None of the courses are simply fanciful, all are practical. For instance, in the school of architecture the time will not be spent in sketching Pantheons or designing triumphal arches, but in planning dwellings of a moderate cost which shall be sound and durable, well warmed and ventilated, well drained, comfortable, and pleasant to live in. The superior trade schools are intended to produce skilled and intelligent workmen in wood and metal. The Minister of Instruction calculates that the cost of maintenance of a lower school will be 18,000 roubles per annum (£3,000), that of a middle school 26,000 roubles (£4,000), that of a trade school 12,000 roubles (£2,000).

The Chairman of the Nottingham School Board, writing to the *Daily News*, thus summarises the objections to the Technical Instruction Bill from his standpoint:—"(1) It would prevent a School Board spending its own rate on teaching the scientific principles of industry, although a School Board may even now teach chemistry and mechanics by means of apparatus and laboratories. (2) A Town or County Council would have the right of deciding whether technical instruction is to be given in a Board School, and of managing the school for that purpose. Or the Council may appoint a Committee, consisting in large part of persons neither on the Council nor the School Board, to manage the technical instruction. Thus three authorities would be muddling where one might be really managing. (3) Sectarian day and evening schools would in many cases be managed by sectarian delegates of Tory County Councils, while a School Board would have no right of management under the Bill in its own schools. (4) In Nottingham, for example, a dozen Church of England schools or institutions would soon be getting subventions from the local rates. Nothing could be easier than to constitute classes or schools of exempted or of ex-Standard VII. children under the superintendence and manipulation of the clergy; 'the local authority' would simply fix a programme of subjects and find the money. The real managers, the Church, would have the power to prevent any Nonconformist serving as teacher in rate-aided schools. (5) The Bill shuts out nearly all

scholars now in an elementary school from technical instruction in their own school building in the daytime. (6) No secondary school could be transferred to a School Board in England, while Scotland has her secondary schools under Boards. Mr. Mather's amendments in no way redeem the Bill from its evils. They would give a School Board and the managers of certain schools (including Church schools) an equal right to compel a Council to vote them money out of the rates, a provision which would work with friction, which lowers the status of School Boards, and revives the religious difficulty as to the rate-aiding of denominationalism. Surely Liberal members will not send us such a Bill as this." Most of these objections have been met by the amendments which were subsequently accepted by the Government; and on August 28th the Bill was read for the third and last time.

The London Chamber of Commerce are about to issue questions to the leading houses in the City and home trade as to what advantages they are prepared to offer to the holders of commercial certificates, granted either by the Chamber of Commerce or by the Oxford and Cambridge Schools Examination Board. Practically, unanimity has now been secured, and the examinations to be conducted by both bodies will be almost identical. The modifications agreed to are the addition of Latin as an optional subject in the course of higher commercial education, and the obligatory requirement of competency in one modern foreign language. In the near future two modern foreign languages will be necessary in the examinations of the London Chamber.

The Vestry of the Parish of St. Mary, Islington, has presented a petition to the House of Commons against the scheme of the Charity Commissioners for the erection and endowment of Technical Institutes in the metropolis, on the ground of there being no provision in the scheme for a Technical Institute for the large and populous parish and borough of Islington. The inhabitants of the borough of Islington have themselves to thank for the neglect against which their Vestry now petitions the House of Commons. Had the wealthier residents and owners of property in North London shown the public spirit displayed in South London, the boroughs of Finsbury, St. Pancras, Islington, and Hackney would each have secured an endowment from the surplus funds of the City Parochial Charities on the same scale as that applied to the southern boroughs. To petition against a scheme because its benefits are only to be participated in by those boroughs or parishes which fulfil the condition of securing such amount of local co-operation as will ensure its successful working is not the best way of attaining the object of the Vestry.

A modification of the scheme of competition adopted in 1880 for the valuable Whitworth Scholarships and Exhibitions came into operation last year. Experience had shown that it was desirable to revert to some extent to the scheme previously in force. Accordingly at the first examination held under the modified scheme, four scholarships of £125 a year, tenable for three years, twenty exhibitions of £100, and ten of £50, tenable for one year, were announced for competition. There were 124 competitors, as compared with 94 in the preceding year. It will be remembered that when the Whitworth Scholarships were first established they were awarded for three years, but under the scheme of 1880 these were converted into exhibitions, tenable for one year. The present scheme is an attempt to secure the advantages of the preceding ones, and so far has been pronounced as highly satisfactory.

The inevitable appeal that one excellent institution after another, at some period of its career, is compelled to make to the public for funds shows conclusively the almost insuperable difficulty of making such institutions self-supporting. The Working Men's College, Great Ormond Street, founded some thirty-five years ago by Frederick Denison Maurice, has now to appeal for such pecuniary support as will enable it to pursue its beneficent work. The circular issued with this object, and signed by the Principal of the College, Sir John Lubbock, and the Vice-Principal, Mr. R. J. Mure, states that the College educates at the present time 800 students, at a cost of about 17*s.* a head; that its income from fees does not cover more than half its expenditure, and that recurring deficits seriously cripple its work and retard its development, and are the source of constant anxiety to its Council.

The Thirty-sixth Report of the Department of Science and Art recently issued shows very satisfactory progress under the head of Science. The number of Science schools examined in 1888 had increased by 268 from the previous year, and the number of classes by 279, and the number of students under instruction by 9,720. The number of pupils examined by the Department in May, 1888, was 70,162, from 1,386 schools in the United Kingdom, exclusive of 3,876 self-taught students and pupils from classes not entitled to claim payments on results. The Science schools, exclusive of training colleges, obtained a sum of £85,562 15s. 11d. as payments on results of the examinations for the year 1888, being an increase of over £1,187 on the sum earned in the preceding year. It is very satisfactory to learn on such good authority that this large annual expenditure of public money in the promotion of scientific instruction has been attended with excellent results. "The effect," says the Report, "of the great advance that has been made in elementary science-teaching in all parts of the country has been very marked in the case of students joining the Normal School of Science."

In the Art division the progress is not so much marked as in Science. In the year ending 31st August, 1888, drawing was taught in 3,531 elementary schools, with 806,048 scholars; 590 of these schools were in Scotland, and under the inspection of the Scotch Education Department. The number of schools and scholars is smaller than in the previous year, when 3,979 schools, with 875,263 scholars, were examined. This is certainly an unwelcome fact, as we hoped that, owing to the labours of the advocates of technical instruction, drawing was being recognized more and more as an essential subject of instruction in elementary schools. It may be that a recent alteration in the syllabus of instruction by which model drawing will no longer be required in Standard IV. will lead to drawing being taught in many of the smaller schools which have given up teaching the subject, or have not as yet taught it under the minute of the 8th of March, 1887. The grants paid to elementary schools for drawing during the year have, however, increased to £42,336 11*s.* 10*d.*, as against £33,483 1*s.* 9*d.* in the previous year.

Much good work (says the *British Medical Journal*) has been done by the London School Board in promoting physical education. The work of training teachers for the Board schools was commenced by Madame Bergman-Oesterberg, who for some years held classes in various schools, and in her College Gymnasium for female teachers as well gave a course of twenty lectures on the Laws of Health, and on matters specially concerning the physical development of children; the number of lectures given has since been reduced to six. The pupil teachers who require a certificate in "drill" have to pass an examination, written as well as practical. To judge by the questions answered by the pupils, some considerable amount of knowledge is expected of the candidates. Besides technical questions as to drill they were asked at the last examination: "In what manner does exercise influence (*a*) the circulation, (*b*) the respiration? State the course you think should be adopted in regard to the physical training with (*a*) children insufficiently fed, (*b*) children who are delicate. Mention the exercises you deem best for rectifying any or all of the following conditions: (*a*) the 'contracted chest,' (*b*) the 'stooping habit,' (*c*) the 'poking head.'" It is much to be desired that the Board should further extend this kind of instruction for teachers, including the study of the development and conditions of the children generally, both of brain and body. Teachers ought to be instructed further as to the material upon which they have to work in their daily avocation. We are now spending £101,627 a year on school inspection, and some funds might be found to advance the careful study of children in their school life.

Until comparatively recent years (says the *Globe*) the British pedagogue took the fat with the lean in respect to clever and dull boys. He made the best that he could of both, well aware that juvenile quickness in learning is no criterion of success in after-life. Nor did he attempt to dispute that it was as much his mission to teach the stupid as the smart. Now, however, there are many schoolmasters—and their number is increasing—

who seem to consider that the main object of education is to enhance the renown of the place where it is imparted, and not to benefit the recipient. In their eyes the dull boy is simply a blunder and a nuisance; they wash their hands of the wretched dunce, and relegate his training to the chapter of accidents. Even at some Board Schools there is said to be a disposition to work on this plan. But for really notable instances of the subordination of the pupil's interests to those of the school resort must be had to a higher sphere. A case in point occurs just now at Manchester, where the grammar school has won a high and deserved reputation for educational excellence. In order to maintain this character, the high-master sets his face against dull boys; if they cannot learn as quickly as, in his opinion, they ought, they must leave. A father, who has just received an intimation of this sort, naturally considers it rather hard that his boy should be cast adrift for no other fault than mental sluggishness. He admits that the lad is dull, but contends that, when he himself was at school, the pedagogic method was to bestow especial care on pupils of that sort, with the result that they have often turned out excellent men of business. It is the more acute competition between schools which has worked the change; the dull boy is now a *persona ingrata* to headmasters, because there is no chance of his winning those educational distinctions which serve as school advertisements.

From the Annual Report of the Principal of the Owens College, Manchester, at the meeting for the distribution of honours and prizes, it appears that the total number of students has increased during the year from 1,269 to 1,297, and of these no fewer than 380 are in the Medical School. The number of associates elected during the year was 33; the associates, of whom there are now more than 300 on the roll, are *alumni* of the college, and are only elected after taking a degree at a University. It appears also that during the last year 104 Owens College students passed in arts, science, and law, and 57 in medicine at the Victoria University. In the London University 51 Owens College students passed in arts, science, and law, and 24 in medicine. A considerable portion of the most recent extension of the college buildings is devoted to the housing of the old Manchester Natural History and Geological Museums, and the additions made to them since they were handed over to the college. In addition to the sum of £3,000 previously given, the Whitworth legatees extended their gift by the further benefactions of £25,000 to the Museum Building Fund, and of £10,000 in augmentation of the Museum Trust Fund.

Some time ago the Goldsmiths' Company came to the assistance of the South London Polytechnics with the offer of an annual endowment of £2,500 for the New Cross Institute. They have now completely eclipsed the munificence of that proposal. Since the conclusion of their arrangements with the Charity Commissioners, they have received an unexpected accession of income, so that they now propose to undertake the whole of the cost of establishing this valuable Polytechnic. This means altogether an outlay of something like £30,000, and the provision of an endowment of £5,000 a year. The Charity Commissioners, who are thus relieved of their share in the bargain, accept the offer in fitting terms.

In the report just issued by the Oxford University Extension Delegates some interesting particulars are given (says the *Pall Mall Gazette*) of the devotion to learning under difficulties which some of the students display. Thus, at Camborne one of the students was a miner, who, after the evening lecture, had to go in the night shift underground. At Burnley, a weaver in a cotton mill, in order to have more time for study, sacrificed her dinner-hour, and remained at the loom reading between her hours of work. To supplement the regular courses of lectures, and to carry on the work therein begun, an increasing number of reading circles and students' associations have, we see, been formed. Of the latter one of the most successful is at Exeter. It consists of ladies only, and during the year it has held about twenty meetings for the discussion of literary subjects, and the reading of essays, besides arranging for the delivery of ten special scientific lectures. The movement has received an additional impetus from the generosity of the Marquis of Ripon, Mr. J. G. Talbot, M.P., Mr. F. D. Mocatta, the Rector of Exeter, and other donors, who offered scholarships, lately awarded, to enable poorer students to attend the summer meeting at Oxford.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending August 31st, 1889.

Annals of Botany, edited by J. B. Balfour, Vol. 2, 8vo, 42s.
Baumann (J.): Platons Phädon, Philosophisch Erklärt, 4m.
Bennett's (R. A. R.) Marine Aquaria, cr. 8vo, 2s. 6d. cl.
Bührig (H.): Die Sage vom König Rother, 1m. 60.
Carte de France, à l'échelle de 1 : 100,000, per sheet, 75c.
Cowham's (J. H.) Graphic Lessons in Physical and Astronomical Geography, 8vo, 4s. 6d. cl.
Dalhousie (Marquis of), Life of, by Capt. L. J. Trotter, 2s. 6d. cl.
Droysen (H.): Heerwesen u. Kriegführung der Griechen, Part 2, 5m.
Great Authors (The) of English Literature, cr. 8vo, 3s. 6d. cl.
Grimard (E.): L'Enfant, son Passé, son Avenir, 3fr.
Guigard (J.): Nouvel Armorial du Bibliophile, 50fr.
Hiorn's (A. H.) Iron and Steel Manufacture, 12mo, 3s. 6d. cl.
Irving's (A.) Chemical and Physical Studies in the Metamorphism of Rocks, 8vo, 5s. cl.
Josephi Opera Omnia, rec. S. A. Naber, Vol. 2, 3m.
Knight's (E. F.) Sailing, 2s. (The All-England Series.)
Lafitte (P.): Cours de Philosophie Première, Vol. 1, 7fr. 50.
Lagarde (P. de): Uebersicht über die im Aramäischen, Arabischen, u. Hebräischen übliche Bildung der Nomina, 20m.
Lames's (J. M.) English Composition Exercises, cr. 8vo, 3s. cl.
MacColl's (M.) Christianity in Relation to Science and Morals, cr. 8vo, 6s. cl.
Maitland's (S. R.) The Dark Ages, Religion and Literature, 8vo, 12s. cl.
Middleton's (G. A. T.) Strains on Structures, illus., cr. 8vo, 4s.
Miller's (H.) Sketch-Book of Popular Geology, cr. 8vo, 3s. 6d. cl.
Monk, by J. Corbett, 2s. 6d. cl. (English Men of Action.)
Morgenstern (G.). Cyprian, Bischof v. Carthago, als Philosoph, 1m.
Mossé (B.): Dom Pédro II., 4fr.
Poyser's (A. W.) Magnetism and Electricity, 12mo, 2s. 6d. cl.
Pulpit Commentary: St. Luke, Vol. 2, roy. 8vo, 10s. 6d. cl.
Quatrefages (A. de): Introduction à l'Étude des Races Humaines, Part 2, 15fr.
Ramsay's (W. M. and C. D.) Introduction to History of the Goths and Study of the Gothic Tongue, cr. 8vo, 6s. cl.
Robson's (Rev. J. H.) Solutions of Examination Papers in Algebra, &c., Royal Military College, Sandhurst, 1880–88, cr. 8vo, 3s. 6d. cl.
Sacrifice of Education to Examination, edited by A. Herbert, 8vo, 2s. cl.
Schubert (E.) u. Sudhoff (Karl): Paracelsus-Forschungen, Part 2, 8m.
Schürer (E.): Geschichte d. Jüdischen Volkes im Zeitalter Jesu Christi, Section 1, Part 1, 6m.
Shakespeare's Cymbeline, Othello, with Introduction and Notes by K. Deighton, 12mo, 2s. 6d. each, cl.
Thum's (Dr. R.) Grammar of the French Language of Business, from the German by Whitfield, 8vo, 3s. 6d. cl.
Watts' Dictionary of Chemistry, revised by M. M. Pattison Muir and H. F. Morley, Vol. 2, 8vo, 42s. half bound.
Weiss (Prof. J. B.): Lehrbuch der Weltgeschichte, Vol. 9, Part 1, 10m.
Wilson's (A. E.) At the Mercy of Tiberius, cr. 8vo, 2s. cl.
Young's (A.) Travels in France, 1787–9, cr. 8vo, 3s. 6d. cl. (Bohn's Standard Library.)

MATHEMATICS.

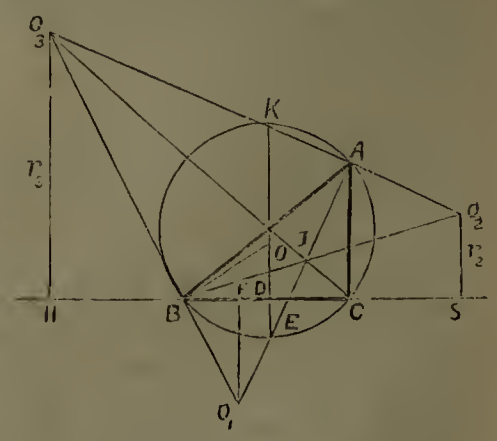
2842. (Morgan Jenkins, M.A.)—In Degen's table of the quotients to be used to form the convergents to the value of $\sqrt{N}$, where N is any non-square integral number from 1 to 1000, it is seen that the number of quotients in the period (excluding the first quotient which does not recur) never exceeds $2a$, when N lies between a^2 and $(a+1)^2$. Can this be proved generally?

Solution by Artemas Martin, LL.D.

It is *not* true generally. Let $a = 90$, then 8269 is between a^2 and $(a+1)^2$. The number of terms in a period of $\sqrt{(8269)}$ is 181, which exceeds $2a = 180$. Let $a = 94$, then 8941 is between a^2 and $(a+1)^2$. The number of terms in a period of $\sqrt{(8941)}$ is 207, which exceeds $2a = 188$. [The rest in Volume.]

10009. (Rev. W. T. Wellacott, M.A.)—Prove, geometrically, that the sum of the perpendiculars on the sides of a triangle from its circumcentre is equal to the sum of the radii of the in-circle and circum-circle.

Solution by W. J. Greenstreet, M.A.; E. Rutter, *and others.*



Take O, O_1, O_2, O_3, I the circum-, ex-, in-centres.

$$HD = DG,$$

$$\therefore\ 2DK = r_2 + r_3.$$

IO_1 bisected in E,

$$\therefore\ 2DE = r_1 - r,$$

$$\therefore\ 2EK = r_1 + r_2 + r_3 - r = 4R.$$

$$DE = \tfrac{1}{2}(r_1 - r) = d$$

$$\tfrac{1}{2}(r_2 - r) = d',$$

$$\tfrac{1}{2}(r_3 - r) = d'',$$

$$\therefore\ 2R - r = d + d' + d'';$$

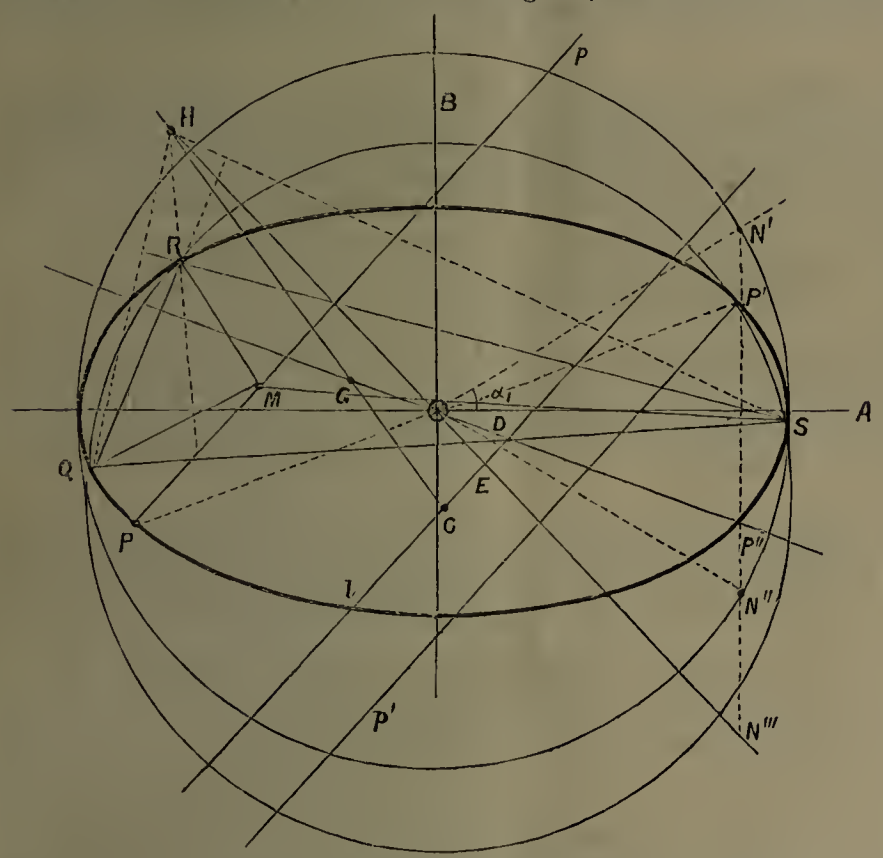
and $$OD + \ldots + DE + \ldots = 2R,$$

therefore $$OD + \ldots = 3R - (2R - r) = R + r.$$

10086. (W. J. Greenstreet, M.A.)—Through any point M on the normal to an ellipse at P, draw normals MQ, MR, MS. Find the locus of the ortho-, the circum-, and mass centres of the triangle QRS.

Solution by Professor Schoute.

In the diagram P is the given point, P′ the point diametrically opposite to P, and l the line parallel to the normals p and p' in P and P′ that bisects the distance of the centre O and p'. According to the known theorems of Joachimstahl the circle through P′, the centre of which is



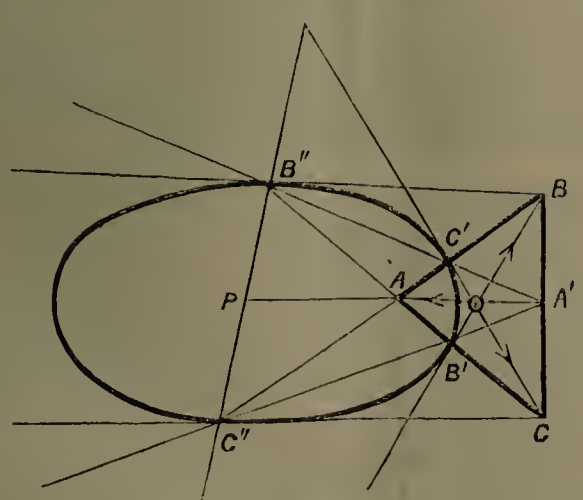
any point C of l, meets the ellipse in three other points Q, R, S, the normals of which concur in a point M of p. So the locus of the circum-centre C is the line l, that is complementary to the normal p with reference to O (expression due to E. Hain). [The rest in Volume.]

10058. (Col. H. W. L. Hime.)—ABC is a given triangle, and the sides are divided in A′, B′, C′ so that BA′ : A′C = $n : m$, CB′ : B′A = $l : n$, AC′ : C′B = $m : l$, where $l-m-n=0$; also B″, C″ are taken in CA, AB, where C′A′, A′B′ meet them; and AA′, BB′, CC′ meet in O. Prove that, if OA is produced to P, so that OP = 3OA, the points B″, C″, and P are collinear; BB″ and CC″ are parallel; and B″C″ is the diameter of a conic to which ABC is self-conjugate; BB″ touching at B″, CC″ at C″, CC′ at C′, and BB′ at B′. Prove that, if $m=n$, P will be the centre of the conic.

Solution by the Proposer.

Let three vectors OA (α), OB (β), OC (γ) be connected together by the relation, $l\alpha+m\beta+n\gamma=0$, and complete triangle ABC. Then

$$\frac{BA'}{A'C}=\frac{n}{m};\quad \frac{CB'}{B'A}=\frac{l}{n};\quad \frac{AC'}{C'B}=\frac{m}{l}.$$



In investigating the curve (in anharmonics) $x^2-y^2-z^2=0$, we find that ABC is self-conjugate with respect to it, and that BB″, BB′, CC″, CC′ are tangents at B″, B′, C″, C′, respectively. [The rest in Volume.]

3276. (Artemas Martin, LL.D.)—Give all the different square numbers that can be made with the nine digits, using all the digits once (and only once) in each number.

Solution by D. Biddle.

There are 29 such square numbers, and they are as follows:—

1. $139854276 = 11826^2$.	16. $587432169 = 24237^2$.
2. $152843769 = 12363^2$.	17. $589324176 = 24276^2$.
3. $157326849 = 12543^2$.	18. $597362481 = 24441^2$.
4. $215384976 = 14676^2$.	19. $615387249 = 24807^2$.

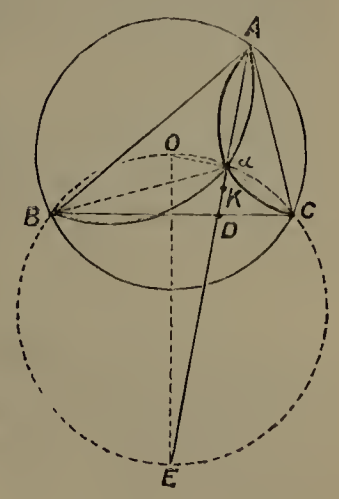
[The rest in Volume.]

10018 & 10060. (10018.) (J. Lemaire.)—Soit O le centre du cercle circonscrit à un triangle ABC. Lieu de la projection du point O sur la symédiane relative au sommet A quand le triangle se déforme de manière que l'angle A demeure constant, les sommets B et C restant fixes.

(10060.) (E. M. Langley, M.A.)—Prove that the intersection of the Brocard-axes $A\Omega_1C$, $A\Omega_2B$ is the intersection of the Brocard-circle and the symmedian through A.

Solution by E. M. Langley, M.A.; R. Knowles, B.A.; *and others.*

Let the Brocard-arcs $A\Omega_1C$, $A\Omega_2B$ intersect in α, and let $A\alpha$ cut BC in D. Therefore AB, AC are tangents at A.



$\angle BA\alpha = \angle AC\alpha$ and $\angle AB\alpha = \angle CA\alpha$;

therefore triangles $AB\alpha$, $AC\alpha$ are equiangular.

$\therefore\ BA^2 : AC^2 :: \triangle AB\alpha : \triangle AC\alpha$,

$:: BD : DC$;

therefore AD is the symmedian through A.

Again, $\angle C\alpha D = CA\alpha + AC\alpha = BA\alpha$.

Similarly $\angle B\alpha D = BA\alpha$.

$\therefore$ (1) α lies on circle through B, C and the circum-centre O of $\triangle ABC$;

and (2) AD passes through the other end E of the diameter OE of this circle.

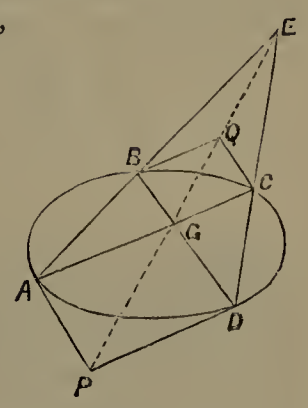
[The rest in Volume.]

10170. (R. Knowles, B.A.)—The sides AB and CD of a quadrilateral inscribed in a conic meet in E; the diagonals AC and BD intersect in G; prove that the four points E, G, and the poles of AD and CB are collinear.

Solution by D. T. Griffiths; *and* G. G. Storr, M.A.

$A\{ABCD\} = D\{ABCD\} = D\{DCBA\}$;

therefore $A\{PEGD\} = D\{PEGA\}$.



Since these two equal pencils contain one common ray AD, the corresponding rays

$$\left.\begin{matrix} AP \\ DP \end{matrix}\right\}\left.\begin{matrix} AE \\ DE \end{matrix}\right\}\left.\begin{matrix} AG \\ DG \end{matrix}\right\}$$

intersect on a straight line; hence P, G, E are collinear.

In the same way it can be shown that Q, G, E are collinear.

10075. (Professor Nilkantha Sarkar, M.A.)—The vertices ABCD of a quadrilateral are to be connected by a system of straight lines; prove that (1) the systems AP, BP, PQ, QC, CD and BP, CP, PQ, QA, QD, where P, Q are such that the angles at P, Q are all equal, are systems whose total lengths are minima; (2) if equilateral triangles AEB, CED, BGC, AHD be drawn outside the quadrilateral, the length of the first system is equal to EF, and of the second GH; and that if d, d' are the lengths of the diagonals AC, BD, and α the angle between them, these lengths are the two values of

$$\left\{d^2+d'^2 \pm 2dd'\cos\left(\alpha \mp \tfrac{1}{3}\pi\right)\right\}^{\frac{1}{2}}.$$

Solution by Professor Syamadas Mukhopadhyay, B.A.

Join EF. Let the circumcircles of AEB, CFD intersect EF at P, Q. Take any two points P′, Q′. Then, since the sum of the distances of any point from two vertices of an equilateral triangle is equal to or greater than the distance from the third vertex as the point lies on the circum-circle or elsewhere, we have

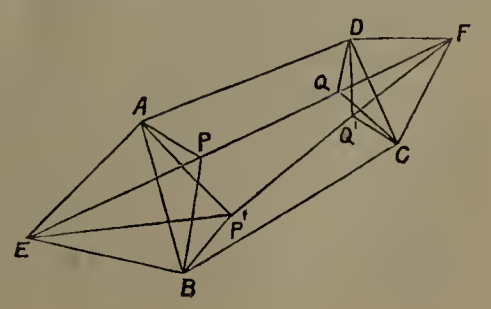
$AP'+BP'+P'Q'+Q'C+Q'D$

not $< EP'+P'Q'+Q'F$,

that is, greater than EF, and

$EF = EP+PQ+QF$

$= AP+BP+PQ+QC+QD$.

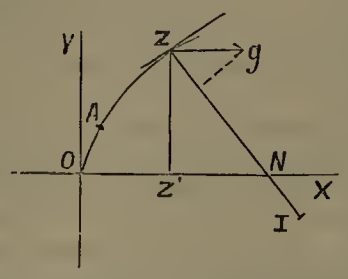


This proves the first and second parts of the question.

[The rest in Volume.]

9987. (Professor De Wachter.)—A sphere, acted on by gravity, rolls down a surface of revolution with vertical axis. Find at which point of the generating curve the sphere will leave the surface, supposing the generatrix to be (1) a circle; (2) an ellipse; (3) a cycloid.

Solution by the Proposer.

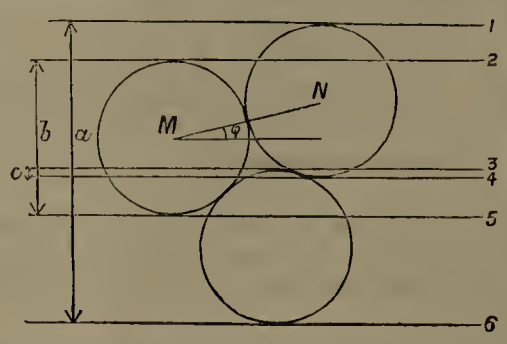


The generating plane curve is referred to a system of rectangular coordinates having its origin at the vertex O, and the positive X-axis being taken along the direction of gravity. The motion is supposed to take place along the generating curve on the outer or convex side of the surface, the rolling sphere being reduced to a material point starting without initial velocity from a given point A (x_0, y_0).

In consequence of this motion, an increasing amount of centrifugal force is called into play; it is directly opposed by that component of gravity which acts normally to the generatrix. The moving point is kept on the surface by the same component until contact ceases beyond a certain point Z (x, y) where both contending forces cancel each other, and free motion sets in. [The rest in Volume.]

10251. (D. Biddle.)—A figure, consisting of three equal circles touching each other, is disposed at random on a floor ruled with parallel lines, the distance between which exceeds that of two diameters. Find the probability that the figure will be cut by one of the lines, (1) in two points, (2) in four points, (3) in six points.

Solution by Professor P. H. Schoute.



In the diagram ϕ denotes the inclination of MN on the parallel lines of the floor; 1, 2, 3, 4, 5, 6 are the tangents to the circles parallel to these lines; and $(a-b)/l$, $(b-c)/l$, c/l indicate the relative probabilities, when the angle ϕ is given, and l is the distance of the floor lines. Now, $b = 2r$,

$$a = 2r\left\{1+\cos\left(\tfrac{1}{6}\pi-\phi\right)\right\},$$
$$c = 2r\left\{1-\cos\left(\tfrac{1}{6}\pi-\phi\right)\right\},$$

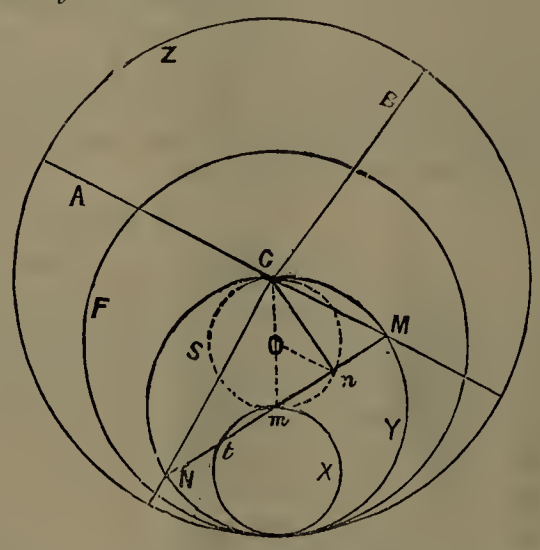
when r is the radius of the circles; hence the probabilities are

$$W_1 = \frac{2r}{\frac{1}{6}\pi l}\int_0^{\frac{1}{6}\pi}\cos\left(\tfrac{1}{6}\pi-\phi\right)d\phi = \frac{6r}{\pi l},\quad W_2 = \frac{6r}{\pi l},$$

$$W_3 = \frac{2r}{\frac{1}{6}\pi l}\int_0^{\frac{1}{6}\pi}\left\{1-\cos\left(\tfrac{1}{6}\pi-\phi\right)\right\}d\phi = \left(2-\frac{6}{\pi}\right)\frac{r}{l}.$$

9525. (F. R. J. Hervey.)—Prove that, through any two sets of mutually orthocentric points, each formed by the intersection of two pairs of perpendicular tangents to a three-cusped hypocycloid, a rectangular hyperbola can be drawn, cutting the cycloid generally at the ends of two or four complete tangent chords, which are respectively parallel to the normals of the hyperbola at its intersections with the circle through the vertices of the cycloid; the tangents to the hyperbola at such intersections being, as well as the asymptotes, tangents to the cycloid.

Solution by the Proposer.



The circles X, Y, Z rolling upon F (centre O), the diameters A, B (at right angles) of Z and MN of Y envelope, and points t on X, and M, N on Y describe, the same three-cusped hypocycloid with vertices on S. When, as in the figure, X, Y, Z touch F at a common point, t is the point of contact of MN, and M, N those of A, B. Cn is the third tangent through C. We are concerned with the system of hyperbolas having the revolving line-pair AB for asymptotes. The mid-point m of the tangent chord MN, of constant length, may be called briefly the mid-point of the tangent. [The rest in Volume.]

2560. (J. J. Walker, F.R.S.)—Given that either of one pair of impossible roots of the equation $3x^4-16x^3+30x^2+8x+39=0$ gives a real result when substituted for x in $5x^3-18x^2-7x$, it is required to find the four (impossible) roots of the biquadratic.

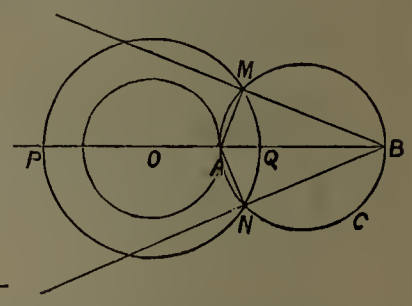
Solution by the Rev. J. L. Kitchin, M.A.

Assume as one pair $\alpha \pm i\beta$, then $5(\alpha+i\beta)^3-18(\alpha+i\beta)^2-7(\alpha+i\beta)$ is real; hence $\alpha^2-\frac{12}{5}\alpha = \frac{1}{15}(5\beta^2+7) = \frac{9}{5}$ if $\beta = 2$.

Thus $\alpha = 3$, $\beta = 2$, and one trial pair being $3 \pm i\,.\,2$, the quadratic factor is $x^2-6x+13=0$. The other factor is found to be $3x^2+2x+3=0$; and roots $-\frac{1}{3} \pm \frac{2}{3}\sqrt{2}\,i$, the four roots are $3 \pm 2i$, $-\frac{1}{3}+\frac{2}{3}\sqrt{2}\,i$.

10112. (Professor Morel.)—On considère deux cercles concentriques O. On trace un troisième cercle variable C, tangent en un point fixe A du plus petit des cercles O et coupant le plus grand aux points M, N; on joint M et N au point B diamétralement opposé à A dans le cercle C. Démontrer que les droites BM et BN enveloppent un ellipse fixe.

Solution by R. Knowles, B.A.; J. C. St. Clair; *and others.*



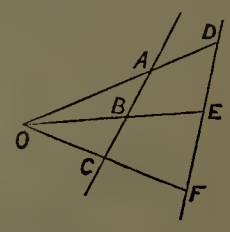
It is immediately evident that the lines BM and BN envelope the ellipse with the major axis PQ of which A is a focus.

10126. (H. W. Segar.)—The straight lines ABC, DEF cut three others which meet in a point O in the points A, B, C, D, E, F; prove that

$$AD\,.\,BC/OD + BE\,.\,CA/OE + CF\,.\,AB/OF = 0.$$

Solution by Professors Schoute, Beyens, *and others.*

$$\Delta EOF + \Delta FOD + \Delta DOE = 0, \text{ or } \Sigma\Delta EOF.$$



This gives immediately in a transparent notation the identities

$$\Sigma\frac{\sin EOF}{OD} = 0,\quad \Sigma\frac{OA}{OD}\,.\,OB\,.\,OC\sin BOC = 0,$$

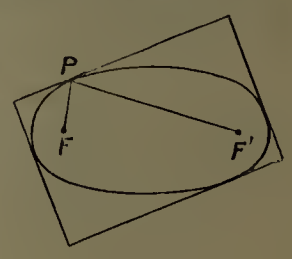
or

$$\Sigma\frac{OA}{OD}\Delta BOC = 0,\quad \Sigma\frac{OA\,.\,BC}{OD} = 0.$$

By subtraction of $\Sigma BC = 0$, we get the identity in question.

9960 & 10121. (E. Lemoine.)—On circonscrit à toutes les ellipses homofocales de foyers F et F′ des rectangles dont la direction des côtés est donnée; démontrer que tous les points de contact appartiennent à une même hyperbole équilatère qui passe par F et F′ et a pour asymptotes les parallèles menées par le centre des ellipses aux côtés des rectangles.

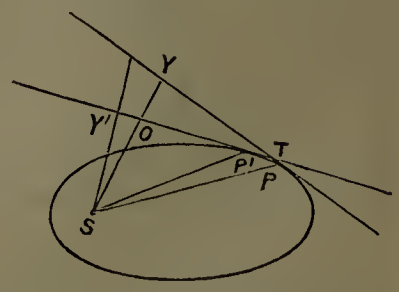
Solution by Professor Schoute; G. E. Crawford, B.A.; *and others.*



Comme les droites FP et F′P sont toujours antiparallèles par rapport aux directions des côtés, le lieu de P est une hyperbole équilatère concentrique, qui passe par F et F′ et dont les asymptotes ont ces directions données. (See Vol. li., p. 66.)

10005. (R. Lachlan, M.A.)—If SY be the perpendicular from the focus S of an ellipse on the tangent at the point P, find the position of P when the area of the triangle SPY is a maximum.

Solution by H. W. Segar; C. Bickerdike; *and others.*



Let PY, P′Y′ be consecutive tangents; SY, S′Y′ the perpendiculars on them, meeting in O. Then evidently, for a maximum, we have

$$\Delta OSY' = \Delta OPP' + \Delta TOY$$

ultimately; that is,

$$SY^2 = SY\,.\,\rho + PY^2,$$

ρ being the radius of curvature at P.

Let $SY = p$, $SP = r$, then this becomes

$$r\frac{dr}{dp} = \frac{2p^2-r^2}{p} = 2p-\frac{r^2}{p}.$$

[The rest in Volume.]

10125. (Ch. Hermite.)—Démontrer que, lorsque m est un multiple de n, $\{m(m-1)(m-2)\ldots(m-n+2)\}/n!$ est un nombre entier.

Solution by Rev. J. L. Kitchin, M.A.; W. Gross, Dr.Sc.; *and others.*

$m(m-1)(m-2)\ldots(m-n+2)$ is always divisible by $(n-1)!$ as it is the product of $(n-1)$ consecutive integers; when m is a multiple of n, it is divisible by n; therefore also in this latter case by $n!$

QUESTIONS FOR SOLUTION.

10257. (Professor Sylvester, F.R.S.)—If $A_1, A_2 \ldots A_i)$ means the least of the quantities $A_1, A_2 \ldots A_i$, find an expression for the rth in order of magnitude of the quantities $A_1, A_2 \ldots A_n$ in terms of the symbols ΣA_1; $\Sigma(A_1, A_2)$; $\Sigma(A_1, A_2, A_3)\ldots$; $\Sigma(A_1, A_2 \ldots A_{n-1})$; $(A_1, A_2 \ldots A_n)$, and show the application of the question to the theory of life contingencies.

—**258.** (Professor Neuberg.)—On considère toutes les coniques ayant même axe focal $2a$, un foyer fixe F et le second foyer F′ en un point quelconque d'une droite donnée. Trouver 1° le lieu des sommets de l'axe focal; 2° l'enveloppe des directrices; 3° l'enveloppe de ces coniques.

—**259.** (Professor de Longchamps.)—On considère une conique H et un point fixe M. De M, comme centre, avec un rayon variable, on décrit un cercle Γ. Trouver le lieu des points de rencontre des tangentes communes à H, Γ. Ce lieu est une Strophoïde oblique.

—**260.** (Professor Lemaire.)—On donne un triangle ABC, inscrit dans un cercle de rayon R, et l'on joint deux à deux les milieux A′, B′, C′ des côtés BC, CA, AB. Si α, β, γ désignent les distances du centre O aux côtés du triangle ABC, et α', β', γ' les distances analogues relatives au triangle A′B′C′, on a $R^3 = \alpha^2\beta^2\gamma^2/\alpha'\beta'\gamma'$.

—**261.** (Professor Déprez.)—On décrit des coniques semblables entre elles, ayant même centre O et passant par un même point P. Démontrer que (1) les sommets et les foyers de ces courbes décrivent des podaires de coniques; (2) le centre du cercle osculateur en P décrit une quartique; (3) les directrices enveloppent une conique.

—**262.** (Professor Wolstenholme, M.A., Sc.D.) — An equilateral triangle is drawn self-conjugate to the parabola $y^2 = 4ax$, prove that (1) the equation of a side of the triangle will be $(x-a)\cos\theta - y\sin\theta = 4a\cos\theta/(3-4\cos^2\theta)$; and (2) the envelope of these straight lines is the first negative pedal of the hyperbola $x^2 - 3y^2 = a^2$ with respect to that vertex which coincides with the focus of the parabola.

—**263.** (Professor Morley.)—Equilateral triangles have sides passing through given points; prove that the centre locus is two concentric circles, coincident when points collinear.

—**264.** (Professor Décamps.)—Si, dans un tétraèdre OABC, trirectangle en O, α représente l'angle dièdre formé par les faces ABC et OBC, on a $\tan^2\alpha = \tan^2 ABO + \tan^2 ACO$.

—**265.** (Professor Syamadas Mukhopadhyay, B.A.) — A hexagon, A, B, C, D, E, F, has three pairs of opposite sides parallel. Prove, by elementary geometry, that the triangles ACE and BDF are of equal area, and that the three lines joining middle points of opposite sides have a common point.

—**266.** (Professor Gob.) — Soient Ω, Ω′ les points de Brocard du triangle ABC ($\Omega AB = \Omega' AC = \omega$). En menant par B, C, A des parallèles respectivement à ΩA, ΩB, ΩC, on forme un nouveau triangle A′B′C′. Démontrer que Ω est le point de Lemoine de A′B′C′, et que Ω′ le conjugué isotomique d'un point de Brocard de A′B′C′.

—**267.** (Professor Hermite.)—On sait que les coefficients de la puissance m du binôme sont divisibles par m, à l'exception du premier et du dernier, lorsque m est un nombre premier. (1) On propose d'étendre cette proposition en montrant que l'expression (A) $\{m(m-1)\ldots(m-n+1)\}/n!$ est divisible par m/δ, δ désignant le plus grand commun diviseur de m et n. (2) Soit ϵ le plus grand commun diviseur des nombres $m+1$ et n; on demande d'établir que le nombre entier (A) est divisible par $(m-n+1)/\epsilon$.

—**268.** (Professor Steggall.)—Prove that a prime number which is the sum of two squares can only be resolved into the sum of two squares in one way.

—**269.** (F. R. J. Hervey.)—Cut out the accompanying polygon (erasing the black outline), and cut it into twelve parts, from which reconstruct the polygon, turning the whole figure into its perversion, or image in a plane mirror. [This is one of many species of symmetrical transformation obtainable by the same process, which is applicable to any regular polygon having an even number of sides; the effect produced depending upon the conditions observed in drawing the original figure.]

10270. (The Editor.)—If the mid-points of the arcs cut off by the sides of a convex quadrilateral in a circle be joined so as to form a second quadrilateral, and a third be similarly formed from the second, and so on, find the ultimate form towards which these quadrilaterals tend.

—**271.** (Capitaine de Rocquigny).—Déterminer n de manière que $1^3 + 3^3 + 5^3 + \ldots + (2n-1)^3$ soit égale à un carré.

—**272.** (R. H. W. Whapham, B.A.)—If straight lines be drawn parallel to the sides of the pedal triangle of a triangle ABC, so as to form with the intercepted portions of the sides of the pedal triangle an equilateral hexagon, the length of each side of the hexagon will be $R(\sin 2A \sin 2B \sin 2C)/(\sin 2B \sin 2C + \sin 2C \sin 2A + \sin 2A \sin 2B)$, R being the circum-radius of ABC.

—**273.** (J. J. Walker, F.R.S.)—Show that the anharmonic polars of three collinear points of inflexion on a plane cubic meet in a point.

—**274.** (Rev. R. Harley, F.R.S.)—"The members of a board were each of them either bondholders or shareholders, but not both; and the bondholders, as it happened, were all on the board. What conclusion can be drawn?" (Venn, *Mind*, vol. I., p. 487.) Show (1) that the conclusion "No shareholders are bondholders," can be drawn from part of the premise, and (2) give *all* the conclusion.

—**275.** (D. T. Griffiths).—The perpendiculars from the vertices on the sides of the triangle ABC meet the sides of the pedal triangle DEF at the points d, e, f. If AB and DE, AC and FD, BC and FE intersect at the points X, Y, Z respectively, prove that each side of the triangle def passes through one of three points X, Y, Z.

—**276.** (Rev. T. R. Terry, M.A., F.R.A.S.)—If $gh = V^2\cot^2\alpha \log\sec\alpha$ where V, g, and α are constants, and $p = 2gxV^{-2}\tan^2\alpha$, find the value of the integrals

$$I = \frac{\sin\alpha}{V}\int_0^h \frac{dx}{\sqrt{e^{-p} - \cos^2\alpha}} \text{ and } I' = \frac{\sin\alpha}{V\cos^2\alpha}\int_0^h \frac{dx}{\sqrt{\sec^2\alpha - e^p}}.$$

—**277.** (E. Cesáro.)—Si α est la $n^{\text{ème}}$ partie d'un quadrant, démontrer que, pourvu que $p < 2n$,

$$\sin^{2p}\alpha + \sin^{2p}2\alpha + \sin^{2p}3\alpha + \ldots + \sin^{2p}n\alpha = \tfrac{1}{2} + n\,\frac{1.3.5\ldots(2p-1)}{2.4.6\ldots 2p}.$$

—**278.** (Artemas Martin, LL.D.)—Prove that (1) "in an aggregation of closely-packed equal spherules the unoccupied space is $1 - \frac{1}{6}\pi\sqrt{2}$ of the whole volume" (A. G. Greenhill in *Nature*, for May 2, 1889, p. 10.); and find (2) what is the *greatest* number of equal spheres, each one inch in diameter, that can be packed in a cubical box whose inside dimensions are one foot each.

—**279.** (H. L. Orchard, M.A., B.Sc.) — Solve the simultaneous differential equations $\dfrac{d^2x}{dt^2} = 2y + x + 3$, $\dfrac{d^2y}{dt^2} = 4x + 5y + 6$.

—**280.** (R. W. D. Christie.)—Prove that

$${}_nC_1(1^m) - {}_nC_2(2^m) + {}_nC_2(3^m) - \pm\,{}_nC_n(n^m) \equiv 0.$$

—**281.** (E. M. Langley, M.A.)—Circles are described to touch AB, AC at A and pass through C and B respectively. If the median through A meets these circles again in H and L, show that these points are equidistant from the circumcentre of ABC. Show also that BL = CH.

—**282.** (D. Biddle.)—Six balls of different colours, but otherwise indistinguishable, are placed in a bag. One is drawn, and its colour having been recorded, is replaced. The process is subsequently repeated five times, the drawer receiving a sovereign if he draw a new colour, but forfeiting a sovereign if he draw one already drawn. Prove that, if the drawer pay a sovereign to begin with each round, the bank secures on the average something less than sixpence, or about $4\frac{1}{2}d$.

—**283.** (E. Vigarié.)—Etant donnés un angle yox et un point P dans son plan, on mène par ce point une droite quelconque YPX qui coupe oy en Y et ox en X. Par X et Y on trace deux droites XM, YM respectivement parallèles à deux directions données. Lieu du point M quand XY varie.

—**284.** (J. J. Barniville.)—If C_x^y denote the combinations of y things taken x at a time, find C_x^{y+z} in terms of C_x^y and C_x^z.

—**285.** (H. W. Segar.)—Show that the surfaces

$$xyz = a^3, \quad x^2(y^2+z^2) = c^3\left(\frac{y^2}{z^2} + \frac{z^2}{y^2}\right),$$

cannot have a common tangent plane without touching one another.

—**286.** (R. Knowles, B.A.)—Two given conics osculate at a point P; their transverse axes meet the normal at P in Q and R respectively; prove that the ratio QP : RP is constant for all positions of P.

—**287.** (W. J. C. Sharp, M.A.)—Prove that (1) the k-ary n-ic has an invariant of order k, when n is even; and (2) of order $2k$ when n is odd; (3) it has a covariant of order k in the coefficients, which is of order k in the variables when n is odd, and (4) of order $2k$ in the variables when n is even.

10288. (W. J. Greenstreet, M.A.)—Find the envelope of the sides of a triangle which is inscribed in an ellipse, and whose orthocentre is a fixed point.

—289. (B. F. Finkel, B.Sc.)—Two equal ellipses fastened together so as to move freely about, are thrown on a horizontal plane at random; find the average area common to the two ellipses.

—290. (Maurice d'Ocagne.)—Soient ABC un triangle rectangle en A, AH la hauteur issue de A, HK la perpendiculaire abaissée de H sur AB. CK coupe AH en I. Démontrer que la perpendiculaire abaissée de I sur AC coupe ce côté au même point que la symédiane issue de B.

—291. (L. W. Robinson, B.A.)—If R be radius of circum-circle of a triangle and ∂, ∂_1, ∂_2, ∂_3 the distances of its centre from escribed centres, prove that $\partial^2+\partial_1^2+\partial_2^2+\partial_3^2 = 12R^2$.

—292. (E. Lemoine.)—Soit ABC un triangle: soient A′, B′, C′ les points du côté de l'extérieur de ABC, et A″, B″, C″ les points du côté de l'intérieur, où les médiatrices de BC, CA, AB coupent respectivement les circonférences décrites sur BC, CA, AB comme diamètres. Démontrer que (1) AA′ et B′C′ sont perpendiculaires ainsi que AA″ et B″C″; (2) de même BB′ et C′A′, etc., AA′ et B′C′ sont égales ainsi que AA″ et B″C″, de même BB′ = C′A′, etc; (3) les milieux des 4 droites AB′, AC′, B′A′, C′A′ forment un carré ainsi que les milieux de 4 droites AB″, AC″, B″A″, C″A″, le centre de les carrés et le centre de gravité de ABC; (4) on a

$$AA'^2-AA''^2 = BB'^2-BB''^2 = CC'^2-CC''^2 = \text{surface de ABC}.$$

—293. (G. Russo.)—En un point quelconque de la base BC d'un triangle isoscèle ABC, on élève une perpendiculaire, qui rencontre AC en D, AB en E. Étudier géométriquement le lieu du point de rencontre des droites BD, CD.

—294. (M. Thénard.)—Construire un triangle isoscèle ABC, connaissant un des deux côtés égaux et la somme BC + CD de la base BC et de sa projection CD sur AC.

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16158. Master. Gen. Eng. subj., jun. Fr., Shorthd., or Lat. 20*l.* to 30*l.*
16164. Gov. Gen. subj. Mornings free. Mutual terms.
16165. A Master, to give three hours a day. Board and residence.
16166. Master. Fr. (conv.), Shorthd., Mus. (Piano, Violin, Sing.), good Eng. and Math. 25*l.* to 30*l.*
16167. Master. Eng. subj., Lat., Fr., Ger., Draw., Mus., Math. 15*l.* to 20*l.*
16168. Tutor for two little boys, to prepare for Camb. Local. Lat., Fr., Gk., Jun. Math., Eng. subj.
16175. German or Swiss Gov. for three children, ages 12, 11, 8. Ger., Fr., Piano, Draw., Eng. subj.
16180. Gov., with experience in preparing for Exams. Draw. and Har. desirable. Sen. Oxf. or Camb. Cert. 30*l.*
16181. Gov., Certd. Eng. Lang., &c. Arith. (good) Mus. 30*l.*, about.

16182. Gov., Certd. First Class in Eng. subj., Draw. and Paint., Mus. and Sing. 25*l.*
16183. Gov. Eng. subj. and Lat. (Euc. and Alg. desirable). 4 hours' teaching daily. Mutual terms.
16184. Two Masters. Fr., Ger., Draw., Piano, Class., Math., Eng.
16185. German Gov. (North Country).
16186. Two Govs. (i.) Certd. exper. Gov. Eng., good Mus., Calist. 25*l.* to 35*l.* (ii.) French Gov. Good Mus. (Draw. desirable). 20*l.* to 25*l.*
16188. Master. Eng. subj., Lat. (Caes.), Fr. (fair), Alg., Euc. (two bks.), Bkkp., Shorthd., and Draw. if possible. 35*l.* to commence.
16190. Master. Elem. Ger., Fr., Lat., Shorthd., Math., Eng., Sports. 15*l.* to 25*l.*
16191. Jun. Master. Gen. subj. (Shorthd. desirable), Sports. Mutual terms.
16192. Master. Gen. subj., Shorthd. and Draw. desirable. 5*l.* first term, with increase.
16193. Gov. Jun. and Eng. subj. Boys' Prep. Sch. Mutual terms, with lessons in Conv. Fr.
16194. Certd. Gov. Entire charge of three girls, ages 13, 11, 9. Eng., Mus. (with theory), Fr., Draw., Paint., Ndlwk. 20*l.*
16196. Master. Eng. subj., good Discipline. Non-res. 60*l.*
16197. Jun. Master for class of young boys. Mutual terms.
16198. Three Govs. (i.) Fr. Gov. able to teach Ger. 25*l.* to 30*l.* (ii.) Eng. Gov. able to teach Fr. (gram.) 35*l.* to 40*l.* (iii.) Jun. and Eng. subj., chiefly Jun. Piano and Solo-Sing. 20*l.* to 25*l.*
16199. Second Master. To teach Drill and good Fr., with Piano preferred. 25*l.* to 45*l.*, according to acquirements.
16201. Tutor. Script., Lat. (Caes.), Fr., Eng. subj., Arith., Draw., elem. Gk. Musical prefd. Res. 30*l.*
16203. Gov. Arith. (good), Alg., Lat. (Jun.), Fr. (desirable). Non-res.
16205. Gov., for mixed class of boys and girls under 10 years of age. Eng. subj., Music, Piano and Theory (thoro.).
16206. Master. Gen. subj., Fr., Ger., Gk., Bkkp., Mus.
16207. Master. Draw. (Cert. D. essential), good Arith., Sports. 30*l.* and Grant.
16208. Jun. Master. Mutual terms.
16209. French certd. Gov., to teach Fr. and Ger. 25*l.* and laundry.
16210. Music Master. Violin and good vocal Mus. 60*l.* to 80*l.*
16211. Certd. Eng. Gov. Thoro. Eng., Fr., and Draw. Small salary or mutual terms.
16212. Jun. Gov. Mutual terms.
16213. Gov., to teach Eng., Fr., Math. 30*l.* about.
16214. Gov., for Eng. and Math. 25*l.* to 30*l.*
16215. Two Govs. (i.) Head Eng. Gov. Thoro. Eng., good Fr. and Arith. 40*l.* to 70*l.* (ii.) 2nd Eng. Gov. Sing., Draw., and Paint. 30*l.* about.
16216. French Gov. Exp. Parisienne, Musical. 30*l.*
16217. Exp. Gov., to prepare for Local Exams. Eng. subj., Math., Draw. 30*l.*, with laundry.
16218. Exp. Gov., for three girls. Eng., Fr., Ger., Lat., Draw., Paint., Ndlwk. Private family.
16219. Jun. Gov. Non-res.
16220. Gov. to prepare for Local Exams. Age abt. 26.
16221. Student Gov. Jun. Fr. and Mus., to receive in return first-class instruction in Eng.
16222. Kindergarten for mornings. Receive lessons in Fr., Ger., and Mus. 10*l.*
16223. Gov. Eng., Mus., Fr., Draw. Mutual terms.

II.—ASSISTANTS.

MASTERS.

No. in Register.

21470. Good Classics and Math., thoro. Eng. subj., Fr. (adv.), Ger., Chem., and other Sciences, &c. Age 30. B.A. Lond. 1st Div. In a London School. Non-res.
21471. Eng. subj., advanced Lat. and Gk., Fr., Ger. (adv.), Math. (good), Nat. Phil., Divinity. Age 21. A.K.C., Lond. Matric. 30*l.*; non-res. 80*l.*
21472. Eng. subj., Lat., Ger., elem. Fr., Math. (elem. trig.), Chem., Mech., Hydrostatics, Elect. Age 20. A.K.C. Res. 30*l.*; non-res. 90*l.*
21473. Good Eng., Lat., Euc., Alg., Fr. (gram.), Draw. (freeh. and geom.), Mus. (piano, organ, sing., cert.) Age 36. Non-res. 70*l.* to 80*l.*
21474. Lat. (elem.), Fr., Ger., Ital., Mus. (piano, violin, piccolo, organ, singing), Draw. Age 28. Cert. by Board of National Education, Switzerland. Res. 100*l.*
21475. Eng. (all branches), Lat., Gk. (all authors), Math., Nat. Phil., Chem., Logic, Metaphysics, Fr. and Ger. (conver. good), Shorthand. Age 48. M.A. Res. or non-res.
21476. Classics, Hist. (Gk., Rom., Eng.), Eng. Lit. &c., Math. (trig.), Fr. (gram.) Age 24. B.A. Ireland.
21477. Eng., Lat., Gk., elem. Math., Mech., Shorthd. Age 31. Sen. Soph. Trin. Coll. Dublin. Res. 50*l.* to 60*l.*
21478. Eng., Lat., Fr., Math., Draw. Age 19. Camb. Locals, S.K. elem. Mag. and Math. Res. 20*l.* to 30*l.*; non-res. 70*l.*
21479. Thoro. Class. and Eng., Math. (Trig.), Fr., Nat. Phil., Eloc. Age 21. B.A. Ireland, Prize Inter. Exam., Certd. 1st Cl. S.K., Eloc. Medallist Queen's Coll., Belfast. Res. from 30*l.*; non-res. from 60*l.*
21481. Ger., Fr., Ital., Span., Classics, Eng., elem. Math. Age 27. Wurtemburg State Exam. Vis. or non-res.
21482. Eng. (good), Lat., Fr., Gk., Math. (trig.), Chem., Mag., Elect. (with experiments), good Draw. Age 28. Inter. B.A. Lond., S.K. Draw. 2 Certs. 3rd Grade, Math. 2nd Stage. Non-res. 100*l.* to 150*l.*; res. 60*l.* to 100*l.*
21484. Eng., Class., Math., Theol., Chem. Age 22. B.A. Non-res.; or res. 40*l.*
21485. Eng. subj., Writ., Draw., elem. Math., Gk., and Ger., Lat., Fr. Age 26. Res. 30*l.* to 40*l.*; non-res. 60*l.* to 80*l.*
21486. Fr., Ger. (acq. abr.), Lat., Math., Eng. subj., Piano (good). Age 44. Res. 50*l.* to 60*l.*; Non-res. 90*l.* to 100*l.*
21487. Ger., Fr., Eng. subj., Lat., Math., Phys., Gymn. Age 27. Ph.D. Exam. for Teachers' Gymn. Res. 30*l.* to 40*l.*; or non-res.
21490. Math., Sci., elem. Lat. and Fr., Eng. subj. Age 26. B.Sc. Louvain, Lond. Matric. Hon. Non-res. 100*l.*; res. from 60*l.*
21491. Class., Fr. (conv. and gram.), Eng., Math., Shorthd. Age 58. Visiting or non-res.
21492. Fr., Ger., Eng., Class. (elem.). Res. 80*l.*; or non-res.
21493. Eng., Fr. (elem.), Piano and Har., Sports. Age 20. Res. 20*l.*
21494. Fr. Lit. and Lang. Age 30. B.-ès-Let. Res. 40*l.* to 80*l.*; non-res. 100*l.* to 150*l.*
21495. Eng., Arith., elem. Alg., Euc., and Lat., Shorthd., Volapük. Age 20. Res. 10*l.* to 15*l.*
21497. Class., Math., Fr., Eng. (Lit., &c.), Sing. Age 20. Late Sen. Exhibitioner Bradfield Coll., Oxf. and Camb. Higher. Res. 50*l.*, and time for study.
21498. Eng., Fr., elem. Lat., Mag. and Elec., Math., Mens., Draw. (freeh., mod., geom., persp.). Age 21. 1st Cl. C.P., Queen's Scholarship Exam. 2nd Cl., 351. Res. 35*l.*; or non-res.
21501. Ger., Fr., Lat., Mus. (Piano, Violin, Sing., Organ), Draw., Eng. Age 34. Res. 50*l.*; or non-res.
21504. Fr. (all branches and com. corres.), Draw. (freeh.), Gymn. Age 23. Brevet de Capacité Supérieure, Cert. d'Aptitude Pédagogique, Dip. Maître de Gym. Non-res., Visiting, or Res. (in London).
21505. Fr., Draw. (freeh.), Gymn. Age 22. Bach. de l'enseignement secondaire special. Res., small salary, or mutual terms.
21506. Ger., Fr. (for Army prelim.), Span. (elem.), Eng. subj., Math. Age 27. Non-res. 160*l.* to 200*l.*; or res. in London.
21507. Eng., Math. (good), Class., Fr., and Ger. (13 years abroad). Age 35. Prize Math. Dip. Exam. Res. 40*l.*; non-res. 90*l.*
21508. Math., Phys., Chem., Fr., Ger., Hist. Ph.D., M.A. Heidelberg.
21509. Class. and Math. (for Matric.), Fr. and Ger. (gram.), Dutch, Malay, Eng. Hist., &c., Bot., Zool., Gymn., Sports, Drill. Age 19. Fifth Form Gram. Sch., Gymn. Univ. Student. Res. 20*l.*; time for study.
21510. Math. (adv.), Mech. (elem.), Lat., elem. Gk., Eng. Age 19. Inter. Arts Lond. Prizeman and Exhib. Univ. Coll. Wales. Res. 40*l.* to 50*l.*
21511. Gen. Eng., elem. Math., Lat., and Fr., Draw. (freeh. and mod.), Sports. Age 23. Non-res. 80*l.*; res. 35*l.* For Xmas.
21513. Ger., Fr. (thoro.), Lat., Draw. (elem.). Age 30. Ph.D. Univ. Hall. 60*l.*
21514. Class., Math. (pure and mixed), Eng., Fr., Script. Age 22. B.A. Lond. 1st Div. Res. 60*l.*; non-res. 110*l.*
21516. Good Math. and Eng., Lat., Fr., Sci., Mech., Hydros. Age 21. Lond. Matric. 1st Div. Res. 30*l.* to 40*l.*
21519. Gen. Eng., Class., Fr., elem. Shorthd. and Eloc., Alg., Euc. Age 19. Matric. Melbourne Univ., Sen. Camb. Non-res. or res. Mutual terms.
21520. Eng., Lat., Fr., Ger., Math. (elem.). Camb. Local S.K. Res., not less than 15*l.*
21521. Classics (good), elem. Fr. and Math., Eng., Theol., Hebrew, Athletics. Age 21. B.A. Class. Hon., Durham Licent. in Theol., 2nd Cl. Hon., late Scholar and Prizeman. Non-res. 100*l.*, res. 50*l.*
21522. Phys., Chem., Physiog., Math., Mech. and other Sci., Shorthd., Classics (elem.), Survey., Photog., Tonic Sol-fa. Non-res. from 100*l.*
21523. Gen. subj., sp. Math., adv., pure, and applied. Age 31. Cert. S. and A. Dept. in Math. and Draw. (pers. geom., freeh., mod.), 2nd Grade. Non-res.
21524. Eng., Fr., Lat., Alg., Bkkp., Draw., Shorth. Age 20. Res. 20*l.* about.
21525. Eng. subj., elem. Math., Fr. and Lat., Bkkp., Mens. Age 25. 1st Cl. C.P. Res. 35*l.* to 60*l.*; non-res. 80*l.* to 120*l.*
21526. Eng., Classics, Math., Fr., Chem., Shorthd. Age 24. Inter. B.A. Lond. S.K., adv. stage, Prac. Chem. 60*l.* to 80*l.*; or non-res.
21527. Eng. subj., Math. (elem.), Fr., Lat., Writ. Age 16. Res. 10*l.*
21528. Class., Fr., Math. (elem.), Eng., Writ. Age 21. Res. 35*l.*
21529. Eng. subj. (all), Class., Math. (Trig.), Fr. (elem.), Script., Chem., Zool., Bot. Age 26. A.C.P. 100*l.* about.
21530. Math., Mus., Lat., Fr., Eng. subj., Chem., Elec., Mech. Age 17. C.P. 1st Cl., Jun. Camb. Hon., S.K. Math., adv. stage. 1st stage Elect. and Chem. Res. 15*l.*
21531. Class., Fr., Eng. (all), Math. (elem.), Nat. Phil., elem. Draw. Sports. Age 25. Res. 40*l.* to 60*l.*
21532. Eng., Class., Math. (adv.), Fr., Chem., Nat. Phil., Mens., Theor. and Prac. Education. Age 40. A.C.P. Lond. Matric. 1st Cl. S.A. S.K. Cert., Chem. Res. 50*l.* to 70*l.*
21533. Eng. (good), elem. Fr. and Lat., Arith., Mus. (Piano and Violin), Shorthd. Age 19. Res. 4*l.* to 5*l.* per term.
21534. Eng. subj., convers. Fr. and Ger., Lat. (adv.), Math. (higher). Age 19. Lond. Matric. 62nd Pl. Indian S.C. Res. 30*l.* about; or non-res.
21535. Eng. subj., Lat., Gk., Fr., Arith., Math. Age 19. Oxford Sen. Res. 30*l.* about; or non-res.
21536. Eng. subj., Math., Latin., Fr., Bkkp., Mech., Chem. Age 39. A.C.P. Lond. Matric. Non-res. or Visiting.
21537. Fr., Class., Hist., Geog., Mental and Moral Sci. Age 25. B.-ès.-L., B.A. Paris. Res. from 60*l.*; non-res. from 120*l.*
21539. Eng. subj., Jun. and Lat., Fr., Gk., Mag. and Elec., Draw., Sing. Age 33. Queen's Scholar, Gov. Cert. Non-res., Lond., 90*l.* to 100*l.*
21540. Class., elem. Math., Fr., Eng. (elem. Lit.). Age 30. Non-res.
21541. Ger. and Fr. (convers.), Ital., Span., Class., Math., Piano. Solo-Sing. Age 29. Ph.D. Bonn. Res. 80*l.* to 100*l.*; non-res. 180*l.* about.
21543. Ger., Fr. (Paris), Ital., Class., elem. Math., Eng. subj., Draw. Age 27. Ph.D. Strasburg. Res. 50*l.*; non-res. 80*l.*
21544. Fr., Span., Draw., Violin. Age 23. Dip. Res. 20*l.* about.
21545. Class., Fr., Eng. (all), Math. (elem.), Chem., Bot., Elec., Geol., Phys. Age 30. S.K. Queen's Prizeman. Res. 50*l.*; non-res. 90*l.* about.
21546. Eng. subj., Arith., Alg., elem. Fr. and Lat., Writ. Age 21. Non-res. 50*l.* about; res. 20*l.* about.
21547. Fr. thoro. (abr.), Eng. (adv.), Draw. (v. good lands., freeh., and mod.), Math., Logic, Jun. Lat. and Ger. Prepares for Exams. Age 33. Res. 50*l.*; non-res. 90*l.*
21548. Elem. Eng., Mod. Lang., Class., Hebrew, Sanscrit. Age 25. B.-ès.-L. Res. 60*l.*; non-res. 120*l.*
21549. Thoro. Fr. and Ger., Span., Ital., Piano, Lat., Hist., Geog. Age 32. B.A., B.Sc. France. Certd. Master of Ger., Paris. Res. 80*l.* about.; non-res. 120*l.*
21550. Piano, Organ, Violin, Sing., Ger., jun. Fr., Geog., Drill, Draw. Res. or non-res., 50*l.* to 60*l.*
21551. Elem. Fr., Ger., Lat., Eng. Age 28. Non-res., visiting, or res.
21552. Ger., Fr., Class., Math., Draw. (Geom.). Age 25. C. Th. From 30*l.*
21553. Ger., Fr. Age 37. Ph.D., State Exam., Leipzig. Non-res. 200*l.*

No. in Register.

GOVERNESSES.

9152. Eng., Fr. and Ger. (inclu. Lang., Lit., Hist., and fluent convers. acq. abr.), Geog., Arith., Sing. Age 31. LL.A. Hon., Sen. Edin. Hon. Daily in Sch. preferred. 120*l.* to 130*l.* Res. 80*l.*, for Xmas.

9153. Eng. subj. (gen.), Mus., Fr., Draw. and Paint. Age 20. Res. (fam. preferred) 14*l.*, and laundress.

9154. Eng., Fr., Ger., Lat., Mus. (good), elem. Draw., Alg. and Euc. Age 22. C.P. and Camb. Local Teachers' Certs. Res. 40*l.*; non-res. 60*l.* to 70*l.*

9154A. Eng. (gen.), Mus., Fr., Draw. Age 18. Nursery Gov. Res. 12*l.* and laundress (country preferred, children under 10).

9155. Eng., Fr., Lat., Mus., Draw. Age 29. Home and Col. Camb. Exten. Non-res. (afternoon) 20*l.*

9157. Eng., subj., Arith. (adv.), Fr., Ger., Mus., Draw., Lat. (elem.), Ndlwk. Has prepared pupils for C. P. Exams. Age 24. Camb. Higher Local, Jun. C. P. and S.K. Res. (school preferred). From 40*l.*

9158. Eng. subj., Fr., Lat., Mus., Draw. Age 22. 1st Cl. C. P., Jun. Camb Head or Second Eng. Gov. in good School. Res. 40*l.* to 50*l.*

9159. Kindergarten subj. (all), Bot. (adv.), Draw., Eng. subj. Age 30. Froebel Higher Cert., Kindergarten, S.K. Mod. and Freeh. Draw. Non-res. Morning, 40*l.* Afternoon, 30*l.* Daily, 60*l* to 80*l.*

9160. Good Eng. subj., Arith. and Mus., Fr., Piano, Ndlwk., elem. Ger. and Math. Age 26. Hon. Camb. Certs., Higher Local 1st Cl. Hist. 60*l.* to 100*l.*

9161. Fr. and Ger. (fluent), Eng. subj. Age 28. German Pub. Exam. in Mod. Lang. and Lit. Res. 90*l.*, Non-res. 120*l.*

9162. Wom. Econ. Phys., Geog., Fr. (adv.), Draw., Mus. (vocal and instrum.). Age 27. L.L.A. St. Andrews. Non-res. (if possible), not less than 75*l.*

9164. Fr., Ger., Eng., Mus., Draw., Ndlwk. Age 20. Dip. France. Res. 30*l.*

9165. Eng., Fr., Ger., Mus. (Sing., &c.), Draw. Age 31. A.C.P., Cert. Mus. 65*l.*

9166. Piano, Sing. (solo and class), Har., and Theor. Age 29. R.A.M. Student. 40*l.*

9167. Draw. (shading from cast), Paint. (oil and w.-col.). Age 30. R.A. Student. Visiting.

9168. Har., Counterp., Piano, Organ, Sing. Age 26. R.A.M. and Trin. Coll. Locals. 35*l.*

9169. Ger., Fr., Alg., Euc., Eng. subj., Sci. Age 30. Camb. Extens. 1st Cl., &c. 100*l.*

9170. Eng., Fr., Mus. (good), Physiol., Pol. Econ., Bkkp. Age 18. 2nd Cl. C.P. 16*l.* to 18*l.*

9171. Eng. Lit., &c., Fr., Ger., Class., Mus., Draw., Sci., Math. (Lond. Matric.). Age 29. Sen. Camb., Inter. B.A. Lond. 80*l.* to 100*l.* non-res.

9172. Eng., Arith, Fr., Ger., Mus. Age 22. Camb. Sen. Higher Locals, Univ. Extens. Dist., &c. 40*l.*

9173. Eng. subj. (all), Math., Fr., Lat., Ger. (elem.), Mus., Sing., &c., Draw. Age 25. Camb. Hons. Head Mistress-ship.

9174. Fr., Ger.. Age 23. Non-res.

9175. Eng. subj., Lat., Ger., Fr., Bot., Hygiene, Math., Swedish Drill, Draw., Tonic Sol-fa. Age 21. 1st Cl. C.P., Lond. Matric., Camb. Univ. 80*l.* to 90*l.* non-res.

9177. Mus. (Piano, Theor., Har., Sing.), Draw. (freeh. and crayon), Paint. (oils). Age 27. Trin. Coll. Har. Cert., Jun. and Sen. Hons. Solo-Sing. Mus. Gov. Non-res. 55*l.*; res. 33*l.*

9178. Draw., Paint. (oil and w.-col.), Cert. Art Teachers 3 Prizes, Cert. Art Masters 3 Prizes. Exam. in Plant Draw., Antique and Life. Non-res. or Visiting.

9179. Eng. (thoro. Lit., &c.), Arith., Fr., Ger. (elem.). Mus., Lat., Draw., Freeh.), Elec., Physiol., Ndlwk, Age 25. Higher Camb. (Hist. and Arith.), S.K. Elec., Phys. Home and Col. Res. 30*l.* to 40*l.*; non-res. 60*l.*

9180. Eng. (good), Fr., Draw. (freeh. and lands.), Mus., Sing., Ger., (elem.). Age 21. 2nd Cl. C.P. Non-res.

9181. Elem. Eng., Fr., and Lat., Arith. (good), Mus., Draw. (mod., freeh., shading), Paint. Age 27. S.K. Mod. and Freeh. Res. 30*l.* to 35*l.* (Boys' School.)

9182. Eng. (adv.), Fr., Dr., Lat., Mus., Sing. (class), Bot., Pol. Econ. Age 19. Res. 40*l.*

9183. Sing. (voice production), Declamation. Age 29. Medallist, Sing. and Eloc. R.A.M. Visiting, non-res., or res. (country only) from 60*l.*

9185. Eng. subj., elem. Fr. and Mus. Age 16. Jun. Camb. Res. Small salary.

9187. Eng., Arith., Fr., Ger., Lat., Mus. and Sing., Draw. Age 20. 2nd Cl. C.P. Res. 25*l.* to 30*l.*

9189. Eng., Arith., Fr., Ger., Mus., Draw. (elem. freeh., persp.), elem. Bot., Physiol., and Lat., Ndlwk., Kinderg. Age 28. 2nd Cl. C.P., Trained Home Col. Res. 30*l.* to 40*l.*

9190. Eng. (thoro.), Arith., Fr., Mus., Sci., Elec. Age 22. Sen. Camb., 1st Cl. C.P. Eng., Mus. Res. 30*l.* to 40*l.*

9191. Eng., Fr., Lat., Ger., Mus. (Piano, Violin, Zither, Guitar, Mandoline, and Banjo). Age 19. Res. 25*l.* to 30*l.*

9192. Eng. subj., good conv. Fr., Ger., and Ital. (acq. abr.), good Span., Music (v. good Piano, and class.). Age 43. Non-res. or Visiting, whole day 120 gns.

9193. Mus. (theory), Fr. (convers.), Jun. Eng., Ndlwk. Age 32. L.A.M. and Harrow Mus. Sch. Res. 20*l.* to 30*l.*

9194. Eng. subj., Math., Fr. (conv. and gram.), Lat., Nat. Phil., Bot., Chem., Phys., Ger., Draw., Mus., Class-Sing. Age 22. Non-res. 90*l.* to 100*l.*; res. 60*l.* to 70*l.* For Xmas.

9195. Eng. subj., Fr., Mus. (Piano, Har., and Sing.), Draw. (freeh. and mod.), Ndlwk. Age 19. Res. 20*l.*

9196. Draw. (freeh., shading from cast, geom. and pers.), Paint. (oil and w.-col.). Age 27. 2nd Grade S.K. Non-res. or Visiting.

9197. Fr. (adv. Lit. &c.), Draw., Danc. Age 20. Brev. Supérieur, Brevet de 2nd Order. Res. from 50*l.*

9198. Jun. Eng., Piano, Sing., Har. Res. 20*l.*

9199. Headmistress-ship of Girls' School required. Thoro. Exp. all branches.

9202. Piano and Theory, Fr. (Paris), elem. Eng., Ndlwk. Age 32. L.A. Mus. Harrow Mus. Sch. Res. 20*l.* to 30*l.*

9204. Eng. subj., Arith. (adv.), Fr. (good), Lat. (elem.), Paint. (water-col., landscp., and flower). Pol. Econ., Shakespeare, elem. Mus. Age 26. Res. 30*l.* to 40*l.*; non-res. 50*l.*

9205. Eng. subj. (all), Mus. (good), Sing., Fr. and Ger. (acq. abr.), elem. Lat. and Draw., Ndlwk. Age 41. Non-res. (if poss. daily) 40*l.* to 60*l.*

9206. Mus., Eng., Fr., Ndlwk. Age 24. Non-res. 30*l.*

9207. Eng. (all branches), Fr. (acq. abr.), Alg., Arith., Dom. Econ., Jun. Euc., Draw., Mus. and Ger. Age 18. Grade Inter. Exam., Ireland. Res. (in a Sch.) 15*l.*

9209. Eng. subj., Arith., elem. Lat., Fr., Math., Jun. Mus. and Theory. Age 20. Lond. Matric., Oxfd. Senior Trained Teacher. Non-res. from 70*l.* (in sch.); res. 40*l.*

9211. Fr. (lang. and lit.), Anct. Lit., elem. Math., Phys., Chem., Nat. Hist., Draw., Writ., Recitat., Eng., (elem.), Music (vocal). Age 19. Certd. elem. studies. Brevet de capacité, 1st Cl. Res. from 20*l.*

9212. Eng. subj., Arith., Mus., Draw., Fr. Age 17. Res. (sch.) 12*l.*

9213. Eng. (thoro.), Arith., Fr., Mus., Lat. (elem.), Draw. Kindergarten. Age 22. Jun. Camb. Non-res. from 30*l.*

9214. Eng., Arith., Fr. Draw., Lat. (elem.), Mus., Calis. Age 18. Sen. Camb., 1st Cl., C.P. Hon., Sen. Trin. Coll. Res. 30*l.*

9216. Eng. subj., Arith., Fr. (lang., lit., hist.), Draw. (freeh., mod.), Paint., Lat., Piano (theor. and pract.). Age 34. Morn. or Daily. Morn. 50*l.*

9219. Eng. subj. (Lit. and Script.), Arith., Mus., Fr., Draw., Paint. (water-col.), Ger. (elem.), Dancing, Calis., Ndlwk. Age 22. 2nd Cl. C.P. Res. 40*l.* to 50*l.*

9220. Eng., Fr., Ger. (thoro.), Arith., Mus. (Jun. and Piano), Ndlwk. Age 29. Res. from 30*l.*

9221. Eng. subj. (and Script.), Fr., Arith., Bot., Mus. (theor. and pract.). Age 20. 2nd Cl. C.P. Trin. Coll., Primary Div. Pract. Mus. and Jun. Theor. Jun. Gov. or Gov. Student on mutual terms.

9222. Eng. (thoro.), Fr., Mus., Gen. help. Age 23. Res. 25.

9225. Eng., Mus., Sing., Fr. Age 20. Res. 12*l.*

9227. Classics (thoro.), Fr., Math., (Conics), Eng. subj. Age 28. B.A. Lond. Visiting.

9228. Eng. (all subj.), elem. Math., Ger. and Lat., Fr., Mus. Age 21. Int. Coll. Mus. Sen. 2nd Cl. Hon. Res., small salary.

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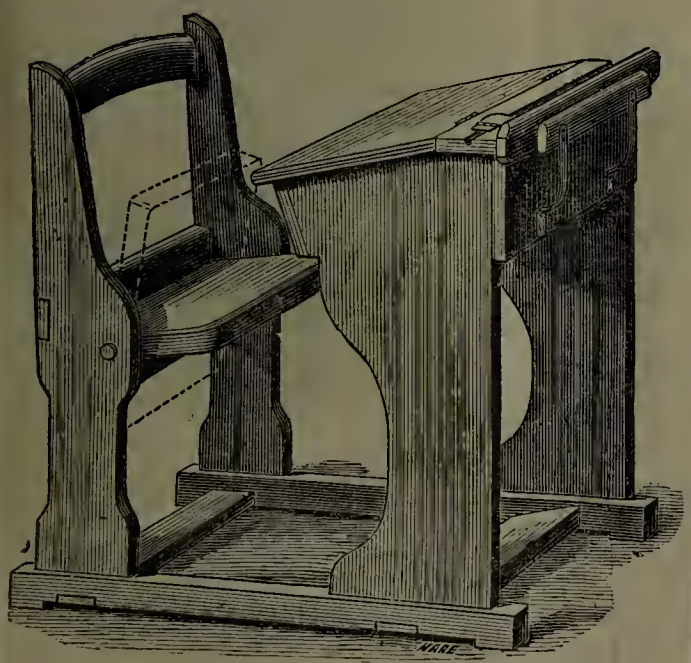

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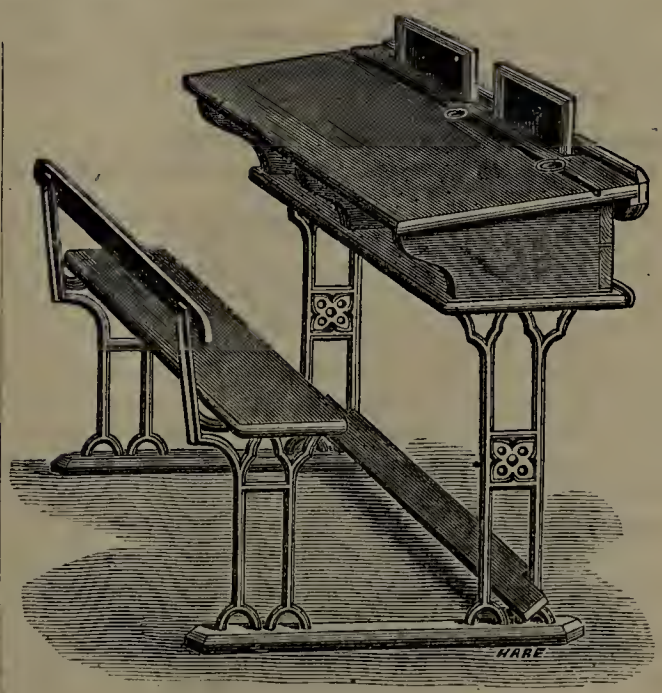

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N.B.—The Higher Certificates of the College are recognised by Her Majesty's Judges, and by the General Medical Council, as guarantees of good general education; and consequently the holders of them, who may be intended for the Legal and Medical Professions, are exempted from the necessity of submitting to the Preliminary Literary Examinations held by the Incorporated Law Society, and by the various Medical Corporations of the United Kingdom. The Lords of the Committee of Council on Education admit the holders of the same Certificates, without further examination, to the Competition for allowances granted to Students of the Junior Training Class of the National Art Training School. All the College Certificates above the Third Class, the holders of which have passed an Examination in Latin, are also recognised by the Pharmaceutical Society and the Royal Veterinary College.

3. EXAMINATIONS FOR CERTIFICATES OF PROFICIENCY IN MERCANTILE SUBJECTS.—The next Examination will take place on the 2nd of December.

4. PROFESSIONAL PRELIMINARY EXAMINATIONS.—These Examinations are held in March and September. The next Examination will commence on the 4th of March, 1890.

5. INSPECTION OF SCHOOLS.—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

PRIZES.

Diploma Examination.—In addition to the Doreck Scholarship of £20, the following Prizes will be competed for: Theory and Practice of Education, £10; Classics (Greek and Latin), £5; Mathematics, £5; Physical Science, £5.

Certificate Examination.—The "Isbister Prize" will be awarded to the Candidate who stands First, and the "Pinches Memorial Prize" to the Candidate who stands Second in General Proficiency. Prizes of Books will also be awarded to the Third and Fourth in General Proficiency, and to the First and Second in the following subjects:—Classics, Mathematics, Modern Languages, Natural Science, English Subjects. The "Taylor Jones Memorial Prize" will be awarded to the best Candidate in Scripture History.

The Regulations of the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

PRELIMINARY EXAMINATION of MEDICAL STUDENTS.—The COLLEGE of PRECEPTORS will hold an Examination for Certificates recognised by the General Medical Council as qualifying for Registration as a Medical Student, on the 4th, 5th, and 6th of March, 1890.

The Examination will take place in London, and at the following Local Centres:—Birmingham, Bristol, Leeds, Liverpool.

Examination Fee, 25s.

Regulations and Entry Forms may be obtained on application to the Secretary of the College of Preceptors, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—

(Bloomsbury Square, W.C.)

The next Monthly Evening Meeting of the Members will take place on Wednesday, the 16th of October, when G. ARMITAGE SMITH, Esq., M.A., will read a Paper on "The Teaching of Economics in Schools."

The Chair will be taken at 7.30 p.m., and a discussion will follow the reading of the Paper.

Members have the privilege of introducing their friends.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—

SCHOLARSHIPS FOR INTENDING TEACHERS.

With the view of encouraging the systematic training of teachers for their profession, the Council have established four Scholarships (two for male and two for female candidates), which will be offered for competition at the Certificate Examination in June, 1890.

The value of each of these Scholarships is £45 for a single year, or £30 a year for two years, if the candidate should determine to extend the period of training over more than one year.

The Scholarships are tenable

(*a*) At any Training College for Teachers in Secondary Schools, either at home or abroad, that may be approved by the Council; or

(*b*) At any school of established reputation, approved by the Council, which is prepared to offer such facilities for training as may be satisfactory to the Council; it being open to the Council to require the attendance of the scholar at such lectures on the Theory and Practice of Education, and to require him or her to pass such examinations in the Science and Art of Teaching, as the Council may determine.

Candidates (who must not be under 18 or over 24 years of age at the date of the Examination) are required to declare their intention of competing for these Scholarships prior to the Examination, and to submit such testimonials of character as may be considered satisfactory by the Council.

The Scholarships will be awarded to those candidates who, having fulfilled the above conditions, obtain the highest places in the Honours Division of the First Class.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—

LECTURES FOR TEACHERS.

A Course of Twelve Lectures on the Practice of Education, by the Rev. Canon DANIEL, M.A., Principal of St. John's Training College, Battersea, commenced on the 26th of September. For Syllabus, see page 407.

C. R. HODGSON, B.A., *Secretary.*

UNIVERSITY DIPLOMA FOR WOMEN.

THE UNIVERSITY OF ST. ANDREWS grants Diploma and Title of L.L.A. to WOMEN. *Subjects of Examination and Examination Papers* include those for the M.A. Degree. For Prospectuses, apply to the SECRETARY L.L.A. Scheme, The University, St. Andrews, N.B.

VICTORIA UNIVERSITY.

DEGREES are conferred in the Faculties of Arts, Science, Law, and Medicine.

Candidates for Degrees are required not only to pass the necessary Examinations, but also to attend prescribed Courses and Classes in a College of the University.

The Colleges of the University are Owens College, Manchester, University College, Liverpool, and Yorkshire College, Leeds.

Communications regarding Examinations, Attendance, and University business generally, should be addressed, The REGISTRAR, Victoria University, Manchester.

The Calendar (price 1s.), containing the Regulations, Copies of Examination Papers, Lists of Graduates, &c., is published by Mr. J. E. CORNISH, Manchester, and by Messrs. MACMILLAN & CO., London.

SOCIETY OF APOTHECARIES OF LONDON.

The next Examination in Arts will be held at their Hall, Blackfriars, E.C., on Friday and Saturday, the 6th and 7th December, 1889.

This Examination will qualify candidates for registration as Medical Students.

A Syllabus of the Subjects, which according to the Regulations of the General Medical Council may be passed at one or more examinations, can be had on application.

An Examination in Arts will again be held on the 7th and 8th March, 1890.

T. PEREGRINE, M.D.
Secretary to the Board of Examiners.

CITY AND GUILDS OF LONDON INSTITUTE TECHNICAL COLLEGE, FINSBURY.

Principal—Prof. S. P. THOMPSON, D.Sc.

Day Department for Students not under 14 years of age, The College Courses of Instruction in Laboratory, Lecture Room, Workshop, and Drawing Office for Mechanical Engineers, Electrical Engineers, and Technical Chemists COMMENCE ON TUESDAY, OCTOBER 8th. Chemical Laboratories specially organised for Instruction in Technical Manufacturing Processes. Fee for Session, inclusive of Laboratories, Workshops, and Drawing Office, £12.

The Entrance Examination will take place Wednesday, October 2nd, at 10 o'clock a.m.

Scholarships of £30 a year each, the Holl Scholarship of £20 a year, and Two Free Studentships all tenable for two years, will be awarded (in accordance with the several schemes) on the results of the Entrance Examination.

For particulars of Scholarships and Programmes of Instruction, apply at the TECHNICAL COLLEGE, Leonard Street, City Road, E.C.; or at Gresham College, E.C.

JOHN WATNEY, WALTER S. PRIDEAUX, } *Hon. Secs*

ST. GEORGE'S TRAINING COLLEGE FOR TEACHERS, EDINBURGH.

President—Sir WM. MUIR, K.C.S.I., D.C.L., LL.D.

This College is intended for Ladies who hold Higher Certificates, and who wish to become Teachers. Instruction is provided in the Theory, History, and Methods of Education, and in the Art of Class-Teaching; and the Students are prepared for the Teachers' Examinations of Cambridge and London. Further particulars may be obtained on application to the PRINCIPAL, ST. GEORGE'S TRAINING COLLEGE, 3 Melville Street, Edinburgh.

ST. GEORGE'S ORAL and CORRESPONDENCE CLASSES, EDINBURGH.

FIFTEENTH SESSION, 1889–1890.

CORRESPONDENCE CLASSES to prepare for the L.L.A. Examinations, and to direct private reading. Open on October 1st.

ORAL AND CORRESPONDENCE CLASSES of a less advanced nature to prepare for the Local Examinations of Edinburgh, and to give help in Home Education. Open on October 10th.

The Subjects taught include Grammar, Arithmetic, Euclid, Algebra, History, Geography, Scripture, Church History, English Composition, English Language and Literature, Latin, Greek, French, German, Comparative Philology, Logic, Mental and Moral Philosophy, Education, Physiology, Physical Geography, Botany, Drawing, History of Art, and Theory of Music.

Prospectuses from the SECRETARY, St. George's Classes, 3 and 5 Melville Street, Edinburgh.

ANGLO-SAXON for BEGINNERS by CORRESPONDENCE.—A Special Class for Beginners will begin early in October in connection with the St. George's Classes. Further particulars from the SECRETARY, 3 and 5 Melville Street, Edinburgh.

EDUCATION for Young Ladies well-grounded and accomplished. Resident Foreign Governesses. Large staff of visiting masters. Miss PHILPOTT, 10 Princes Square, Hyde Park, W.

For Advertisements, see pages 404, 405, 407, 423, 424, 425

UNIVERSITY COLLEGE of NORTH WALES, BANGOR.

(Incorporated under Royal Charter, and receiving an annual Parliamentary Grant.)

Principal — H. R. REICHEL, M.A., Fellow of All Souls' College, Oxford.

DEPARTMENTS.

I. *Arts.*

Subjects.	Professors.
Greek	W. Rhys Roberts, M.A., late Fellow of King's College, Cambridge.
Latin	E. V. Arnold, M.A., late Fellow of Trinity College, Cambridge.
French and German.	Frederic Spencer, B.A. (Camb. and London), Ph.D. (Leipzig).
English	The Principal.
Philosophy	Henry Jones, M.A., late Clark Fellow of Glasgow University.
Mathematics	G. B. Mathews, M.A., Fellow of St. John's College, Cambridge.
Welsh	Lecturer—J. Morris Jones, B.A., late Scholar of Jesus Coll. Oxford.

II. *Science.*

Physics	Andrew Gray, M.A., F.R.S.E.
Chemistry	J. J. Dobbie, M.A., D.Sc., late Clark Fellow of Glasgow University.
Biology	R. W. Phillips, M.A. (Camb.), B.Sc. (Lond.), late Scholar of St. John's College, Cambridge.

The next Session opens on October 1st, 1889. Inclusive Tuition Fee, £10 a year. Registration Fee, £1. 1s. 0d. Laboratory Fees additional, on the scale of £1. 1s. per term for six hours a week. The College possesses extensive and well-equipped Laboratories in Physics, Chemistry, and Biology.

The College Courses include the Subjects for Degrees of London University in Arts and Science. The Chemistry and Botany Courses are recognised for Medical Graduation in the Universities of Edinburgh and Glasgow, and Students can make one Annus Medicus at this College. The Science Courses are recognised for two years of the three years' degree course of the University of Edinburgh.

Arrangements are being made for the opening of an Agricultural Department next Session.

The average cost of living (including College tuition fees) at Bangor for the Session (33 weeks) is from £30 to £40. A list of registered Lodging-houses is kept at the College. A Hall of Residence for Women was opened in October, 1888. For detailed information as to Courses, Entrance and other Scholarships, &c., apply to the Registrar,

Bangor, June 1, 1889. W. CADWALADR DAVIES.

UNIVERSITY COLLEGE HALL FOR WOMEN, BANGOR.

(In connection with the University College of North Wales.)

Lady Principal—Miss FRANCES E. HUGHES.

The Hall has been established to provide a home for Women studying at the University College. Newly built for this special purpose, it affords excellent accommodation for thirty students on the Newnham principle of separate study bed-rooms. The house stands in extensive grounds, which include a garden, lawn-tennis court, and a wooded hill private to the students.

Fees from £30 to £40 for the College year, according to accommodation.

For further information apply to the Lady Principal.

N.B.—The College Courses include most of the subjects required for the Oxford Higher Examinations for Women, and the Cambridge Higher Local Examinations.

TO those who wish to become Teachers in Girls' High Schools.

A FULL COURSE OF TRAINING in preparation for the Cambridge Teachers' Certificate is offered to Ladies at the Maria Grey Training College.

TRAINING is also provided for those who wish to become Kindergarten Teachers, and preparation for the Cambridge Higher Local Examination.

SCHOLARSHIPS are offered in all divisions.

The College year begins September 18.

Address—PRINCIPAL, Maria Grey Training College, 5 Fitzroy Street, W.

TO HEADS OF SCHOOLS AND FAMILIES.

THE

SOCIÉTÉ NATIONALE

DES

PROFESSEURS DE FRANÇAIS

Can recommend to Schools and Families fully qualified and competent *French Teachers* and *French Governesses.* Apply to M. G. LEPRÉVOST, Secretary, 20 Bedford Street, Strand, W.C.

INTER. ARTS. EXAM.

AT INTER. ARTS, 1889,

71

Students passed.

Ordinary Course.—Before beginning the Ordinary Course for Intermediate Arts in any subject, the student is assumed to possess a knowledge of it up to Matriculation standard. As Greek and French are alternative at Matriculation, courses have been arranged for students in the subject not taken up at Matriculation, assuming only the knowledge required on admittance to the ordinary Matriculation Course (see p. 10 of Prospectus, under Preliminary Courses). A new class is formed on the first Saturdays of September, October, November, and December. Those joining early have the special advantage of frequent short revisions.

FEES.

(*Strictly inclusive, and payable as arranged on joining.*)

	£.	s.	d.
Mathematics or Latin	2	12	6
Greek, French, or English	2	2	0
Greek, Longer Course, not assuming Matric. Standard	3	3	0
Composition fee at a reduction for three or more subjects.			
All Subjects for Intermediate Arts Pass ...	9	9	0
With Longer Greek Course	9	19	6

A single Pass Course consists of not less than thirty Lessons. The advantage of this over shorter courses is obvious. The pupil sustains an interest in his work more readily, and gains confidence from the knowledge that the proper amount of attention is being given to each part, and that all will be gone over and recapitulated in good time for the Examination.

No effort has been spared to make the Mathematics Course a success; it is carefully graduated, and smooths the difficulties of the subject; a type of every Examination question is solved, and in Conics an Illustrative Example is introduced after nearly every paragraph in the text-book. The Full Course consists of thirty Lessons in Trigonometry, thirty in Algebra, thirty in Geometry, twenty in Conics, ten in Arithmetic, and each Lesson is followed by a set of questions.

Inter. Arts Honours.

In July, 1889, **Eleven** *students took Honours, two with first places, and one with a second place.*

In Mathematics a student cannot profitably enter upon the Honours Course without a previous knowledge equal to that required for the B.A. Pass Pure Examination. In Latin and French a knowledge up to the Inter. Arts Pass Standard at least is necessary.

In **Mathematics** and **Latin** the Honours Courses consist of Thirty Lessons, to each of which, as the requirements are so wide, there are several parts; to render the step to B.A. Honours as gentle as possible, these Courses have been made very full, and the greatest care bestowed upon them.

Fee for each Course ... ... £6 6s.

Students are allowed to take two years over the Honours Courses in Mathematics and Latin without extra fee.

In **French** either 15 or 30 Lessons may be taken. Fee for the shorter Course (Thirty Papers) £3 3 0
For the longer Course (Forty-five Papers) ... 4 14 6

In **English** there are 30 Lessons covering all required for Honours, including the Pass subjects; fee, £3. 3s.

Fifteen Lessons may be taken on the Honours subjects not required for Pass, at a fee of £2. 2s.

A copy of the English Honours List for 1889 will be sent on application.

Further information on application to—

THE SECRETARY,
1 Strand Hotel Buildings,
London, W.C.

UNIVERSITY CORRESPONDENCE CLASSES.

FOR all London University Examinations, the Cambridge Higher Local, and the L.L.A.

NOTEWORTHY SUCCESSES.

Out of about a dozen Candidates in the M.A., Branch III., the ONLY ones successful were three prepared by correspondence, or orally, or both, by our Tutor. Only one of these three had other assistance in addition.

For two years in succession the FIRST place in the M.A., Branch IV., has been obtained by a pupil of the Classes.

DAY AND EVENING CLASSES

at Brondesbury, or at the Tutors' houses.

During the year 1888 and 1889 no Candidate from these Oral Classes for the Intermediate Science, Preliminary Scientific, or Cambridge Higher Local failed in any subject in which he worked through the whole course, and for the Intermediate Arts only one failed.

For Prospectus, apply to the Secretary, Mr. E. S WEYMOUTH, M.A., 38 Christchurch Road, Brondesbury, London, N.W.

MISS LOUISA DREWRY'S LECTURE-READINGS, on Tuesday afternoons, at 3 o'clock:—

Oct. 15. Wordsworth.	Nov. 5. Tennyson.
,, 22. Coleridge.	,, 12. Browning.
,, 29. Byron, Shelley.	,, 19. George Eliot.

Nov. 26. Longfellow, Lowell.
Dec. 3. Emerson.
,, 10. Walt Whitman.

Fee for the Course of Three, 10s. 6d.; for One, 4s. 6d.

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MORNING and EVENING SCIENCE CLASSES for TEACHERS conducted at Exeter Hall, Strand, London. MARVELLOUS SUCCESS at Government Examination.

SCIENCE SUBJECTS:

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BOTANY.	HYGIENE.
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A SPECIAL CLASS in MECHANICS will meet at Exeter Hall, Strand, on Wednesdays, at 7 p.m. Full particulars from the Lecturer, Mr. AUGUST PERL, Exeter Hall, London.

MATHEMATICS.—GEORGE HEPPEL, M.A., 180 The Grove, Hammersmith, receives PUPILS every morning, from 10 to 1, taking them once, twice, or more times a week, as may be desired. Individual lessons, either at his own house or the pupil's, in the afternoon. Correspondence Teaching undertaken.

ENGLISH LANGUAGE AND LITERATURE, COMPOSITION, and ELOCUTION.—Miss LOUISA DREWRY continues her Courses of Lectures, Readings, and Lessons in schools and elsewhere, to private pupils and teachers.

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SCHOOL FOR TRANSFER. Seaside. 38 pupils, boarders, and day boys. Income £350. Rent £45. Good house—20 rooms. Satisfactory reasons for retiring. (812.) Messrs. BIVER, 298 Regent St., W.

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TRAINED, Certificated TEACHER wishes Engagement as FORM-MISTRESS in good School. College of Preceptors, 1st Class, 1st Div.; Senior Oxford; Cambridge Higher, Groups B, H, and Arithmetic. Thorough English, French, German, Music, Latin (elem.). Address—A. R., 152 Hartfield Road, Wimbledon.

B.A. EXAMINATION.

In 1888

33

University Correspondence College Students passed.

The General Method of Work is pursued for this Examination, Special Papers for the Prescribed Authors and Special Periods being provided. The Test Papers are compiled exclusively from questions set at previous Examinations, except when the present regulations have not been sufficiently long in force to admit of this, or when solutions are easily obtainable (*e.g.*, from our "B.A. Mathematics"). In such cases questions *of the same type* have been introduced.

Ordinary Course.—An Ordinary Course in any subject embraces Thirty Lessons. In Latin and Greek each of these consists of three parts: the first part covering the Grammar and General History; the second and third dealing alternately with either (A) Unseen Translation (now one of the most difficult and important subjects at B.A) and (C) Composition (in Latin only), or (B) Special Period of History, and (D) Prescribed Authors. There is a great advantage in detailed courses like these, with full Notes and Hints to every lesson, over a series of Test Papers whose main purpose is to correct a student's errors rather than show him in advance how to avoid them:—by help of the easy graduation a greater interest is sustained in the work, the specialities of the Examination are brought out in stronger relief, time is economised, and confidence gained from the knowledge that the proper amount of attention is being given to each part, and progress more surely counted.

	£	s.	d.
FEES.—Full Preparation for the Examination	12	12	0
Any Single Subject	3	13	6
Additional for Second and Third Subjects ... ... each	3	3	0

The best time to commence the Ordinary Course is at the beginning of the September in the year in which Inter. Arts has been passed; but, as this is inconvenient for many students, there are classes commencing in the second weeks of October, November, and December; arrangements can also be made to suit each applicant.

The lessons are distributed over the whole session from the time of joining, short recesses being provided for revision. Students joining late are worked through the vacations if they desire it.

B.A. Honours Examination.

(*In* 1888 *four students took Honours*).

For B.A. Honours the remarks at the top of the page headed "Master of Arts Examination" (p. 20, Prospectus) apply; one, two, or three years being necessary according to a student's knowledge on joining.

Mathematics.—By those who have worked up to Inter. Arts Pass standard only, 90 lessons should be taken, spread over about three years. Fee, £15. 15s.

Assuming a knowledge of B.A. Pass subjects, two years might suffice for the 60 lessons (several parts to each). Fee, £11. 11s.

Students who took Honours at Inter. Arts, not below the Second Class, 30 lessons. Fee, £6. 6s.

Students not failing in any of these three classes will be treated according to the number of lessons required.

French or **Mental and Moral Science.**—Forty-five lessons (not including the Pass Course). Fee, £9. 9s.

In **English** there are 30 lessons, covering all required for Honours, including the Pass subjects, fee, £4. 4s.; or 15 lessons may be taken on the Honours subjects not required for Pass, at a fee of £2. 12s. 6d.

Classics.—The full Course preparing for B.A. Honours consists of 60 lessons. Fee, £11. 11s. Stu- who have taken Honours in Latin at Inter. Arts may dispense with some or all of the Latin Papers, according to their proficiency on joining. In such cases a proportionate fee will be charged.

Further information on application to—

THE SECRETARY,

1 Strand Hotel Buildings, London, W.C.

LONDON MATRICULATION.

At the June Exam., 1889,

78

University Correspondence College Students passed.

The Ordinary Course.

A student who is well qualified in most parts to begin the Ordinary Course, but wishes to revise or prepare some part privately before commencing systematic work, may send in his Form of Entry in advance, and be advised what to do in the interim without additional fee.

Any single Subject	£1	11	6
For each additional Subject	1	1	0
Composition Fee for *all* Subjects	6	6	0

An Ordinary Course consists of eighteen lessons (or sets of lessons), in each subject, in addition to Author Papers. If all subjects are being taken, it is generally best to study half one week and the remainder the next, distributing the work over about a year, reckoning vacations.

For the benefit of those who have failed in one Examination, and wish to proceed to the next, or for those who can devote all their time to study, there is a

Special Course,

for each January Examination, beginning the last week in August, and for each June Examination the first week in January or February.

Students joining late receive the full number of papers distributed uniformly over the time to their examination.

No one should join this course, however, who has any subject to learn from the beginning—except, perhaps, Mechanics, or Experimental Science, in which case his other work should be good all round, and Mathematics especially strong.

One Subject	£1	11	6
For each additional Subject	1	1	0
Composition Fee for *all* Subjects	5	15	6

The Honours Course.

For students who have been through the whole of the work, and have either failed to pass the Examination in one or two subjects only, or who have deferred going up in order to make sure of a good place at the next Examination, an Honours Course is provided.

Fee for the whole Course in all Subjects...£3 13 6

In this, single subjects cannot be taken, but part may be worked in the Extension Course (see below).

This Course may be commenced not earlier than the last week in August for the January Examination and the first week in February for the June Examination.

There are nine double lessons, each followed by a test paper, in addition to Author Papers. The Honours Course is intended for those who are on the whole decidedly strong.

The Extension Course

is intended for students who are not prepared to take the Honours Course, but who, after having worked over the ground required, feel that they cannot enter for examination with a fair prospect of success.

Fee, date of starting, and arrangement of Course the same as for the Honours Course; notes and hints preceding each test paper.

Further information on application to—

THE SECRETARY,

1 Strand Hotel Buildings, London, W.C.

NEW WORK

By C. P. MASON, B.A., F.C.P.,

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PRACTICE AND HELP

IN THE

ANALYSIS OF SENTENCES.

This work contains a careful exposition of the mutual relations of the constituent elements of sentences, with appropriate illustrations and exercises. There is besides a large collection of miscellaneous examples of all degrees of difficulty, accompanied by hints and directions for the proper analysis of them.

"This is a very practical and helpful little book. . . . The sections on abbreviated and elliptical sentences, and on the uses of '*as*,' '*than*,' and '*but*' are particularly good, while the great number of well-chosen *bonâ fide* examples from English writers, and the remarks thereon, render the book practically indispensable to any one who wishes to treat the subject with thoroughness and good sense."—*Educational Times.*

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Price 3s. 6d., cloth. **Seventh** Edition (**34th to 38th** Thousand).

A SHORTER ENGLISH GRAMMAR.

With Copious and carefully Graduated Exercises.

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THE GIRL'S OWN PAPER. 6d. Monthly, 1d. Weekly. First Weekly Number October 1st.

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THE BOY'S OWN PAPER. 6d. Monthly, 1d. Weekly. First Weekly Number October 1st, with Coloured Plate.

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THE LEISURE HOUR. 6d. Monthly.

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BRIGHTEN THE WALLS AND INSTRUCT THE CHILDREN.

TEACH THROUGH THE EYE AS WELL AS THE EAR.

Now that dark days are coming, a few of the Cartoons mentioned below would do wonders in brightening the walls of School or Mission Rooms, &c. They can be had in various styles, all ready for hanging or fastening to the walls.

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SCRIPTURE CARTOONS.

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9. Blind Bartimæus.
*10. The Good Samaritan.
*11. Daniel in the Lion's Den.
12. The Pharisee and the Publican.
13. Jesus & the Woman of Samaria.
*14. The Brazen Serpent.
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LANGUAGE AND LINGUISTIC METHOD IN THE SCHOOL.*

By S. S. Laurie, M.A., LL.D.,
Professor of the Institutes and History of Education in the University of Edinburgh.

Lecture IV.

The Formal or Grammar Discipline.

I have entirely failed in the preceding argument if I have not satisfied every unprejudiced mind that Language taught as a concrete subject, that is to say, with special reference to the substance of thought, both nourishes and trains the mind—nourishes it intellectually and morally, and trains it by carrying it through the processes of thinking, which find their body in the forms of utterance. This subject, indeed, at once nutrifying and training, is the main instrument of education: it is only by an ample and adequate treatment of it that the teaching of the school can be made contributory to the maintenance of the national life, and above all, to the supreme ethical purpose of man's existence as an individual and as a member of a society. Let the young then read largely with understanding.

But (as I have already also shown) there is such a thing as *Discipline* of intelligence; and this discipline, as distinguished from training, is most directly and effectively insured by formal or abstract studies, such as arithmetic, mathematics, grammar, and logic. Education without discipline must be held to be defective, both as an intellectual and moral process. Discipline is an essential part of all education, intellectual and moral, of a rational mind; but it is always to be kept in due subordination, I hold, to nutrition and training—especially up to the age of puberty.

Given, then, that we recognise the significance of the teaching of the formal in language with a view to the education of a mind, the question now is, How shall we proceed? In other words, What shall be our method?

Now I cannot adequately deal with method in teaching grammar without applying certain principles and rules of method. Were this the time and place, I should ask you to follow me through an analysis of the movements of the human mind in learning anything, with a view to the deduction of these rules from the Science of education. As I am now dealing with the Art alone, I must assume these rules as established. They are not rules applicable to grammar alone, but to all subjects of instruction. I shall draw on them, only so far as necessary.

A few words, in addition to what I have said in past lectures, on the nature of the abstract will introduce us to our fundamental principle of procedure in dealing with the abstract and formal in education. Man does not live upon abstracts. There is no feeding in them. And yet he is for ever abstracting and generalizing, correctly or incorrectly, consciously or unconsciously. He knows anything only by determining it as a single; but if he stopped there, the world of knowledge would be a world of isolated atoms. He sees the common in the diverse, and then proceeds to abstract and generalize. But this he does, not for the sake of the abstract or general in itself. It is merely a logical device, so to speak, whereby he attains to a true knowledge of the individual real things themselves, as they truly are. The general and abstract, in short, reveal to him a community of character and principle in the diverse, and so help to reduce all to a unity of fact and process of which all individuals are only the particular manifestations or cases. Thus abstraction and generalization, while they start from real things, return also to real things: they interpret them by showing their relations and common ground, and find repose ultimately only in the primal unity of all differences—God Himself.

The moment we begin to play with abstractions, without constant reference to *things*, we plunge into a sea of troubles.

The occupation of the intelligence with the abstract is, as I have said, a discipline, because in contemplating the abstract we are not far from the contemplation of mind itself, in its nakedness, as a living process, and are thus making an almost direct acquaintance with the organon of all knowledge. But this is not (as I have shown) in the truest sense education: it is to be compared to the sharpening of the edge of a tool and strengthening the body of it for the purpose of acquiring the food or nutrition by which mind lives and grows. It is this food that we call the concrete or the real.

Now, grammar, like every other science, is a system of abstractions. But like all other abstractions it must be always kept in close intimacy with the real on which it rests—the real of words and sentences, if the abstractions are to have any significance at all for the mind of a boy; or, for that matter, of a man.

This remark gives the key to the leading principle of method in the teaching of the abstracts and generals of all sciences as well as of grammar. The method must be the *Real* method. It must grow out of, rest on, and continually refer back to the matter of words and sentences. If this be not done the teaching fails as a discipline in the abstract, and it fails also of its ultimate aim,—the acquisition of power over language.

Indeed it may be said generally that all education should be education in the *Real*, and that when we have to educate in the abstract our method must be the *Real* method if we are to give our teaching life and meaning to the learner.

1. The formal or abstract in language—in other words, Grammar—should not be begun until the mind of the pupil is sufficiently advanced to be able to grasp it. "Of course not," will be the general response to this obvious proposition. And yet this rule of method is scarcely ever attended to in practice. My own opinion is (but this is a matter on which there will be difference of view) that the beginning of the twelfth year is the earliest age at which grammar can be effectively taught—taught so as to be educative in its effects. Prior to this, and indeed very early, a child should, by the help of numerous examples, be taught to recognise the subject and the predication regarding it—the *whole* logical subject I mean, and the *whole* predicate—as going to constitute a sentence or proposition. This formal condition of a possible sentence can not only be taught very early, but it is for practical reasons desirable to teach it early. (In a previous lecture I have said at eight years of age.) A recognition of this fundamental fact of both grammar and logic is very helpful in enabling children to understand what they read, and to express what they desire to express. Beyond this one grammatical fact I would not go until the pupil had entered his twelfth year. Before this age, grammar has no place, either in the infant school or the lower primary, which is not usurped. Now the first objection which will meet us is this: Inasmuch as a subsequent rule of method demands that foreign grammars should be based on the native grammar, we should, by beginning native grammar only in the twelfth year, postpone Latin and French till the thirteenth at the earliest. To which my answer is: By all means; why not? In the case of boys and girls whom you knew were to study French and Latin, there would be no objection to giving

* A Course of Six Lectures delivered at the University of Cambridge and at the College of Preceptors during the month of May, 1889.

them, by the help of the blackboard, a certain number of French or Latin *words* before the thirteenth year—names of the familiar things of ordinary experience. But more than this it is not desirable to do. I am speaking of general school education; the merely imitative acquisition of elementary conversation in French or German which children may acquire in the nursery—mere memory work at best—lies outside my present argument. But I will say here, in passing (as a private conviction of my own), that children should be made to live in the atmosphere of their mother-tongue alone, and think through the vehicle of it alone, if we are to promote in them depth and solidity of nature and unity of character.

2. As the first rule of method concerns the "when," so the second rule of method to which I shall advert concerns the "how much." The rule of method to which I refer is that which requires us always to keep the *practical* aim in view. "Turn everything to use which you teach, and teach nothing which you cannot turn to use."

This is a large question, and would afford materials for much interesting discussion were I writing a big book on method instead of a brief course of lectures. I must be excused for dealing here somewhat dogmatically with this, as indeed with some other requirements of method.

You at once see that you would not shovel the whole of grammar, even in the restricted school range of this subject, into the mind of a child in his first year of studying it. And yet we all know that in the department of Latin this was done for hundreds of years, and still is done in many places—not only the whole of the formal generalizations, but the exceptions to boot.

I must turn aside for a moment from the main current of my argument to meet the obvious remark which we can all for ourselves put into the mouth of the fossilized teacher, "all of the olden time" before he utters it: "And yet they got up their grammar somehow, and knew it too, perhaps better than any of your modern boys brought up on your new-fangled methods." To this I reply "Did *they?*" Who were the "they." The teaching of Great Britain, in its secondary schools, has been till quite recently exclusively the teaching of Latin and Greek. A few clever boys out of the thousands who have passed through the schools—boys whose brains were such that they would have mastered Egyptian hieroglyphics and Etruscan inscriptions, with all that has been written about them, if these had been *prescribed*—have, of course, overcome the defects inherent in the no-method of the past through the innate energy of their own minds. But what of the rest? Is it not high time that classical masters should cease to humbug the public on this subject? I use a strong expression, but I use it deliberately and in cold blood.

In this connexion I would have you observe an irresistible claim of sound method. It is thus that it always, and at every point, educates the mind. By this I mean that at whatever point a boy's study of a subject may be arrested, he has yet received from the study, so far as it has gone, *that kind of education in the exercise of the processes of mind* which, though not measurable by the standard of quantity of material annexed, is the most potent of all disciplinary influences in his future intellectual life. If method as opposed to no-method does not accomplish this, but merely makes the acquisition of this or that subject quicker and surer, it can have little interest for the philosophical educationalist, though it may still retain its attractions for the practical instructor.

As regards mere acquisition, I affirm that "no-method" has been a scandalous failure.

I return to the "how much," as determined by practical use; and I ask, what is the practical use, as distinguished from pure intellectual discipline, of English grammar, which intellectual discipline may be called a theoretical use? I answer, First, the enabling a boy better to grasp the language of literature; and, secondly, the enabling a boy better to express his own thoughts (when he has thoughts to express). Do you think you do this by the detailed analysis of sentences now in vogue? Beyond that general analysis which brings into relief the logical construction of a complex sentence, you do not help the boy. You present him with linguistic riddles to solve, and make his native tongue as offensive to him as was Latin when it meant a mass of Latin rules in Latin. Let us protect our vernacular literature, at least, from this barbaric dissection, and not defeat the literary purpose we should always keep prominently before us in teaching language.

I have been speaking of the "how much" we should teach in all, that is to say, up to the close of the secondary school course, the age of 17 complete, at which point I place the proper termination of the secondary school. But it is evident to you that the "how much" applies equally to each successive year of study, and that we must limit each year of study by the age of the pupil, and by what we can turn to use. All else is useless; all else is positively hurtful.

Here now enter the subsidiary rules of method: "Little at a time, and that little well." Little by little, step by step. Without haste, but without rest; and so forth.

It may seem strange to you that one lecturing on method should (especially after what he has said in his first lecture) insist so strongly on the practical, and keep out of view the theoretical aim, the pure discipline of the intelligence. It would be too long a task, and carry me too far into the psychology of method, to explain this. But if I did, you would find the result to be this, that a sound theory or philosophy of instruction and education is always practical, both in its instruments and its aims. Further, that a sound method of mere *instruction* is also a sound method of mental *discipline;* that the one secures the other, and thus the twofold task of the teacher—discipline and acquisition—is harmonized.

3. *The method of procedure must be* REAL.—The real, the real, and again the real—that is the one governing word in all *matter* of education, and also in educational method, even in the sphere of the formal and abstract. In teaching real subjects, such as literature, geography, science, it is manifest enough that the method must be real: but what I say is that in teaching formal or abstract subjects, such as grammar, arithmetic, mathematics, logic, the method must be real—that is to say, the abstract must rest on the concrete, be led up to through the concrete, and return to the concrete. For, in truth, there is no abstract in the universe, and there is no abstract in the mind of man which is not an abstract of, and in, the concrete. Hence the rule of method to which I am directing your attention, viz., the abstract and general must always be taught through the concrete.

I have spoken above of the abstract in general; this is the place to repeat the substance of what I said in specific relation to the subject of language. Language, as an abstract or formal school study, is the study of those generalizations of likenesses and differences in vocables and in the organic relation of these, which, with the addition of the external history of word-forms, we sum up under the name Grammar. When, again, we generalize the characteristics of a continuous composition, its logical sequence and persuasive development—all viewed in relation to the attainment of its end, whatever that end may be, whether to please or convince—we call the body of generalized rules and maxims of composition which the analysis yields, Rhetoric. Grammar and Rhetoric alike tend to become a complicated body of organized rules, and as such to become an object of study with a view to *correct* expression in the one case, and *eloquent* expression in the other. Now the learning of the body of grammar, even with examples tagged on, will not make a *correct* writer, nor will the learning of the rules of rhetoric, with illustrations tagged on, make an *eloquent* writer. Nay, I go further than this, and hold that neither the one nor the other will even enable you to appreciate grammatical accuracy and nicety on the one hand, or literary form and the secret of oratorical or poetical beauty on the other.

To be of any utility, either as a discipline, or as training, or as a knowledge, grammar has to be studied in and through *sentences*, and to be extracted from sentences by the pupil if it is to be *really* taught; and rhetoric has to be studied in and through the masterpieces of literature, and extracted from them, if it is to be *really* taught. This last sentence sums up the true significance of the Revival of the fifteenth and sixteenth centuries in the department of Education. The meaning of the Revival was not always fully comprehended by the teachers of the time. Hence the belief in style simply as style, and the craze of the Ciceronians. Hence, too, the inevitable reaction and retrogression in the school to words, rules, and forms, to the neglect of the realities of literature and of observation. Accordingly the Baconian school, when it arose, was perfectly justified in its assault on "words," and to this day it is justified.

It is, in truth, in the interests—the perennial interests—of the revival of letters that we call on teachers to note that grammar and rhetoric, if taught as abstract systems, are a mere aggregate of names, dead names. These so-called "arts" must be taught in close connection with the living body of flesh and blood from which they are abstracted. To illustrate this in detail would carry me beyond my present purpose. I am content thus far to have brought before you the distinction between language as a real

study and language as a formal or abstract study—to have pointed out the distinction between training and discipline, and the consequent inference that mental training can be given through the real as well as through the formal; and to have emphasized the further fact that even in teaching the formal we should do so *really* if we desire to succeed in our educative aim. "Matter before Form," says Comenius.

But all this is said in vindication of what I consider to be the leading rule of method in all formal subjects, which is that language should be taught, much more than it is, as a real subject, that we should constantly teach it in relation to the thought it is intended to convey—the use to which words are put in expressing a thought, and the functions of each word and phrase in the thought as expressed.

With these introductory remarks on the teaching of grammar generally, I would now pass to the teaching of the grammar of our native tongue.

Grammar of the Vernacular Tongue.—Purpose.

It is apparent from the nature of an examination in a sentence of English, with a view to the thorough understanding of it—an examination which I gave you in a former lecture—that the reader who *fully* comprehends it, has already analysed words and clauses in relation to *thought*, and performed an important analytico-synthetic exercise. He may now be said to have an implicit knowledge of the grammar and analysis of the sentence. Our object in teaching grammar is to make the implicit knowledge explicit and conscious, and to do this we classify words and clauses under certain abstract generalizations or heads which we call Noun, Adjective, and so forth, according to the function they respectively discharge in the expression of a thought. We then generalize the logical connection of the words and the rules observed in connecting them.

This is the analysis of words and sentences, with a view to collecting together all those that are like each other under a common designation or name. The exercise, then, is preeminently analytico-synthetic, or inductive.

We are no longer teaching concrete realities by means of their symbols—words and sentences; we are teaching the generalized and abstract relations of words and sentences; and our instruction is therefore formal, and no longer concrete.

When we carry this analysis further and deal with the inner logical development of any writing, and still further to its æsthetic characteristics, we train (as I have said above) in formal logic and rhetoric.

The scope of our grammar-teaching is limited by what is practicable within the years of school life, and must therefore be so taught that at *whatever stage a boy's education ceases, he shall have obtained the benefit which grammatical teaching is supposed to give;* in other words, that the purpose of teaching it shall be so far attained.

Now this purpose is to give discipline by means of a highly analytico-synthetic exercise of an abstract or formal kind, whereby we make him conscious, through the concrete, of intellectual processes; and further, to give greater command over words and their relations, as used by others and by himself.

Method: First Stage.

1. I think that the first rule of method, which requires us to adapt subjects of instruction to the growth of mind, demands special attention in our consideration of the way of teaching grammar, or the analysis of language. We must not burden the young with this abstract work too early. By the perusal of simple mind literature as a synthetic study after the method already laid down, and by the practice of composition as an imitative exercise (of which we have already spoken), a boy is subjected to the *training* which language gives without deliberately dissecting it. My opinion, as I have already indicated, is that we should rely on these exercises almost solely till a boy enters his twelfth year. Prior to this, however, and solely with a view to obviate the blunders that pupils constantly make in imitative composition, I have said that the division of every sentence into subject and predicate should be given even as early as the ninth year, and constantly applied on the blackboard to correct errors in the sentence-making of the pupils. Nothing more than this, I repeat, should be taught up to the beginning of the twelfth year, and then the dissection of language should be set about as a daily exercise. In what way?

2. We are dealing with generalizations, consequently we ought not to *give* these general words called the parts of speech, or rules of syntax, to our pupils, but guide them in the attempt to find them out for themselves. This is what is meant by the *real* method. You have, however, to propound to your pupils the object of search, just as a science professor would propound the object of search to his pupils in a laboratory. For example, the proper analytic exercise consists in seeking for those things among a multitude that have a common character, and collecting these together under that common character to which you give a *name*. This is a generalization. But in teaching the very young we must lead the way by telling them the character which we are seeking: *e.g.*, this sentence, "the warm sun shines by day, and the bright moon and twinkling stars by night," having been written on the board, we ask for those words that are names of things. These being picked out and arranged in columns by themselves on the board, we next give a few additional sentences and proceed in the same way. The words thus brought together as "Name-words" in the column are then revised, and the first lesson in grammar is given. The child has brought them together *himself* with your co-operation and guidance.

Thus we fulfil two rules of sound method, for we teach generalizations through particulars, and we get the pupil to instruct himself.

3. The next step is to pick out name-words from the day's lesson, and to give this as a slate exercise in school or to be done at home. Thus we fulfil the rules of sound method which require us to repeat and revise, and further, to *turn to use*, what has been acquired. We may at this stage substitute the word *noun* for "name-word," but we should, in the whole course of grammatical teaching, be continually testing the pupil in the knowledge of the simple meaning and force of all the technical words used, and this because they are Latin and highly abstract terms.

The greatest difficulty you will meet with at this stage of teaching will be the recognition by the boy of those nouns which are names of things not sensible. This is because a certain power of *abstraction* is necessary to the mere identifying of them. You overcome this and other difficulties only by frequent repetition of the same sentences and continual construction of similar ones on the blackboard, taking care to confine yourself to simple, or at most compound, sentences.

Never give a lesson of more than ten minutes' length. Two lessons of ten minutes each daily is of far greater advantage than one of sixty minutes. Thus we fulfil the rule, "Little by little: a *short* step at a time."

Also invite the pupils to test the word whether it be a noun by putting "*a*" or "*the*" before it, and seeing if it makes sense. This mechanical help is justifiable in so abstract a study.

4. We now proceed gradually in the same way (*i.e.*, step by step, little by little, repeating and revising, and turning to use daily) with *adnouns* (or adjectives), then *for-nouns*, then *verbs*, and then *adverbs*, giving five or six lessons, at least, to each new part of speech. A verb should be introduced as a "doing or telling word," and an adverb as qualifying a verb. But a mechanical help may be given (as in the case of nouns) by suggesting to them to try a word by putting "*I*" before it and see if it makes sense.

5. Having reached this point we should pause a while until we are satisfied that these generalizations are thoroughly known; in this way obeying the rule demanding *exactness* as necessary if there is to be a sure foundation for the next step, knowledge being an organic growth, and the further rule which requires us to dwell long over the *beginnings* of a subject. [If we put "*a*" and "*the*" among the adnouns, which is the simplest way of doing it, as well as, perhaps, the most correct, we reduce the parts of speech to seven, for interjections do not count; and of these seven the five most important are now acquired.]

In the course of two or three weeks from the date of beginning, provided there is continual turning to use of the knowledge gained, we may go on to prepositions, and thereafter to conjunctions. When the words under a class-name are limited in number, as in the case of conjunctions and prepositions, I would have the children make a list of them as they occur, and enter them in a grammar note-book, with which each child should be provided. In this way the child gradually makes his own grammar-book, and the rule as to self-instruction is fully operative.

The pupil, before he has begun this grammar course, is presumed, remember, to be familiar with the things and names, "subject" and "predicate." If he is not, you must interpose this instruction before you can rationally teach conjunctions.

6. The next step is to teach number. This we do by asking the children to make the plural, and then putting down such

words as they may make—*e.g.*, *horse, horses; church, churches*—on the board. The pupils quickly see that the one word denotes a *single* thing, and the other a *more-than-single* thing; and we may now teach the terms "singular" and "plural," as more convenient. Thus we follow the rule of teaching through the senses, and the further rule of constructing the abstract out of particulars already implicitly known.

7. Having become familiar with singular and plural in a single lesson followed by a home exercise, we can now put on the board and have an amusing exercise in *exceptional* words, such as mouse, ox, sheep, and so forth. Thus you follow the rule, "The prominent or salient facts of a subject should be taught first." To bother children with rules for the formation of the plural, and to require them to learn by heart lists of exceptions which they already know through colloquial usage, seems to me a perverse attempt to make difficult what is easy, and to disgust children with what is, properly taught, a pleasing and even amusing exercise. You are entitled to ask for the plural of child, or ox, &c., but not to ask for a *list* of irregular plurals. This last is rote-memory work.

8. *Gender* is in English a very easy matter. I would, however, for a time use the terms *male, female*, and *neither*, and employ the word *kind* instead of the Latin term gender. I think you may, without danger to the child's intellectual and moral progress, omit the feminine of "Landgrave" and certain other words of this class.

9. The knowledge up to this time acquired by the pupil—and I use the word *acquired* advisedly, for it has not been put into him, but brought out of himself by himself, with your guidance and co-operation—being thoroughly revised, the pupil is now in a position to name the class of each of the words in four or five lines of the reading-lesson of the day. Occasionally he should do this on the slate in columns. From day to day he is adding to his stock of prepositions and conjunctions, which he inserts in his note-book. He may now learn the distinction between proper and common nouns, but further distinctions should be scrupulously avoided. The salient and prominent are to take precedence of the rare and exceptional. Note that we are daily *turning to use* what has been acquired; and in order to maintain an intelligent connexion with past teaching, and the organic character of our teaching, we must be constantly going back, by the help of the blackboard, to our past introductory teachings.

A short daily lesson during one school quarter ought to bring a class composed of pupils in their twelfth year as far as I have yet got. A fair familiarity with the parts of speech, the numbers and genders, will now have been obtained, and we then enter upon the second stage of grammar-teaching, which involves us in syntax; and syntax is unintelligible save as analysis.

Second Stage.

1. I now bring more conspicuously forward the knowledge the pupil already has of subject and predicate, thus:

The child sleeps,
The child cries,
The child dresses her doll,

and so on. I keep in mind the rule of method that generals are to be formed out of known particulars.

The verbs having been named, I now call for the difference between *cries* and *dresses*, and bring into view the fact of *transitive verb* and the *noun* as an *object*. And why? Because the verb does not express by itself a complete sense.

2. For the next week or two (taking care meanwhile to observe the memory rules of method, and *daily to revise briefly all the child as yet knows*), I do nothing but exercise my pupils in this distinction of *subject* with *intransitive* verb, as the principal word in the predicate, and *transitive* verb as the principal word in the predicate, but requiring an object. In the course of these exercises the change of form which the verb in the present tense undergoes, when we substitute a plural subject for a singular one, is apparent. By dwelling long on this I obey the rule of Exactness and that which demands a sure and solid foundation for further knowledge.

Observe that at this stage we still continue to give the *whole* subject and the *whole* predicate, but we have now begun to distinguish the subject-noun and the object-noun. The words in italics in what follows are the whole subject: "*That fierce nation, the Goths, of Europe, emerging with daring plans from the northern regions of Europe, armed with sword and spear,* marched slowly but steadily southward."

Subject-noun and object-noun are the terms to be used instead of nominative and objective case.

I need not further illustrate this stage to those who have studied the analysis of sentences.

3. The pupil next turns to use the above instructions and all his previous instructions (thus revising and repeating); for he now parses lines from his daily reading-lesson—that is to say, he names first the whole subject of a sentence and the whole predicate; he then selects the predicative verb, and next the leading subject-noun, and the object-noun in relation to the verb when it is transitive. He then names each part of speech successively, points out the nouns which the adjectives qualify, also their number, gender, and so on. *The second quarter of the school year is now at an end.*

4. You next direct the pupil's attention to the fact that the words called *prepositions*, which he has been gradually collecting in his note-book, do not make a complete sense any more than transitive verbs do, without an object; and you exercise him in this with the help of the blackboard and embrace this piece of syntax in your parsing lessons henceforth.

5. When we enter on *tense*, you follow the rule that we raise vague and implicit knowledge to clear and explicit knowledge, beginning thus:—"When you leave school you say 'I go home,' but you left school yesterday also, and would you say 'I go home yesterday'? To-morrow also you will leave school and you say 'I shall go home to-morrow.'" They *know* the tenses implicitly already, and you are now simply raising the vagueness of the implicit to the clearness of explicit *knowledge;* the word *time* being used always instead of the word *tense*. Every fresh step is to be written on the board, and in some cases, as in that of time, illustrated to the eye. But only present, past, and future should at this stage be taught. All this will carry you well into the third school quarter; for an endless variety of simple exercises are needed at this stage, and you cannot go fast. (Step by step: little by little: be exact: repeat.) Moreover, remember that you are parsing daily as far as the pupil can parse, and so applying all knowledge as yet acquired.

6. Observe now that the pupil has been gradually, as the result of his own observation, acquiring a few general rules of Syntax, viz.: "A verb agrees with its subject-noun"; "A transitive verb and a preposition require an object-noun." These, after they have been inscribed on the blackboard, should be written out by him in his note-book.

7. You now decline the pronouns, introducing them in connexion with the verbs and not by themselves: thus, *you* say "*I* learn my lesson," but if you are speaking *to* another you say —what? "*You* learn your lesson." Here explain about thou as the true-singular. If speaking *of* another you say, "He or she learns his or her lesson."

In this way you pick out the personal pronouns and put them fully declined on the board, and get the pupils to write them down in their note-books as a home-lesson.

8. In the last quarter of the year the pupil should be led to extend his knowledge of time or tense and then moods, you using such words as telling-mood, commanding-mood, "may"-mood. You work out the verb in all its tenses and moods on the blackboard in the same way, *i.e.*, by drawing them out of the children and getting them, after a few slate exercises, to write them out in tabular form in their note-books.

A thorough knowledge of the above course gives a child as extended and definite a knowledge of the foundations of grammar as any boy or girl need have. Revise and re-revise, and apply the knowledge in every possible way; above all, forcing your way through words to realities; *e.g.*, gender is *kind*, singular is *single*, verb is *word*, tense is *time*. Use these words indifferently, or repeat them; *e.g.*, "What time or tense is it?"

You will have observed that I have assumed that you teach orally by the aid of the blackboard and the ordinary lesson-book only, the child making notes in his book, and, in point of fact, constructing a Grammar for himself. But you yourself should be guided by some little text-book: this for the sake of the exercises and as a relief to your own mind.

The pupil has now reached his thirteenth year (twelve complete) and may have some cheap text-book put into his hands. I speak of the mass of children. The children of intelligent and educated parents may easily reach this stage by the time they are eleven complete. The pupil will now very quickly run over the text-book with you; but the chief addition to his knowledge in doing so will be in the relative pronouns. There is really little or nothing more to do except to confirm what has been already acquired by means of a daily brief exercise. The pupil will now

begin to extend his knowledge of analysis, step by step and slowly. But let me beseech you not to go beyond what is called general analysis. Analysis of sentences is unquestionably overdone. The value of it will be found to consist in the correct application of a little *thoroughly known*. For example, if a boy, even at fourteen, can readily distinguish the enlargement of the subject, the extension of the predicate, the principal and subordinate clauses, the noun clause, the adnoun clause, and the adverb clause, he knows the logical organization of a complex sentence, and this is enough. Avoid minute distinctions which draw attention away from the broader and more uniform relations of clauses; but take care that the boy is thoroughly familiar with these and ready in discriminating them. I need scarcely say that analysis, like ordinary grammar, should be extracted from sentences by the pupil with your help, not learned from a book.

The purpose you have in view must never be lost sight of. It is a disciplinary purpose; but besides this, and chiefly, you wish to increase the boy's power of seeing through the meaning of long and complex sentences, especially in poetry, and so extending his grasp and comprehension of literary language. You have the further practical purpose of giving him a more exact grasp of the language he himself daily uses, with the view to his employing it in his set compositions.

As a help I would be disposed to draw up a wall-sheet of the chief points in grammar and analysis to be constantly referred to. Do not buy somebody else's wall-sheet. I do not know what may be best in training mechanical engineers, but in general education the master and his boys should not only make the machine, but also their own tools as they need them.

Historical grammar may occasionally be referred to by yourself to illustrate peculiarities, such as *oxen*, kine, &c.; but no historical grammar should be taught before the age of sixteen. If you attempt it in the early stages of study you will hopelessly confuse the child's mind. His business is to learn what *is*, and not either what was, or may be, or will be.

I have not spoken of the *whole* of grammar. It would be to presume that teachers have no intellects at all were we to enter into details of method over the whole field.

The importance of method, moreover, in abstract subjects lies in the initiation into the subject, the laying of the foundations of the new knowledge in its organic relations to what is already known.

The principal defect found in the teaching of grammar in schools is want of accuracy and precision on the part of the teachers. This prevails to a scandalous extent. This defect manifestly vitiates the whole teaching, and makes it worse than useless. The importance of grammar, remember, for boys and girls lies in this, that it is a valuable exercise of mind in analysis and in the making of verbal distinctions, and therefore cultivates the power of distinguishing in general; and, above all, of distinguishing between things which are objects of reflection (notional), and not merely the things of external observation. Now, if the distinctions made cross each other, or are vague and indefinite, parsing and analysis of sentences are illusory. And, again, however accurate the distinctions may be, if they are too numerous, they defeat their own end.

Grammatical teaching can have only three possible objects in a school—the formal discipline of mind, the more thorough understanding of reading-lessons, and the art of composition. The first is not only not promoted, it is unquestionably retarded, by vagueness of definition or the slurring over of difficulties; the second and third are not to be attained by mere parsing, unless it take the form of analysis and be supported by actual practice in the construction of sentences and paragraphs.

Merely "fair" results in a subject of a formal kind are of little practical value, disciplinary or other.

It may seem inconsistent in a believer in philosophical method to have recommended what may be called *mechanical* helps in intellectual subjects, but I have found these sometimes very useful. For example, a child may have difficulty in distinguishing a verb through the definition of it, although he may have been led by you inductively to that definition. To help him I have recommended you to ask him to put "*I*" or "*we*" before it, and see if it makes sense. Again, the instruction to put "*a*" or "*the*" before a word to ascertain whether it be a noun, and further, to make a *list* of prepositions and conjunctions in his note-book, are mechanical expedients. The justification of all such expedients is that some little extraneous aid is necessary to the young in forming and applying abstract conceptions: and if such aids do not cause the teacher to omit reducing every step to its rational grounds, they are not to be despised; nor will they do any harm if you are careful to be constantly presenting to the pupil's mind the real function of the word as that function is explained in the definition.

In conclusion, let the teacher or the man of science consider for a moment the mental processes a boy is putting himself through when he parses a sentence, he will see that there is in intelligent and accurate parsing a true discipline of the understanding. Take one of the simplest exercises—the parsing of "shall have seen." The boy first selects the word to which the others are auxiliary, referring it to a class in respect of the function it discharges in the sentence—a process first of analysis and then of deductive reasoning; he refers the auxiliary portions to their proper "time,"—an act of discrimination among possible times or tenses; he relates the whole to its antecedent subject and its sequent object, which involves a perception of relations among separate thoughts and symbols of thoughts. Each successive word attacked is, in truth, a separate problem. Realize this and you cannot fail to realize the importance of the exercise and the necessity for exactness. Analysis of sentences is a repetition of the same kind of intellectual process in relation to the clauses of a complex sentence instead of to the words alone.

On this special branch of grammatical teaching known as Analysis of sentences, I have not time here to do more than repeat what I have already said: It should be restricted within narrow limits; and secondly, the terms applied to words should also be applied to clauses, viz., noun, adjective, adverb.

In dealing with grammatical teaching I have been speaking of the work of the upper primary school period, from 11 to 14.

If pupils continue at school during the strictly secondary period of instruction, 14 to 18, the formal grammatical studies find their completion in the elements of comparative philology. By this time both boys and girls have some knowledge of two or three languages, and whether it be Romance or Teutonic or Classical philology which we teach, we are exercising the young scholar in scientific work—work as scientific in all its aspects as physics—more scientific in the large sense than chemistry or zoology. No man is a competent linguistic teacher in a secondary school who has not made a study of the comparative science of language. About the age of 16, boys and girls who have had a good foundation laid begin to reason actively, and are not only fit for inductive and deductive studies, but, if *these are kept within due limits*, they are attracted by them. Here, as everywhere else, all depends on the teacher, on his fulness of knowledge and on his method. Text-books and rules, got up and applied *deductively*, reduce even the elements of comparative grammar, naturally so fresh and stimulating, to the dreariness and aridity which characterized all our teaching in the past, and very much of it now. The desire to attain to a measurable result in acquisition is ruinous. What we should aim at is a natural and pleasing activity of intelligence in the direction and on the lines of the various subjects we teach. Let us have quality, and quantity will take care of itself. This, I think, is certain, that if we fail to arouse intellectual interest and a voluntary and happy mental activity in connexion with the subjects we teach, either we are as educators entirely on the wrong track, or our pupils are hopelessly stupid.

I am well aware that there are some things boys must learn, whether they can be led to take a living interest in them or not. Out of this compulsory learning arises a certain amount of moral discipline and a training of the commonplace mind in submission to conventionality and external rule, which help to make them safe citizens when they grow up—a result not to be despised. While fully recognising this, my business in these lectures is to speak of education in its true living sense, as an inner movement of mind from ignorance to knowledge, and from anarchy of feeling to ordered character.

INTERNATIONAL CONGRESS AT PARIS.

(*Continued from p.* 375.)

PRIMARY EDUCATION.

We stated in the first part of this report that three questions were to be discussed—

I. On the functions and organisation of the practising schools attached to training colleges.

II. On the part of the work of Elementary Education which should be assigned to women.

III. Under what form and to what extent can professional instruction (agricultural, industrial, and commercial) be given in primary schools (elementary and superior) and in training colleges?

Memoirs on these question had been sent from all parts of France, and from other countries, to the committee of management, and abstracts of all had been printed and circulated, so that the arguments for and against any proposition were known by the delegates at the beginning, and there was no loss of time in arriving at a vote on any question.

I. In connexion with question I., we gave the conclusions arrived at, and promised further information on the Training College system. There are three grades of *Ecoles Normales* in France: (*a*) those for ordinary primary school teachers; (*b*) those for the teachers of higher primary schools and normal schools; (*c*) one for higher grade teachers.

It will probably be interesting and useful to trace the history of these colleges. They show (1) what strenuous efforts France has made since 1879 in favour of education; (2) that she is striving to complete the system by levelling up—*i.e.*, by building on the broad foundation of the primary system—rather than by working down from the narrow apex of the higher public schools; (3) that in every development the first step taken in France is to prepare the teachers. With us, whether the Society of Arts, the City Guilds, the Chamber of Commerce, or a Government Department have to arrange for a branch of education, they invariably begin by examining the pupils, and "paying for results." In no other country of the world has such an absurd inversion of the natural order of things commended itself to the administrators of public instruction.

We will notice the three classes of normal colleges in order.

(*a*) *Les Ecoles Normales d'Instituteurs et d'Institutrices.*—The training colleges of France were formerly controlled by religious communities, but since 1870 all have been liberated and their number has been greatly increased. During the first year of its existence the third Republic had enough to do to defend itself and to heal the wounds with which war had afflicted France; it was not able to attempt anything definitely in favour of primary instruction, or of the *écoles normales*, although there were abundant evidences that the Republicans were universally in sympathy with national education. For instance, M. J. Simon even in the middle of the siege of Paris (Oct. 13th, 1870) wrote to the Mayor of Paris praying him to provide funds for two *écoles normales primaires*, which were needing them. It was not until the year 1879, that is to say, of the first Ministry of M. Jules Ferry (February 4th, 1879, to November 4th, 1881), that decisive action was taken to provide for the efficient training of teachers. With loftiness of purpose and wisdom as regards method, M. J. Ferry skilfully profited by the favourable circumstances in which the country was placed to deal with this question. Seconded by M. Buisson, the permanent Director of the Department for Primary Education, to whom we have already referred, he entirely and completely reorganised the national system, making the education provided by it both gratuitous and secular. The *écoles normales* had to be adapted to the new order of things, and hence, during the last ten years, laws, decrees, resolutions, and circulars affecting these institutions have succeeded one another almost continuously. Most important of these was the law of August 9th, 1879, creating *écoles normales d'institutrices*, and thus providing for the primary education of girls. All the departments were required within a period of four years to providing themselves with an *école normale d'instituteurs* and an *école normale d'institutrices*, sufficiently large to supply masters and mistresses for their public elementary schools. All the departments have satisfied the law in this respect, and, in addition, Algeria actually has its two *écoles d'instituteurs* established at Algiers and at Constantine, so that these colleges now number 84.

The training of women teachers began in 1840, but was for thirty years confined to the *cours normaux* attached to certain religious institutions; but since 1870 this has been entirely altered. Both the training schools for men and those for women are provided with practising schools, but the latter have a second *école d'application* for teachers of the *écoles maternelles*, resembling of course the kindergarten schools attached to some of our training colleges—Stockwell, for example. Since 1879 many of the old training schools have been rebuilt or enlarged, and the last official reports state that at the present time out of the 171 *écoles normales* for both sexes there are only thirty-four, twenty-one for *instituteurs* and thirteen for *institutrices*, which are described as being poorly equipped. All the others are placed in excellent situations, and are well supplied with apparatus. After having created these *écoles normales* in all parts, the attention of the Ministry was given to their organization, and attempts were made to animate them with a new spirit in harmony with the present times; to break the bonds which united them to an obsolete past; to improve their discipline, and to extend or to limit the programmes of study according as they were found to be too narrow or too vague. These attempts have been attended with remarkable success, the municipalities having loyally co-operated with the Ministry in the work.

(*b*) We have next to notice the *Ecoles Normales supérieures d'enseignement primaire de Saint-Cloud et de Fontenay*, designed to train teachers for the training of teachers, and to provide masters and mistresses for higher grade elementary schools.

It is necessary here to point out that during the last ten years France has established a system of *écoles primaires supérieures*—higher grade elementary schools, or what in this country are sometimes called middle-class schools. Of this class there are at present 256 schools, 185 for boys and 71 for girls (an average of three for a department), containing 25,000 children from about twelve to sixteen years of age, and belonging chiefly to the working classes, including superior artizans, clerks, farmers, &c. The instruction given in these schools is of a general character, somewhat higher than that of the lower schools; but there has been a growing opinion that the education here given should be practical and specialized, and should be of a more immediate utility for the trades which the pupils are preparing to follow. Complaints have arisen almost everywhere that this superior elementary instruction has tended too much towards that of the Lycées, and has not been in accord with the needs of the class for whom it is intended; that it is not an effective preparation for industry, for commerce, or for agriculture, but on the other hand has tended to turn the sons of artizans in town and country away from profitable careers open to them, and to send them to recruit a class which contains an increasing proportion of unemployed, the greater part of whom if they had been more wisely taught might have been useful to themselves, to society, and to the country. This amounts to saying that the superior elementary schools are the right schools for technical and manual instruction of an elementary degree. This fact has been taken account of in the foundation of the two training colleges we are considering. One of their functions is to provide teachers to give technical and commercial instruction in the superior elementary schools.

Their other function arises from the need for special training for certain special certificates. In 1880 a special certificate of capacity for a professorship was established, and two years later (December, 1882) a new decree established another special certificate of capacity for directorship of any *école normale*. In January, 1881, the salaries of masters and mistresses, assistant-masters and assistant-mistresses, and also of professors, were raised and fixed at a rate which compares favourably with the salaries of other trades and professions. In July, 1880, the *Ecole Normale supérieure d'institutrices de Fontenay-aux-Roses* was founded, and in March, 1882, that of St. Cloud was opened—the former for women, the latter for men. The founding of these two institutions is the crowning of all that has been done to perfect the training colleges for elementary teachers. The college at St. Cloud became necessary as soon as it was decreed that teachers in training colleges and professors should be required to obtain special certificates as a qualification for office. In February, 1881, a commission was appointed by the Minister to find some means of providing for promising assistant-masters preparatory courses, which should fit them to undergo the required examination. On their report, M. J. Ferry carried a resolution providing preparatory courses for the certificate of capacity for a professorship from the 1st of April to the 15th of July, 1881, in favour of assistant-masters of the superior elementary schools. The State undertook the expense of maintenance and instruction, and the rectors were invited to point out from amongst the assistants of the schools of their districts those who appeared to them most likely to profit by the help which was offered them. These were divided into two sections, one for letters, the other for science. Thirty-three assistant-masters, of whom twenty-one belonged to *l'ordre des sciences*, and eleven to *l'ordre des lettres*, received lectures from the best qualified professors of Paris. Of these thirty-three volunteers nineteen received certificates—six for literature, and thirteen for science. The course was renewed, and the conditions for admission were then arranged as follows:—candidates must be

not younger than twenty-one years, and not older than twenty-five; must be unmarried; must have entered into a ten years' engagement to serve in any capacity in the University or in connexion with education; and must give proof of having served for at least two years in a public elementary school; must have either the schoolmaster's certificate, the degree of Bachelor of Arts or of Science, or, lastly, the teacher's certificate for special secondary instruction (*i.e.*, the qualification to teach on the modern side of the Lycées). These conditions, with slight modifications, are still in force. The experimental lectures led to the founding of *L'Ecole Normale supérieure d'enseignement primaire de Saint-Cloud;* and the budget of the year provided a grant to develop it. A year later, the special school for manual instruction at Paris was removed and attached to the college of Saint-Cloud. Hence this college became charged with the double function of preparing teachers and professors for the literary and scientific instruction of the higher elementary schools, and of preparing the instructors in manual exercises in these establishments. The directors and professors of the higher elementary schools are (since 1886) appointed by the Minister of Public Instruction; consequently the students who go out from the Training College of Saint-Cloud provided with the necessary certificate are at the disposal of the Education Department, which may send them to lecture either in the Training Colleges, or in the Higher Elementary Schools. We may mention, as bearing on the question of Day Training Colleges, that the College of Saint-Cloud receives resident and non-resident students. Both sets are divided into first year and second year students, and each year is divided into two sections, one devoted to science and the other to literature. The resident students are selected by a competitive examination, which takes place every year towards the month of July. The non-resident students are admitted to the course of the college by the special permission of the Minister. There are two sections of the latter —those who wish to prepare for the examination for the professorial certificate, and those who intend to present themselves at the next competition for admission to the college. The first have usually already undergone examination for a professorship, have passed in the general subjects, and have obtained reports for the rest which justify the expectation that a year of specially directed study will be sufficient to finish their preparation. The others have usually attended the latest competition for admission, and have given in the examination proofs of their capacity, although they have fallen short of what is required for resident studentship. They must also have presented exceptionally good reports from the rectors of the academies to which they have been attached.

In reality there seems to be only one difference between these classes of students, which is, that those selected by the examination are lodged and boarded in the college at the expense of the State, whilst the others live at their own cost, generally lodging in the town. A more liberal provision is made for students at *l'école de Saint-Cloud* than at the ordinary *école normale.* Confidence is placed in the students, and much liberty is accorded them. They are not directly superintended in the rooms for private study. They take their recreation in the fine and large park of Saint-Cloud; they sleep in separate rooms, but are not allowed to work there, nor to stay there in the course of the day. They have at their service a common room in which games of different kinds, such as billiards, chess, &c., may be played. French political journals, German and English illustrated papers, all the literary reviews, scientific and pedagogic, which may serve to divert and instruct the students lie on the tables. On Sundays they are free to visit their friends, or to make excursions in the neighbourhood, visiting museums and monuments, and above all by being present at *matinées,* for which they have a taste, which is easily explained. Without exception all must return to the place at 10 o'clock.

The Ministry of Public Instruction seems to be proud of this college. The members of the Congress were invited to visit it, and we in particular obtained from M. Buisson a special introduction to the able and experienced director, M. Jacoulet, who courteously gave us the information we have here reported. The appliances and scientific manual work, he told us, were yet incomplete, but we visited rooms for working in wood containing well-appointed lathes and benches, one for each student; and similar rooms for working in iron, also with a lathe and bench for each student, so that they could work simultaneously. Here too was a forge and its accessories. The Natural History Department gave practice in the preparation of specimens for object-lessons, and the Museum contained an aquarium and cages with living animals. There were other rooms for carving and modelling in clay. They mean real work at Saint-Cloud.

The expenses of maintenance and education for 1888 were 166,674 francs (£6,660).

The college has a director and a sub-director, and most of the lectures are given by professors from Paris or Versailles, each professor giving only two lessons of one-and-a-half hours each per week.

The two sections of Science and Literature have a certain amount of work in common; for instance, the students of science as well as those of literature attend the ordinary courses on literature and modern languages, both take the lessons on pedagogy and mental science, but the members of the literary section only study historical grammar, old literature, the science of pedagogy, history of educational theories, political economy, &c.; and the members of the science section only engage in practical manipulation in the physical and chemical laboratories, and prepare specimens and studies in natural history, at first under their visiting professors, and afterwards under the demonstrators attached to the college. About four-and-a-half hours per week are spent in the workshops, and this is obligatory for science students, and optional for others. The science students, under the guidance of their professors, pay every year ten visits to the works and principal industrial establishments in the city and suburbs, and make the same number of geological and botanical excursions in the neighbourhood. During the first year every student has to hold himself in readiness to answer questions *vivâ voce* put by visiting professors, other than those who have given the instruction, and at the end of the first year these interrogatories are changed for short lessons, which the second year students have to prepare on short notice. In the same way for the students of the literary section, the director engages or invites noted literary men to meet the students at conferences and discussions on subjects selected in advance. There are discussions and criticism lessons, presided over by the director in one section, and the sub-director in the other, about five times a week. Each professor finishes his course of instruction two months before the examination for the certificate, and during the two months the students give in turn lessons or lectures, such as are given to students in ordinary training colleges, the subjects being afterwards discussed by the students. Not content with this professional preparation, it has been recently decided that for the future there shall be a third year's course, which shall consist chiefly of practice in an adjoining *école normale.* Hence, when this plan is matured, the practising school for the *école normale supérieure* will be an *école normale,* having an *école primaire* for practice.

We have gone into details in this description for several reasons. In regard to its equipment for technical and manual training and libraries, general and pedagogic, this college is far beyond any training college in England, and we wish to excite an emulation. Saint-Cloud is to Paris what such a place as Richmond is to London, and a training college near Richmond will have all the advantages of position enjoyed by that of Saint-Cloud.

Again, some of the non-resident pupils are foreigners; there have been during the last few years three from Luxembourg, a German, an Egyptian, and a Japanese, all holding scholarships under their own Governments. Why should there not be English students here too? The college has also sent its own students abroad as exhibitioners under the State; forty of these students have passed some a year and some two years in England or Germany. Why should not the College of Preceptors make some of its professional scholarships valuable enough to enable the holders to reside for a year or two at Saint-Cloud? It seems to us that this training college will supply exactly what the College of Preceptors has been vainly looking for for years. The French Government, under the third Republic, is so cosmopolitan in its desires to assist education that we can confidently predict for such students, if they present themselves, a cordial welcome.

We have but little space for the description of the sister college at Fontenay. We should like to see the Maria Grey College closely resembling it in many respects, particularly in its freedom from financial difficulties. Like the college at Saint-Cloud, that at Fontenay receives boarders and day students; the boarders being admitted after a competition among the candidates between the ages of nineteen and twenty-five. Candidates must hold the school-mistress's certificate, or the Bachelor's degree, or a certificate of capacity to teach in secondary classes. They are divided into two sections, for Literature and Science respectively. These sections pursue distinct studies, but have in common certain classes for litera-

ture, psychology, ethics, pedagogy, modern languages, and vocal music.

During the last few years the number of candidates for admission has been very great. There have been about 80 candidates to fill 15 vacancies in the literature section, and 80 for the science course.

The lecturers are drawn from the University and higher and secondary schools, the colleges of political science, and daily Press. We are told that great changes are wrought in the students in the course of two short years, seriously modifying their habits of mind and language, the manners, the methods, and everything relating to their education. One of the principles of Fontenay is that the masters shall always remain scholars, modifying and perfecting their teaching from experience, in view of a common object—the improving of popular education.

To quote the words of M. Jaconlet—"This college places cordially at the service of the people, and the children of the country, the accumulated experience, the light, the talent, the culture of the men who are leaders in thought, or are at the head of the higher education of the country."

(c) *Training College for Secondary Teachers.*—We must be content to mention the Secondary Training College at Cluny without describing it in detail. It has about 200 students preparing to teach in high modern schools, such, for instance, as correspond to the modern side of the higher public schools, or *Lycées*. Classics are not studied, and there are points in which the college seems not altogether to be successful. The French public does not appreciate the splitting of the *Lycées*, and schools for which the teachers at Cluny are in training seem to be somewhat unpopular. It is a pity that this college should restrict its training to modern subjects. It would be better to take in all the work of the *Lycée* and divide the students into sections as at Saint-Cloud.

II. We also promised a fuller account of the remarkable discussion on the second question, and the resolutions arrived at. This section met in a lecture-room in the Faculté de Droit, adjoining the old amphitheatre of the Sorbonne.

At the first meeting a special committee was elected by show of hands consisting of—

1. M. Carriot (President of the Elementary Teachers' Association), the oldest member both as regards age and active service, President (voted unanimously with the greatest enthusiasm).
2. Miss Dorothea Beale (Ladies' College, Cheltenham), Vice-President.
3. Mr. Jost (Inspector of Elementary Education), second Vice-President.
4. Mdlle. Baslaire (Headmistress of the Communal School, de la Rue Amelot, Paris), Secretary.

We have already referred to the speeches of the Hon. Lyulph Stanley at the general meetings, and his speech in this section made a great impression. He did not content himself with supporting the course which was found practicable in England, but took account of the opinions current in France. Hence he was recognized as a moderator. He told the fervent advocates of women that the best means of gaining ground was to wait, for that which was impossible to-day would become practicable to-morrow.

The deliberations were admirably conducted by M. Carriott, with tact, firmness, and great moderation.

The debates were pitched in a very high key, and the temperature was high even at the start. The ladies were not a little disturbed to see such an active opposition to the views which they held so firmly. We may divide the propositions under three heads—Female Teachers, Directors, Inspectors.

(a) *Female Teachers.*

(1) Mdlle. Barberousse moved—"That it is desirable that the earliest instruction of children, boys or girls, up to the age of six or seven should be confided to women."

M. Bagger, of Copenhagen, supported, and all the papers contributed on the subject recognized the fitness of women for the instruction of young children. The vote on this question was of course unanimous.

Then the very early age at which babies are entrusted to the schoolmistress came up. It appeared that in many places, particularly in the provinces and in rural districts, one governess, very often without any assistant, in the *écoles maternelles* has to attend to a number of children between the ages of two and five. Many inspectors have remarked this, and pointed out that the mistress, whose duty it is to instruct the elder ones, is obliged to spend her time in attending as nursemaid on the little ones. These facts led Madame Kergomard, an ardent supporter of the dignity and position of women teachers, to bring forward a motion that in all cases, whatever the number of children might be, a nursemaid should be provided to attend to the babies.

Almost all the women were on the side of Mme. Kergomard, and much feeling was shown in the matter. The men, however, could not consent to leave even matters of the nursery entirely to the women, and supported the *status quo*. After a lively debate, it was at last agreed that one nursery-maid should be provided for each school containing less than fifty children on the register. The temperature of the debate then began to rise.

(2) Mdlle. Scordia, who spoke out courageously and with great judgment for the women, moved—"That every infant school for children between the ages of five and seven should have annexed to it an *école maternelle*; that the infants should have a separate room, and should receive the first steps in elementary instruction, and that *les écoles maternelles* should take the babies."

Mdlle. Scordia's influence and experience were sufficient to carry the motion.

(3) *Elementary Divisions of Boys' Schools.*—The debate on this subject was animated, and in some cases a little bitter. In fact the temperature continued to rise. The women were anxious to gain ground, and the men defended themselves with asperity, and sometimes with little courtesy and not very good taste. Mme. Chapalain (headmistress of the public school of Saint-Nazaire) moved—"That the lower classes in boys' schools should be taught by women." This motion was carried with some difficulty. The question whether the staff of teachers in a boys' school should consist of both sexes came up here for the first time. All the foreign delegates admitted that this was quite a natural thing in England, America, Belgium, Switzerland, Germany, Denmark, and Sweden. It had been tried in France, but generally in these cases the mistresses were wives, daughters, mothers, or sisters of the masters, and no one at first dared to propose a departure from the restriction. Madame Defrétières proposed that female teachers who were wives, sisters, or daughters of the headmaster ought always to be preferred in boys' schools to male junior teachers. Mr. Perbose proposed that the widest latitude possible should be given to the law of 1886, which was that the wives, sisters, or parents of the headmasters should be allowed to teach as assistants in boys' schools. Mr. Taillefer proposed that the preparatory classes in boys' schools should be exclusively given to married certificated governesses, but that these mistresses should in all cases be related to the masters. There seemed to be no escaping the conscription of marriage.

(4) With regard to Girls' Schools. Mme. Bonnet proposed that female teachers should be employed in the babies and infants' classes, in the mixed schools, in the elementary and higher primary schools for girls, and in the normal schools for female teachers, except (in case of need) for the teaching of science and drawing, which should be given to a married professor. The position secured up to this point, therefore, was that that the question of female teachers was settled, with regard to *écoles maternelles*. In infants' schools, although disputed, it appeared admissible. With regard to the mixed schools there was a determined struggle, and in spite of Mme. Kergomard, M. Pridoux, and others, the voting determined that women should only teach in elementary classes in mixed schools. Some of the arguments were curious, such for instance as that there was danger to health and morality, that there were material difficulties in the way, that a citizen's duties must be considered. The *electoral propaganda* which the headmaster could create was dwelt on. Then came the question whether professors should be allowed in girls' schools, and the women turned the tables on the men by insisting that male professors must be married.

(5) *Higher Primary Education for Girls.*—Then M. Bagger, of Copenhagen, proposed and carried—"That the education of girls should not be exclusively confided to female teachers." The temperature of the debate still continued to rise.

(6) *Mixed Schools.*—Mme. Kergomard proposed—"That the management of mixed schools containing boys up to ten years of age, and schools for boys of the same age, should be entrusted to women." At this point the temperature culminated and the storm burst. The arguments brought forward a few minutes before, on the introduction of female teachers into boys' schools, were brought up again with greater force. A sensation of horror was evinced whenever it was suggested that boys of ten years

old should be entrusted to women. It is difficult to say what conclusions were come to as regards mixed schools after this.

Mr. E. Moreau proposed that in future, primary instruction should be given to mixed classes of all kinds. He developed a plan by which separate schools for boys and girls, in which there are no advanced classes, should be taken in pairs, and gradually changed into two mixed schools. One should take the middle and higher courses under a headmaster, the other the preparatory and elementary courses under a headmistress. Such an elaborate proposition had no chance. Other similar propositions added to the confusion.

It was in vain that M. Houzeau de Lahaie, the Belgium delegate, gave evidence that in his country, where public teaching attains a high standard, all but the highest courses are entrusted to women, and that M. Zubiaur, general inspector of the Argentine Republic, also said that for the last twelve years women have been employed in all positions for which they are fitted, and the results had been most satisfactory.

Then the subject dropped, and M. Taillefer proposed that in all girls' schools containing five classes, and an average attendance of at least 250 pupils, the headmistress should not be required to take a class. She would have enough to do to look to order, culture, domestic economy, hygiene, &c.

The meeting, however, insisted that the headmistress should be responsible for the teaching of subjects for which she was particularly fitted.

(*b*) Then came the question of Inspection.

There was no difficulty in obtaining a vote that women should be appointed inspectors for the *écoles maternelles*, and, after some discussion and hesitation, for infant schools also.

M. Caïre proposed that a staff of inspectresses should be formed in each department, not only to look after the welfare of the *écoles maternelles*, but also to visit, as far as circumstances would allow, girls' schools of all kinds.

The temperature of the debate at this point again reached fever heat.

During the discussion on inspection a scene occurred. One of the delegates spoke in very uncomplimentary terms of the headmasters and inspectors present, and suggested that they should utilize their leisure for their own personal improvement, and not use it to torment their assistants. The meeting in great indignation brought the speaker to silence, and demanded his immediate expulsion. The cries of "turn him out" were lulled for a moment, and some one suggested that if he were allowed to remain silent in his place he might hear something which would be instructive to him. The suggestion was applauded, and M. Baju, the offending delegate, was allowed to remain. But with all the heat the second section got through its programme more completely than either of the others.

We have yet to deal with the third question.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A Meeting of the Council was held on Wednesday, the 18th inst. Present—Mr. Mason, in the Chair; Mr. Baumann, Mr. Bidlake, Dr. Buchheim, Rev. Dr. Conder, Dr. Cuthbertson, Dr. Dillon, Mr. Eve, Rev. Dr. Frost, Rev. R. Lee, Mr. Maxwell, Rev. G. P. Pearce, Mr. Pinches, Mr. Barrow Rule, Rev. W. J. Savell, Rev. Dr. Scott, Mr. Stewart, Mr. Stièvenard, and Dr. White.

The minutes of the last meeting were read and confirmed.

The Council decided not to allow the College Arms to be stamped on prize books awarded by the local Committee to candidates at local centres.

The Treasurer submitted the report of the Finance Committee, which was adopted.

The Dean submitted the report of the Examination Committee. The report was adopted, and it was decided that the paper in Zoology at the Certificate Examination should be divided into two separate sections, —(1) Vertebrate Animals, (2) Invertebrate Animals; and that candidates should be allowed to take either one or the other, but not both, of these sections. It was also resolved that the paper in Geography for the First Class should be divided into two parts—(1) Political, (2) Physical and Mathematical Geography; and that it should be possible for a candidate to obtain full marks on the physical and mathematical section, but not on the political section only.

The following persons were elected members of the College:—

Rev. A. J. Bennoch, M.A. Oxon., Woodside, South Norwood, S.E.
Miss S. A. Burstall, B.A. Lond., 25 Steele's Road, Haverstock Hill, N.W.
Mr. S. Dyer, Thorn House School, Ealing, W.
Rev. A. Evans, M.A. Camb., The High School for Boys, Bocking, Braintree.
Mr. P. J. Holder, 212 Evering Road, Upper Clapton, N.E.
Mr. T. Oldfield, The School House, Ipsley Street, Redditch.

The following books had been presented to the Library since the last meeting of the Council:—

Blackie.—Century Reader, No. VI.; Modern Encyclopædia, Vol. II.; Pet Readers, Nos. 1 and 2; Word Building and Spelling; Low's Applied Mechanics.

Clarendon Press.—Bayne's Scott's "Marmion"; Buchheim's Chamisso's "Peter Schlemihl"; Matheson's Livy, Bk. V.; Moberley's Cæsar's "Gallic War," Bks. III., IV., V.; Owen's Ovid's "Tristia," Bk. III.; Plummer and Earle's "Two of the Saxon Chronicles, 781—1001 A.D."; Tatham's Livy, Bk. XXI.

Ginn & Co.—Collar's Practical Latin Composition; Doriot's Beginner's Book in German; Flagg's Euripides' "Iphigenia"; Garnett's Translation of Cynewulf's "Elene," &c.; Hogue's Irregular Verbs of Attic Prose; Kent's Cynewulf's "Elene"; Patterson's Arithmetical Reviews.

Longmans.—Junior School Composition; Bell's "Théâtre de la Jeunesse"; Poyser's Magnetism and Electricity.

Macmillan.—Deighton's Shakespeare's "Cymbeline" and "Othello"; Donkin's "Cicero pro Sexto Roscio"; Loewy's Graduated Course of Natural Science, Part I.; Mill's General Geography.

Norgate.—Paley's "Homeri quae nunc exstant"; Post Epic or Imitative Words in Homer, and Quintus Smyrnaeus and the Homer of the Tragic Poets.

Relfe.—Bowick's Examination Arithmetic; Nagel and Hall's Book-Keeping.

Williams & Norgate.—Herbert's "Sacrifice of Education to Examination"; Watson's Æschylus' "Prometheus Vinctus"; Wright's Irish Grammar.

Glasgow University Calendar, 1889-90.

COLLEGE OF PRECEPTORS.

PROFESSIONAL PRELIMINARY EXAMINATION—PASS LIST.

September, 1889.

The Supplementary Examination by the College of Preceptors for Certificates recognised by the General Medical Council, the Incorporated Law Society, the Royal College of Veterinary Surgeons, the Pharmaceutical Society of Great Britain, and other bodies, was held on the 3rd, 4th, and 5th of September, in London, and at five other local centres, viz., Birmingham, Bristol, Leeds, Liverpool, and Jersey. The following candidates obtained Certificates:—

First Class.

Mackintosh, J. S.

Second Class.

First Division.
Bridger, S.
Cock, C. J. E.
Dorrell, E. A.
Eccles, E. S.
Fothergill, E. R.
Helm, J. E.
Keatinge, R.
Lavan, L. T.
Noble, W. G.
Welch, E.

Second Division.
Clutterbuck, K. I.
Cooke, F. A.
Dewdney, E. L. D.
Eley, N. W.
Ffolliott, C. N.
Harrowell, T. N.
Ison, W. K.
Liles, B.
Pern, H.
Phillips, E. T.
Shields, O.
Swalwell, M. F. T.
Sworn, A. B. R.
Towne, H. R. F.

Third Division.
Jackson, G. R.
Rose, J. H.
Ruegg, C. P.
Wallis, H.
Westover, H. P.

The following qualified for Registration as Medical Students, but did not pass in all the subjects required for a Second Class Certificate:—

Armitage, F.
Barker, J.
Barnes, J. S.
Beley, G.
Bentley, R. W.
Bottomley, E.
Cowes, A.
Firth, A.
Fisher, S. B.
Heard, J.
Heard, W. N.
Meacher, J. H.
Oates, J.
Ryland, R. F.
Serjeant, R.
Slovoutsky, M.
Tregaskis, E. P. R.

The following passed in subjects required to complete their qualification for Registration as Medical Students:—

Atkyns, H.
Brookes, H. J.
Coroneo, C.
Jeaffreson, C. J.
Jones, R.
Moffatt, G. G.
Muller, J.
Nichols, H. G.
Pearson, W. P.
Rowthorn, W. H.
Snell, W. S.
Sutcliffe, W.
Tregenza, W.
Wade, B.
Westlake, A. J.
Whitehouse, W. M.
Williams, L. A.
Willmore, W. S.

UNIVERSITY AND COLLEGE INTELLIGENCE.

Oxford.

The trustees have elected to the Derby Scholarship Mr. G. G. A. Murray, Fellow of New College.

Other Universities, Colleges, and Schools.

The Rev. E. Hincheliffe, M.A., late Munsteven Exhibitioner of St. John's College, Cambridge, has been elected Headmaster of St. Michael's College, Tenbury.

The Queen has been pleased, on the recommendation of the Secretary for Scotland, to appoint Professor Archibald Barr, of the Yorkshire College, Leeds, to be Professor of Civil Engineering and Mechanics in the University of Glasgow, in the room of Professor James Thomson, who has resigned.

The Rev. G. H. Williams, of Loughborough Grammar School, has been appointed Headmaster of Kingsbridge Grammar School.

The Rev. Charles F. Hutton, Warden of Daventry School, and late scholar and prizeman of St. John's College, Cambridge, has been appointed Headmaster of the Pocklington Grammar School.

The Rev. Dr. Payne, Headmaster of Crawford College, Maidenhead, has been appointed Warden of St. Paul's College, Stony Stratford; and the Rev. W. E. Wallace has been appointed Chaplain.

The Rev. A. Evans, M.A., formerly Headmaster of the Grammar School, Wigan, has been appointed Headmaster of the New Church High School, at Braintree, Essex.

EDUCATIONAL NOTES AND SUMMARY.

Speaking lately at the meeting of the British Association Sir Lowthian Bell said: "If technical education means, as is sometimes alleged, a system by which, along with scientific instruction, manual dexterity in the use of tools, or a practical knowledge of various manufacturing processes has to be acquired, I confess I am not sanguine as to the results. Certain I am that, if foreign workmen are more skilful in their trade, which, as a rule, I doubt, and which in the iron trade I deny, this superiority is not due to scientific training in the manner proposed, for in this they possess, so far as I have seen, no advantage over our own workmen. My objection to the whole system is the impossibility of anything approaching a general application being practicable. I have not a word to say against the rudiments of science being taught wherever this is possible. The knowledge so obtained may often give the future workman a more intelligent interest in the employment than he at present possesses, but I think they who expect much good to attend such a thin veneer of chemistry or physics do not take sufficient account of the extent of the knowledge already possessed by more highly educated men who are now directing the great workshops of the world. It is by extending and enlarging this that substantial aid has to be afforded to industry and science, and not by teaching a mere smattering in our primary or any other schools." The *Evening News* says, commenting on the above: "Sir Lowthian Bell's treatment of the technical education question, in his paper read before the British Association, is full of common-sense. The school years of a boy in working-class ranks are too few for the mastery of necessary elementary knowledge. To spend time in handling tools which, when a boy starts to earn his own living, may be thrown into a scrap-heap, would be a very doubtful advantage. It is in the workshop proper, rather than in the schoolroom, that the first steps to knowledge of a handicraft can best be taken. But let the State or municipalities provide means whereby a lad may carry his education forward, and acquire the scientific principles underlying the work of his hands. It is in the want of those means that many of our great manufacturing centres are deficient."

The vexed question of obtaining some recognition of physical as well as intellectual powers in competitions for the public service was well put before the British Association by Mr. Francis Galton in his paper "On the Advisability of Assigning Marks for Bodily Efficiency in the Examinations of Candidates for the Public Service." The curious and hardly accountable disregard of bodily efficiency in those examinations through which youths are selected to fill posts in which exceptional bodily gifts happen to be peculiarly desirable must, he said, strike the attention of anthropologists with especial force. The reform now asked for is to give additional marks to those youths who, being fit for service, are at the same time exceptionally well fit so far as bodily efficiency is concerned. There has been a vast amount of lax assertion in reference to this matter, some saying that high intellect is often associated with stunted and weakly frame, and others pointing to instances in which high mental and high physical powers have been connected; but it is only very recently that we have secured a firm and sufficiently large basis of facts. These are the various measures of Cambridge students made during the last two or three years, and discussed by Dr. Venn, F.R.S., in an excellent memoir recently published in the *Journal of the Anthropological Institute*. "The number of those who were measured is 1,095, and they were divided into three classes—(1) high-honour men; (2) low-honour men; and (3) poll men—that is to say, those who did not compete for honours, but took an ordinary pass degree. The result was that the physical efficiency of the three classes proved to be almost exactly the same, except that there appeared to be a slight deficiency in eyesight among the high-honour men. Otherwise they were alike throughout: alike in their average bodily efficiency, and alike in the frequency with which different degrees of bodily efficiency were distributed among them. Therefore the fact that a man had succeeded in a literary examination does not give the slightest clue to the character of his physical powers, and an opinion that the present literary examinations are indirect tests of bodily efficiency must be considered erroneous. The intellectual differences are usually small between the candidates who are placed, through the present literary examinations, near to the dividing line between success and failure. But their physical differences are, as we have just seen, as great as among an equal number of the other candidates taken at random. It seems then to be most reasonable whenever two candidates are almost on a par intellectually, though one is far superior physically, that the latter should be preferred. This is practically all I propose."

The whole number of students, past and present, whose names are on the books of Newnham College up to the close of the University year just ended is 502. Of these, says the London correspondent of the *Manchester Examiner*, most have taken a tripos examination, either informally before these examinations were opened to women, or formally. Others have taken the higher local certificate, or passed in various groups of the higher local examination. Fifty-six former students have married, Others have found posts as head-mistresses of high schools. assistant-mistresses in these and in private schools, not only in England, Scotland, and Ireland, but in India, the Colonies, America, and Japan. A few are still closely connected with Newnham College as lecturers, or are on the Newnham College correspondence staff. Two have gone to the Royal Holloway College, one as mathematical and the other as classical lecturer. One student, Miss Jane Harrison, has distinguished herself as a writer on archæology and a lecturer at the British Museum. Two, Miss Constance Black and Miss Olivia Dymond, act as librarians to the People's Palace, and one, Miss Edith Wilson, is secretary for the women's department of Owens College, Manchester. Others, for example Miss Amy Levy, have distinguished themselves in literature. Several are actively engaged in newspaper work, so that, on the whole, the record of Newnham College speaks well for the movement in women's education, of which it is the outcome.

A lady lecturer from Wellesley College, Boston, U.S.A., in a recent address to the students of Newnham, considerably astonished her audience with the information that the students of Wellesley take an active share in the domestic work of the college—not only being responsible for the neatness of their separate rooms, but helping to get, serve, and clear away their own meals, and wash the dishes. The object of this is to promote a healthy democratic tone among the students, who belong to widely different classes. The daughter of a member of Congress or a merchant prince can hardly look down on the daughter of a poor tradesman or mechanic when she has washed the dishes the latter has wiped. Yet Wellesley College is on the same footing as Girton, Newnham, or Holloway College, where the hardest domestic work ever done by a student is to supplement the maid's dusting by a little special attention to the pictures, books, and knick-knacks with which a student's room is generally crowded.

The Girls' College at Cheltenham has just concluded an arrangement of a remarkable character with the French Minister of Public Instruction. The managers of that establishment have notified the French authorities that they are prepared to receive for one year, and provide with board and instruction, a few French governesses desirous of acquiring a thorough knowledge of English. The offer has been accepted, and the Minister has notified French ladies who are desirous to become candidates that it will be sufficient to be provided with the diploma establishing their qualifications as teachers in normal schools.

The division lists of the Oxford Local Examinations for the the year 1889 have been issued at Oxford by Mr. H. T. Gerrans, Worcester College, Secretary to the Delegacy. The examinations were held in June and July at 59 centres, of which 22 were special local centres at which school examinations were combined with the local examinations, and four were new centres. The examinations in June were held at eight centres, at four of which both boys and girls, and at four girls only, were examined. The number of local candidates examined in June was 306, viz.,

196 juniors and 110 seniors. The examinations in July were held at 51 centres, at 34 of which both boys and girls, at 11 boys only, and at six girls only, were examined. The number of local candidates examined in July was 2,534, viz., 1,787 juniors and 747 seniors; the total number of candidates examined in 1889 being 2,763, viz., 1,941 juniors and 822 seniors. Of these 1,460 juniors and 643 seniors passed, making a total of 2,103. In addition to these, four persons who intended to become medical students were admitted to the junior examination, and they all passed. Nine persons who intended to present themselves for the degree of Bachelor of Music were admitted to the senior examination, of whom two passed. The total number of candidates and other persons entered for the examination was 2,840, of whom 50 failed to present themselves for examination, and two were disqualified for having taken unfair advantage during the examination. Amongst the juniors, 1,263 boys and 678 girls were examined. Of these, 923 boys and 537 girls passed. For the senior examination 276 boys and 546 girls were examined. Of these, 218 boys and 425 girls passed. Taking seniors and juniors together, 2,763 were examined—viz., 1,539 boys and 1,224 girls, of whom 2,103 passed—viz., 1,141 boys and 962 girls. Compared with last year's figures, there was a slight decrease in the number examined; but more candidates passed, owing, no doubt, to changes in the regulations with regard to junior candidates. In 1888, 1,340 boys and 749 girls were examined, making a total of 2,089, and of this number 1,406 passed, 908 being boys and 398 girls. Amongst the seniors, 815 were examined—viz., 276 boys and 539 girls, of whom 587 passed, 199 being boys and 388 girls. Taking seniors and juniors together, 2,904 were examined, 1,616 boys and 1,288 girls, and 1,993 gained certificates—viz., 1,107 boys and 786 girls. Persons over 16 may now enter for the junior examination, and this year whole forms were sent in regardless of age. Some important changes will be made in the regulations for 1890.

At a meeting of the Technical Science Section of the British Association, Dr. Gladstone (Vice-Chairman of the London School Board) read the report of the Committee appointed for the purpose of continuing the inquiries relating to the teaching of science in elementary schools. It stated that—

This year has been one of continued depression in regard to the teaching of science in elementary schools, and of disappointment in regard to legislative action. The return of the Education Department for this year shows again a diminution in the teaching of the science subjects. The statistics of the class subjects for six years are given in a table, which shows an actual decrease in elementary science and a comparative decrease in geography. The return of scholars individually examined in the scientific specific subjects, shows an actual or relative falling off in every subject except mechanics and chemistry. The rapid and serious decrease of attention paid to these science subjects is shown by the percentage of children who have taken them, as compared with the number of scholars that might have taken these subjects. This decrease is from 29·0 per cent. in 1882–3 to 16·9 in 1887–8. The Government laid upon the table of the House a New Code, which would have had a slightly beneficial effect upon the teaching of science, but it has been entirely withdrawn. The Government has introduced no Technical Instruction Bill this year except just at the last moment, and that is confined to secondary education. It was hurried through the Committee and final stages during the last week of the session. Sir Henry E. Roscoe, however, re-introduced his Bill with some modifications, and it passed the second reading at a comparatively early period of the session; but the Government would only give facilities for its progress through the House on the understanding that very serious changes were to be made in it. As he could not accept these it did not pass the Committee stage, and it was ultimately withdrawn.

The authorities of the Queen's College, Belfast, have resolved upon opening the medical classes to ladies. For some time past they have had before them applications from a number of young ladies who wished to enter medical classes with a view to studying medicine, and the medical faculty of the college have resolved to accede to the request.

We observe (says the *St. James's Gazette*) that Dr. Murray, the lexicographer, has been writing to *Notes and Queries* about what he calls "that good, useful, and well-formed and ancient word 'reliable.'" That there is abundant and sound precedent for the formation of the word all students have known, at all events since the publication of Dr. FitzEdward Hall's monograph. But that the word is ancient is not, we fancy, equally well known. At least, in a pedantic little book, "Errors in the Use of English," which was published in Edinburgh some years after this monograph, and quoted its substance, the word is still called a *neoterism*. We now have it, on the high authority of Dr. Murray, that its current use dates back to 1624. Whether it is a nice word is a matter of taste, but what has been good enough for Coleridge and Cardinal Newman should be good enough for most people.

Miss May Huddlestone, of Liverpool, is (says the *Daily News*) the inventor of a new Kindergarten system of teaching the staff notation, to the usefulness of which in the training of young children Sir George Grove has given a well-merited testimonial. Miss Huddlestone originally conceived the idea of this interesting little toy by trying in a country house to teach some little folks the rudiments of music by the aid of ten pea-sticks and an apple. In the "Theoria-Harmonica" the children build the lines and spaces for themselves with ten small rods fitted in a grooved frame, while balls, subdivided into various sizes according to the value of the notes, fix that value very clearly upon the minds of the young. There are also models of sharps, flats, naturals, and other things to help little students over rudimentary troubles. The whole system, indeed, seems to be highly ingenious.

The Association for the Improvement of Geometrical Teaching is making a new departure in commencing the formation of a reference library of text-books on Mathematics and Physics. This should increase its usefulness to teachers of Mathematics, especially to such as live in the neighbourhood of London. It already contains a respectable number of books, mostly supplied by various authors and publishers. It is intended to consist chiefly of modern works, but it contains a loan collection of older text-books, amongst which may be noticed:—Cocker's *Arithmetic*, Taquet's *Elementa Geometriae*, D. Chale's *Euclid's Elements*, and Viviani's *Quinto Libro degli Elementi d'Euclide*. The library is at present at 2, Princes' Mansions, Victoria Street, under the care of Mr. C. V. Coates, who will be glad to receive donations of books, pamphlets, &c.

A scheme has been recently issued by the Charity Commissioners dealing with the whole of the charities included in the City Parochial Charities Act, 1883. By this scheme the income arising from the several charities is divided into two parts, (1) the Central Fund for general purposes, (2) the City Church Fund, which is applicable simply for ecclesiastical purposes. A governing body consisting of twenty-one members is entrusted with the administration of the two funds. The Crown appoints five members of this governing body; the Corporation of London, four; the London County Council, two; the University of London, two; the Council of University College, London, two; the Council of King's College, London, two; the Ecclesiastical Commissioners, two; the governing body of the Bishopsgate Foundation, one; the governing body of the Cripplegate Foundation, one. The nominations by the two latter bodies are due to the fact that the greater portion of the charities within the purview of the scheme are possessed by the parishes of Bishopsgate and Cripplegate. The Commissioners direct that out of the Central Fund various sums, amounting in all to £150,000, shall be expended on open spaces. Provision is also made for the support or establishment of polytechnic institutes for the benefit of the middle and working-classes. Amongst the recommendations of expenditure made are these:—Establishing institutes and branches under the Bishopsgate and Cripplegate Foundations, £80,000; for the Regent Street Polytechnic Institute improvement a sum not exceeding £4000; for the foundation of the City Polytechnic, including the Northampton and Birkbeck Institutes and the City of London College, £6,100 consols, and a further sum not exceeding £45,000; for adapting and equipping the Victoria Hall and Morley College, a sum not exceeding £6,000. Annual grants in all amounting to £22,550. The scheme is to be submitted to the various bodies interested, and in the event of there being no opposition, it will forthwith pass into law. London, when these institutions so fortunately provided for are in full activity, will no longer be open to unfavourable comparisons with other European capitals in the matter of technical education.

We have had occasion more than once, recently, to notice the success with which the movement for establishing polytechnics in South London has been attended. We have also had occasion

to express our regret that no similar success has hitherto attended the labours of the Committee for the establishment of technical and recreative institutes in North London. Whatever may be the cause—whether due to the apathy of the local organisations, or the lack of public spirit amongst the great landlords and property owners—the fact remains that Hackney, Islington, and St. Pancras are not yet in a position to comply with the conditions which the Charity Commissioners impose of procuring by local agencies a fund equal to one-half the total amount required so as to secure an appropriation of an equal amount from the surplus funds of the City Parochial Charities. It is much to be desired that the example set by the Duke of Bedford will be followed by others. This nobleman has recently announced that he is prepared to grant Goldington-Crescent Garden, Camden Town, as a site for a technical institute, and that he will not object to the sale of the Crescent Garden and the application of the proceeds to the acquisition of a more eligible site elsewhere for the Institute. The Central Executive Committee for North London suggested to the St. Pancras Vestry that the London County Council be asked to purchase this garden, and maintain it as an open space. The Vestry approved of this suggestion. This marks progress; still, the movement in North London requires a good deal of propulsion of this sort before it overtakes that of South London.

The German clerk has rendered such signal service to British commercial education, that it seems a pity to displace him from the position he has so long filled, of bugbear to the English mercantile community. One of his own countrymen, however, who is Vice-Consul at Manheim, performs this office by writing a report on his position and training. The Vice-Consul asserts that the merits of the German clerk are due largely to his having to serve two, three, or even four years as an apprentice, before he can become a clerk. School is not intended to produce excellence in any one direction, and between the youth of both countries on leaving school there is little difference. The German may be more provincial, steadier, perhaps more diligent, and more bent on self-education; but the English youth is probably quicker, more intelligent, more impulsive, and, for the moment at least, more energetic. The German is rarely a good ready reckoner on leaving school, frequently writes a bad hand, and expresses himself in writing without simplicity or clearness. He has indeed two experiences, at home and abroad, while his English competitor has only one. But apart from this, the superiority of German clerks in general to English, is, the Vice-Consul thinks, quite illusory. German business men constantly complain of the difficulty of finding efficient assistants. The clerks who go to England are frequently the very best; most of them are North Germans, and are most energetic and practical men. German office work, the Vice-Consul tells us, is painstaking to the minutest particular, and is old-fashioned, not to say pedantic. The present position of German trade is not due to any superior knowledge or skill on the part of the merchant, but to the boldness, energy, and enterprise born of the recent great political changes in Germany.

CORRESPONDENCE.

LATIN AND GREEK.

To the Editor of the Educational Times.

Sir,—On looking through the July number of your *Journal* I met with a sentence which staggered me considerably, and on which I humbly request the writer to vouchsafe a little more light.

In the review of Hermann Paul's *Grundriss der germanischen Philologie*, the writer observes that "classical scholars are still capable of thinking that *Whitsun* is derived from *Pfingsten*, or that Latin and Greek as languages are intimately allied."

Now, as the false etymology referred to has long been exploded, the writer would seem to imply that those who "believe that Latin and Greek, as languages, are intimately allied," are as densely ignorant as the belated believers in the connexion between *Whitsun* and *Pfingsten*.

There is perhaps some subtle meaning underlying the expressions "as languages" and "intimately allied," which I fail to catch, and which, if made clear to my obtuseness, would enable me to accept as true and convincing a statement which, in its present form, seems to me the most perversely paradoxical that I have met with for many a day. Will the writer condescend to my old-fashioned standpoint, and make clear what is to be understood by that "intimate alliance" which is denied to subsist between Latin and Greek "as languages"? Perhaps he only means that "intimate alliance" is a phrase altogether inadequate to express the close relation subsisting between the two languages. If he had said so a little more plainly, the present communication would have been unnecessary from one who, as matters stand, can only describe himself as Puzzled.

[While working at the review, an Oxford man, a double first and classical scholar, complained to me rather warmly of Skeat's language in discussing the etymology of *Whitsun*. He didn't see why *Pf* couldn't become *Wh*, &c. I sat still in amazement and thought of Wordsworth's remark, that an author has to create his own audience; the same seems to be the case with modern phonetics and philology. The classics are now paying the heavy penalty of being privileged; they have snubbed and neglected other branches of linguistics so long that at last their own subject suffers. From a purely scientific point of view, not only are Greek and Latin not connected, they are as different in their sound system and grammatical structure as any two dialects of the parent Aryan speech. Although coupling them is not so egregious a blunder as deriving *Whitsun* from *Pfingsten*, still classical scholars ought to know by this time something of the recent German investigations into the morphology of Aryan. The criteria on which relations between different dialects can be affirmed have not yet been properly investigated; we must settle on the relative weight to be apportioned to phonology, morphology, and syntax. Another serious difficulty is the great difference in age between the literary monuments on which comparisons must be based. The oldest portions of the Rigveda run back to 1500 B.C. Latin we begin to know about 300 B.C. The oldest High German belongs to the beginning of the eighth century, &c. Again, many correspondences on closer examination turn out to be fortuitous, and therefore of no weight. In some points Teutonic is like Armenian, modern English presents analogies to Russian, the Guarian dialects of India behave like Romance, and so on. In fact, since Schleicher's "tree" was washed away by the "wave theory" of Johannes Schmidt, scholars have been very chary in coupling the Aryan dialects into smaller groups. Latin is certainly not a close relative of Greek. The nearest to Italic is Keltic. There is a general resemblance in the declensions, and they both employ the *r* passive and the *b* future, Latin *fertur*, Irish *carthir*; Latin *amabo*, Irish *carfa*. Since Brugmann's famous article on the *nasalis sonans*, or *n* with a vowel function, as in English *heaven*, *i.e.*, hev*n*, it has been found that Greek and Sanskrit present striking similarities in their treatment of vocalic *l*, *m*, *n*, and *r*. I have had to write the above at very short notice: should "Puzzled" care to send me his address through the editor, I shall be happy to find the exact references, and to show him the recent literature on philology.—The Reviewer.]

"ON EARLY ENGLISH PRONUNCIATION."

To the Editor of the Educational Times.

Dear Mr. Editor,—May I hint a remonstance, and offer a suggestion? I should greatly like to see a *résumé* of the contents of the above-named work, and of the results at which the author has arrived, but it is one of those immense productions which the ordinary reviewer (οἷοι νῦν βροτοί εἰσί), if he takes it up, drops again as quickly as he would a hot bullet. We have only got to the end of Part V., and the work already stands 8½ inches thick "in its stocking feet," so to say—that is, in paper covers, and with its introductory matter, addenda, &c., extends to something like 2,400 pages. How does the author get through it all? Is he a sort of Glossic Cerberus—"three gentlemen in one"? I would gladly make more intimate acquaintance with the work, and read, mark, learn, and inwardly digest it, but what would you have? *Vitae summa brevis spem nos vetat inchoare longam.* If you want the work thoroughly dealt with, Mr. Editor, you must get hold of a young critical Methuselah, of say not more than 60 or 70 years of age. Such an one might hope to tackle it successfully. For myself I fear I must be content to "take" the book "as read." But oh! what a boon it would be if the author, who knows more about the subject probably than any other half-dozen men living, would give us the gist and pith of the matter in a book not exceeding some 250 or 300 pages. The flight of time, alas! compels me to write myself down as Jam Senior.

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THE EDUCATIONAL TIMES.

LONDON, OCTOBER 1, 1889.

The last Session of Parliament has not been as conspicuously unfruitful in educational legislation as some of its predecessors. Three measures—one relating to England and Wales, one to Scotland, and one exclusively to Wales and Monmouth—have become law. Each and all are of a very unambitious order, but none the less are they capable of exercising an immense influence over the future education of the country. Being in a large degree permissive, they are likely to produce results proportioned to the intelligence and energy with which the local authorities use the powers conferred on them by the new Acts. There will doubtless be apathy enough in some localities, and zeal without knowledge in others; but we think the outcome, a generation hence, of the legislation of the past session will not consist wholly of abortive schemes and monuments of wasteful expenditure.

It is morally certain that the Scotch Universities Act, whether it does all it is intended to do or not, will be so administered as to prove a very useful measure. Education has for centuries been a matter of national concern in Scotland, and so her educational machinery works more smoothly, and is more effective for its purpose, than that existing in any other division of the United Kingdom. Her Universities are organically connected with the elementary and secondary education of the country. She has had for some years a Technical Education Act, and during the present session the practical solution of the much-vexed question of free education has been reached by the appropriation of the Scottish share of the probate duty to the payment of school fees. In fact, Scotland is not likely to trouble the Imperial Parliament in connexion with her educational matters for many years to come.

It is Wales, however, that carries off the lion's share of the educational legislation of the session. She divides with England the advantage of the Technical Instruction Act, and has secured for herself the long-sought boon of a public provision for intermediate education. Nor is this all. The sentiment of Welsh nationality has been humoured, not merely by making provision for instruction in Welsh, but by annexing Monmouth to Wales for educational purposes, and providing by an Interpretation Act that when England is used in the statute it is not to be taken to include Wales, and in statutes, in the future, Wales must be separately mentioned.

These last are essentially trivial matters; but the Intermediate Education Act itself is a really important piece of legislation. Power is conferred on the authorities charged with the administration of the Act to deal with the intermediate or secondary education of Wales and Monmouth, and also to all

intents and purposes to deal with technical education over the same area. As a Secondary Education Act it will provide for instruction in "Latin, Greek, the Welsh and English languages and literatures, modern languages, mathematics, natural and applied science, . . . and generally in the higher branches of knowledge." As an Act for promoting technical education it provides for the teaching of—

(1) Any of the branches of Science and Art with respect to which grants are for the time being made by the Department of Science and Art.

(2) The use of tools, and modelling in clay, wood, or other material.

(3) Commercial arithmetic, commercial geography, book-keeping, and shorthand.

(4) Any other subject applicable to the purposes of agriculture industries, trade or commercial life and practice, which may be specified in a scheme as a form of instruction suited to the needs of a particular district.

It will be seen from this enumeration of subjects that the Act provides in a comprehensive manner for secondary and technical education in the thirteen counties to which it applies. Whether its objects will be attained or not must, however, largely depend on the local authorities who are to initiate, direct, and control its working. The framers of the Act have been at great pains to secure Local Educational Boards at once efficient and popular.

To this end it is enacted that each of the County Councils of the thirteen counties concerned shall nominate three persons to serve on a "Joint Education Committee." To these will be added two other persons, nominated by the Lord President of Her Majesty's Privy Council, who are to be "well acquainted with the conditions of Wales and the wants of the people, preference being given to residents within the county for which such joint committee is to be appointed." It is provided also, that whenever a vacancy arises in this joint committee, it is to be filled by the particular authority which had selected the retiring or deceased member, so that as long as this joint committee exists it will be composed of three members nominated by the County Council, and two by the Lord President.

The committee thus constituted is to prepare schemes for the secondary and technical education of the county for which it acts. Each such scheme will then be submitted to the Charity Commissioners, and, if approved by them, it will be dealt with in like manner as if originally prepared by themselves. If not approved, the Commissioners will treat it in all respects as a scheme submitted to their judgment under the Endowed Schools Act of 1869. It should be mentioned here that the Welsh Act is to be construed as one with the Endowed Schools Acts, from 1869 to the present time. That being so, schemes for dealing with existing endowments, or for creating new schools, will have to be submitted to the Charity Commissioners in the same way as if proceedings were being taken under the Act of 1869.

In the case, however, of endowments not specially protected by the Act, the Joint Education Committee of the county will have the right to initiate action, with a view of framing new schemes, or proposals for schemes, the Charity Commissioners foregoing their own right to do so for three years ending November 1, 1892, and for such further period as Parliament may hereafter determine.

The financial aspect of the measure is, of course, of the utmost importance. If the working of the new system proves costly, care is taken that those mainly concerned shall know of it in good time. The County Council, being elected by the ratepayers, may be trusted to safeguard their interests. But, further, whenever the Joint Education Committee submit a scheme for the sanction of the Charity Commissioners, not only must the contribution from the rates mentioned in the scheme have first received the recommendation of the County Council, but it must also provide that this body shall be adequately represented on the governing body of the school for which the scheme has been framed. Again, the gross amount of county rate to be levied in any year is limited to one halfpenny in the pound on the aggregate amount of the rateable value of the property in the county, as ascertained for the purpose of the levy of the county contributions. And, as an additional protection for the ratepayer, it is provided that every increase of rate levied under the Act must be described separately, and "when collected from the individual ratepayers shall be specified as a separate item of rate." It may happen, and indeed it is expected to happen, that when endowments, pupils' fees, and contributions from the county rates up to the limit of one halfpenny in the pound are all added together, the sum will be insufficient to provide adequately for the work in hand. That event is anticipated and provided for. There is to be a contribution from the Treasury, available for every secondary school assisted by the county rate. The amount of this contribution is to depend in each individual case upon the efficiency of the school claiming it, and in no case will it exceed the amount payable to the school concerned out of the county rate. An annual official inspection will therefore be a necessary preliminary to the receipt of the Treasury grant.

Such are the leading features of the Welsh Intermediate Education Act. One can hardly rise from the perusal of its seventeen sections without wondering why it is that England should be condemned to in part support a system of Secondary Education on her borders, whilst there is no public provision to supply her own deficiencies in this particular.

Of the third educational measure of the session—the Technical Instruction Act—little need be said. It is modestly referred to in the Queen's Speech as "steps taken towards the establishment of Technical Education in England and Wales." It was hurried through its various stages in the last days of the session, when to amend or enlarge it was tantamount to its rejection. In the House of Lords the second reading was moved on the last day of the session, and it passed through its subsequent stages at the same sitting. Notwithstanding, however, all the adverse criticism to which the Act is justly open, it offers great facilities for aiding the establishment of Technical Schools. A Town Council, or a County Council, when it thinks fit, may aid schools giving technical instruction. Such schools may be Board Schools, Night Schools, or Mechanics' Institutes. So much, in fact, is entrusted to the local authority, that the full benefits of the Act will only be secured by those local bodies which are capable of using its provisions intelligently. The Act makes a beginning in a difficult field, and, whether it proves an unmixed good or no, its working will supply the experience by the light of which its deficiencies may be supplied.

In his lecture on "Languages as the substance of Instruction," printed in our last number, Prof. Laurie makes a vigorous attack upon "paraphrasing" as a part of the study of English; but his words seem to show that, north of the Tweed, the term has a meaning very different to that which it commonly has with us. Prof. Laurie says:—"Paraphrasing consists in the turning into commonplace language, which 'any fellow can understand,' the verses of a poet, or the succinct prose of Bacon or Browne. A more detestable exercise I do not know. . . . To paraphrase Milton or Shakespeare is to turn the good into the inferior or bad, and to degrade literature. . . . When all is done, you have no longer got Bacon or Milton, but only your much lesser self." But really Prof. Laurie seems to us himself "to misunderstand the whole situation." It is strange to us to find that any one still supposes "paraphrasing" to mean the substitution of one's own or the pupil's language for that of a master in the art of language. It is not, as usually understood, an exercise in composition or the art of writing at all; it is an exercise in thought or thought-reading. At least, this is the generally accepted view in England. No rearrangement or change of words is demanded; for it would not help us in the least. What is asked for is the *full meaning* of a passage which, in the author in question, is expressed in a brief and condensed or figurative form, or perhaps, at times, rather suggested than expressed. It requires in the pupil a knowledge of the real bearing of the references, an appreciation of the exact force of the metaphors and similes, and a consciousness of that associated meaning (or colour) which certain words and phrases acquire, and which are brought out most distinctly in the contrasts between so-called synonyms. And it is only when this knowledge of and insight into the *full meaning* of what the author tells us has been sought for and gained, that we are in a position to truly appreciate and really delight in the art and beauty of his mode of expression. This is the method, in our opinion—and not Prof. Laurie's plan of writing out a piece of poetry in grammatical prose order, supplying the words understood, but always preserving the language of the poet—which is best fitted and most likely to "prevent a boy from contenting himself with that vague knowledge which is not knowledge at all, but mere impression made by dim disconnected images, or, it may be, by the mere musical sounds or rhythm of language." This it is which "may perchance startle him for the first time into the perception that poets, after all, talk plain sense, and so awaken his critical faculties." While the correcting of the grammatical order and the supplying of omissions are liable to give our pupils the impression that poets are rather clumsy writers, and do not much care whether their readers understand them or not.

Suppose that the poem we are studying is Wordsworth's famous "Lines on revisiting the banks of the Wye," and that we have come to these:

> "I have learned
> To look on nature, not as in the hour
> Of thoughtless youth; but hearing oftentimes
> The still, sad music of humanity."

What enlightenment or help do we get from writing these as—"I have learned to look on nature, not as (I looked on it) in the hour of thoughtless youth, but (as one who) hears oftentimes the still, sad music of humanity"? There is little in the way of omission to supply, or of excessive terseness to unfold, and the grammatical order is already that of prose. What we want to know is, what is meant by the metaphor "music of humanity," and why this music is called "still" and "sad," and in what respects the attitude of mind implied in this differs from that "in thoughtless youth," and why this newly acquired power is also "a joy." When these things are grasped and understood, then, and not till then, shall we be able to appreciate the skill and beauty with which Wordsworth expresses the ideas; and the question of grammatical order—though at times a valuable test, certainly not so here—will shrink into the background; while the ideas, and all that they bring with them of association and feeling, will be seen governing and directing and informing the mode of expression.

We have felt bound to make this protest, partly because we recognize Prof. Laurie as one of our best authorities in educational matters; partly because we have been getting so much profit and pleasure from his lectures; and partly, and perhaps chiefly, because we consider the right study of English literature and language of such supreme importance in our schools that we look upon any misconception in the matter as peculiarly harmful. We know, however, that Prof. Laurie shares with us our strong belief in the value of these subjects; and we attribute his attack on "paraphrasing" to his having before his mind at the time *linguistic* training only, and so connecting this exercise with linguistics or language work only—forgetting that the term is usually employed in connexion with *literature* rather than language, and that his readers and hearers would be certain to take it in this connexion. As far as language exercises alone are concerned, we agree with Prof. Laurie as to the frequent value of his plan of "Dialysis" or "Resolution," especially where a writer is peculiarly terse and abounds in ellipses and inversions. But such writers are not usually the best fitted for school-work. Besides, we should be sorry to restrict our literature-work at school wholly to poetry, and to omit prose altogether; though undoubtedly the former will always supply the greater part of our material for study. Dialysis would not often help us in the study of prose literature. Paraphrase is always valuable.

The Civil Service Commissioners, in their Thirty-third Report, recently published, revive an almost forgotten controversy on the subject of Competitive Examinations. They deem it expedient to examine the main arguments which have been advanced during the past year against the principle of open competition. These they comprise under three heads, viz.:—(1) That competitive examination fails to secure the selection of the fittest persons. (2) That the health of candidates is affected by the strain of competitive examinations. (3) That competitive examinations for admission into the public service exercise an injurious effect upon the education of the country.

In reply to the arguments in support of the first proposition, they content themselves with quoting from the reports of Royal Commissioners appointed from time to time to inquire into the working of the competitive system. These reports show that the results of competition, whether as applied to the Indian, Home, or Military Services, have been

eminently satisfactory. The Commissioners give one fact in confirmation of the statements in the reports, viz., that out of 3,241 men clerks appointed between 1876 and 1888, only 23 have been rejected on probation on the score of inefficiency. Now, reports and facts like these ought to dispose once for all of the attacks under this head on open competition, if indeed these attacks are made in good faith, and not as exercises in the art of making the worse appear the better reason.

As to the outcry that the health of the candidates is injured by the strain of the examinations, the Commissioners print a table showing the proportion of successful candidates in some of the principal competitions between 1876 and 1888 rejected on medical grounds, and this they regard as sufficient reply as far as the Home Civil Service is concerned. Of course it is open to this obvious objection, that the number of successful candidates is so small compared with the total number of competitors, that no general conclusion can be drawn from the number of such candidates rejected on medical grounds as to the nnmber whose health suffered from the strain of preparation. It does not at all follow that the successful men would have felt the strain most. A successful candidate, specially favoured with mental gifts, need not have felt it at all. The stress is felt most by those who, to make up for comparatively inferior mental endowments, resort to severe continuous work. Again, when a breakdown occurs before the examination, or where a partial breakdown places the competitor amongst the unsuccessful, the Commissioners have no cognizance of the injury to health caused by the examination.

Even the figures which the Commissioners give to show the small number of rejections on medical grounds yield evidence of a further fact, viz., that as the examination increases in severity the number of rejections increase. The percentage of rejections in Class I. clerkships is 3·0; in the lower division men clerkships, 2·4; in the lower division boy clerkships, ·68; and in the assistants of Excise, 1·7.

It is, we admit, no easy matter to determine how far injury to health can in any individual case be attributed to mental overwork pure and simple, *i.e.*, as isolated from all other acts of disobedience to the common laws of health. A very remarkable letter, dated 22nd June, 1889, from Sir Andrew Clark, Bart., M.D., on the health of the selected candidates for the India Civil Service since the year 1877, printed in the report, shows clearly the difficulty of drawing general conclusions from the health statistics of the successful candidates. He says:—"It would be both interesting and instructive to determine the relative value of the health of those 443 candidates as compared with the health of an equal number of persons of like age, social position, physical habits, and educational training. At present, however, the difficulties in the way of an exact inquiry of this kind are insurmountable, and one must be content with the impressions derived from a mere empirical experience." In another paragraph of his letter he makes the significant admission "that in some way or another, from avoidable or unavoidable causes, the competitive examination has something to do with the production of albuminaria,"—he adds that "a knowledge of the future course of health experienced by temporary albuminarics would prove inexpressibly valuable to the art of medicine," and ventures "to commend the subject to the consideration of the Commission."

We confess, from our own "empirical experience" of candidates and competitive examinations, that it seems to us unavoidable that injury to health should result in some cases. But it would be absurd to hold the examinations of the Civil Service Commission, or those of any other examining body, responsible for such cases.

The Commissioners are, we think, on the whole, successful in their reply to the statement that competitive examination for admission into the public service exercises an injurious effect upon the education of the country.

As far at least as concerns the examinations to the lower appointments in the Civil Service, they cannot be said to influence the course of instruction in schools one way or another. As the Commissioners point out, a large proportion of the candidates for these appointments leave school at an early age to engage in some work that will give them a livelihood. "Examination in their case therefore does not interfere with any established school curriculum." If the suggestion that the Commission make of raising the standard of qualification in these examinations were adopted, they might exercise a very beneficial influence, if not on school education, then by way of a stimulus on those desirous of entering the public service to continue their studies after leaving school.

It is, however, the examinations for higher appointments in the Home Civil Service, the India Civil Service, and admission to Sandhurst and Woolwich, that exercise most influence, for good or evil, upon the school education of the country. To show that the influence of the scheme for the India Civil Service, on which that of Class I. clerkships was modelled, was in its origin intended to include only those branches of knowledge to which it is desirable that English gentlemen who mean to remain at home should pay attention, the report of Lord Macaulay's Committee, published in 1854, is quoted:—"We think," says that report, "it most desirable that the examination should be of such a nature that no condidate who may fail shall, to whatever calling he may betake himself, have any reason to regret the time and labour which he spent in preparing himself to be examined." The Director-General of Military Education, in a letter to the Commission in June last, in reference to the Army examinations, expresses the opinion that "The main object to be borne in mind with reference to the entrance examination is to secure a youth who has had a thoroughly well-grounded education as an English gentleman. Any curriculum which renders those who are unsuccessful unfit for other professions is greatly to be deprecated. Equally to be avoided is any course which requires boys to be trained specially, at an early age, for the Army apart from boys training for the liberal professions. It is most desirable that boys of fifteen and sixteen, who have had no previous idea of entering the Army, should be at no disadvantage if they, at that age, take up a military career. Such boys are more likely to make good officers than those who, without personal predilection, have been devoted to the Army from their cradles." The Commissioners contend that their schemes of examination have been framed in accordance with the opinions here expressed. But we must say, on their own admission, that they have not always attained their object of harmonising their Army examinations with the general course of English education. The predominating place in the existing scheme assigned to modern languages has led to an annual exodus

of English boys to the Continent for the purpose of devoting themselves to the acquisition of colloquial readiness in French and German, to the dislocation and curtailment of their school life at home. A new regulation, which comes into force in 1891, will remedy this very serious evil. On the whole, we think that the Commissioners succeed in showing that they so administer their system as to exercise a stimulating and healthy influence on the higher education of the country.

REVIEWS, NOTICES, &c.

A History of Eighteenth Century Literature (1660 to 1780.) By Edmund Gosse, M.A. (Macmillan & Co.)

One of the first difficulties which meet us when starting to consider what a History of Literature should be, is that of deciding what the term "literature" shall include. It is plain that it cannot include everything that has been printed or written. A line must be drawn somewhere, if only for the sake of bringing the subject within manageable limits. Every one will agree that we should *not* include such documents as Acts of Parliament, dictionaries, gazetteers, and the like—that is to say, compilations whose sole object is to record facts or convey information. We agree with Mr. Gosse that it is well to exclude everything which does not in some measure, however slight, show in its manner and method a conscious desire for graces of style and beauty of expression. Or we might put it another way, and say that we would include everything which by its form and mode of presentment seeks to give intellectual, æsthetic, or ethic pleasure. But, having erected our barrier, we are by no means prepared to estimate everything within its limits merely as so much more or less artistic language; to consider style alone, and to refuse to take account of subject-matter and thought. We certainly would never so far narrow the meaning of the term "literature" as to be able to say, without a a saving clause, that "what is written, what is contributed to thought, is not valuable in literature in proportion to its intellectual quality" (p. 386). Nothing is gained, and much is lost, by the attempt to make the History of Literature mean nothing more than the History of Style; for style being the result of a desire to produce some effect of sentiment, in addition to the mere imparting of knowledge, can never be properly understood, or rightly estimated apart from thought and subject-matter. While what is durably interesting to mankind in general is not by any means solely, or even mainly, the manner in which a writer expresses himself, but what he has to tell us. In other words, the test of style alone is not sufficient. Indeed, if we were to allow this narrowing we should soon arrive at some very striking results; we should have the disciples of Mr. Ruskin urging us to place "Dame Trot and her Cats" above "The Ring and the Book"; or we should be forced to agree with Mr. Gosse in honouring the weak and wishy-washy, but smooth-worded, Cowley more highly than the thoughtful, keen-sighted, but homelier-mannered Locke.

We have dwelt on this point somewhat at length, because it seems to us to be the one noticeable blemish in a book otherwise thoughtful, interesting, and well-expressed. There is no doubt that Mr. Gosse knows his subject thoroughly; and he writes with good judgment, and much liveliness and precision. Moreover, he does constantly include in his consideration much else besides style. Still the narrower view will at times assert itself; and it leads him into giving us here and there descriptions of books which are so incomplete that we learn little of what the book is about, or whether it contains any thought at all.

Having said so much in disagreement, we have little else but praise to add. The plan of the book is excellent. The central figures, around which the lesser writers are grouped, are well chosen and well treated. The mutual relations of the writers are clearly pointed out, and a due proportion is preserved in the space allotted to each. The tone is moderate, and the judgments free from exaggeration; while the connectedness of the book is well preserved throughout. We might indeed dispense with a few of the "perhapses"; and we are apt to be a little tired of so many people being the best something or other between some one and some one else; we think that Locke's style is very much undervalued. We wonder a little at Butler's "passion for truth" (p. 276); and at "The Hermit" being called "a very perfect piece of sententious narrative work" (p. 136). Nor are we prepared to admit all that is said about "the healthiness" of "Tom Jones" (p. 255). But most of these things are matters of opinion, in which differences are not only admissible, but even pleasant and stimulative. We have read Mr. Gosse's book with considerable interest and undeniable profit; and in particular his chapters on "The Novelists" and "The Dawn of Naturalism in Poetry" seem to us very excellent bits of work. While, if Congreve's wit is a little over-admired, and Waller's influence on metre a little overstated, the descriptions and estimates of the positions occupied in literature by Dryden and Pope respectively are fresh and sound, and expressed with great clearness and point. Altogether students have every reason to be grateful to Mr. Gosse for the help and pleasure which his book will give them.

In conclusion we have one suggestion to make. Mr. Gosse has very rightly not attempted to give us in the body of his book catalogues of *all* the works of even the most prominent writers. But would it not be well in a History of Literature to add an Appendix consisting of such a catalogue—complete, briefly descriptive, and dated? This would certainly be of great assistance to the student; while such an Appendix would be the right place in which to mention the very small writers, such as Amory, Oldys, &c., the brief appearance of whose names in the body of the book makes the general story harder to follow, and overweights some of the pages.

Henry the Seventh. By James Gairdner. (Macmillan.)

When a writer finds himself engaged in producing a volume of a series to which Edward Freeman, Frederic Harrison, and John Morley are contributors, when he has to follow such books as Freeman's "William the Conqueror," and Mrs. Green's "Henry II.," his work must be of a very high standard if it is to avoid unfavourable comparison. But if to give us new views and new knowledge, and, in Plutarch's words, to "bring together such things as are not commonly known, and lie scattered here and there in other men's writings, or are found among the ancient monuments and archives, not collecting mere useless pieces of learning, but adducing what may make the man's disposition and habit of mind understood," are the measure of success, then Mr. Gairdner may be well satisfied with his "Henry VII."

Henry's appreciation of a character, and of a situation, is finely drawn in the account of his treatment of the Irish lords, who had been taken prisoners, fighting on behalf of the pretender, Lambert Simnel:—

"They appeared together before the Council. He had a long talk with them about their rebellion, in the end of which he said to them: 'My masters of Ireland, you will crown apes at length.' Nor was this all. They were ordered to dine that day in court, where Lambert Simnel waited upon them in the character of cup-bearer. This was the most galling indignity to which they could have been exposed. 'None would have taken the cup out of his hand,' says a lively writer of the next generation, 'but bade the great Devil of Hell him take before that ever they saw him.'"

And we could ill have spared the quotation from an unknown contemporary, which so plainly gives the lie to the exaggerated statement of Bacon as to his domestic tyranny. The death of Prince Arthur was a great blow to Henry, and "when his Grace understood that sorrowful heavy tidings, he sent for the Queen, saying that he and the Queen would take the painful sorrows together." Like the brave woman she was, she endeavoured to console him.

"Then the king thanked her of her good comfort. After that she was departed and come to her own chamber, natural and motherly remembrance of that great loss made her so sorrowful to the heart, that those who were about her were fain to send for the King to comfort her. Then his Grace of true gentle faithful love in good haste came and relieved her, and showed her how wise counsel she had given him before. And he for his part would thank God for his son, and would she do in like wise?"

Coming from a life which had been a continual struggle, not for the crown, but for the preservation of life and liberty, it would not have been surprising if the obsequiousness of a parliament which, by a legal fiction, passed an Act of Attainder against the usurper, and those who had fought for him at Bosworth, had blinded Henry to the necessity of keeping a tight hold of the reins so suddenly thrust into his hand. But he neglected no precaution. An oath was proposed in the Lords, which had for its purpose the suppressing of disorders in the country, and it was recited in the King's presence. Even the marriage with the lady Elizabeth, so necessary for the security of his own position, was

made to wear the appearance of a favour granted. And no grip could have been too tight; for this reign was one long struggle with foreign Powers, with those kingly nobles whose spirit had survived, although the long Civil War had drained their resources, and with the public discontents and uprisings against which the oath mentioned above had been directed. Abroad, his plans were continually thwarted, sometimes by his avowed enemy the Duchess of Burgundy, more often by his allies, the laggard in love, Maximilian, and Ferdinand and Isabella, who, as soon as they had no further need of his friendship, proceeded to investigate "how easily he could sustain the loss of theirs."

Ireland was the playground of agitators, the incubator wherein Lambert Simnel and Perkin Warbeck were brought to maturity. The encouragement given to Perkin Warbeck must be regarded by this light:—

"A true Prince of the House of York would have been a more valuable piece on the political chess-board; but an impostor was a very useful pawn that might have been exchanged if successful for a man of more importance."

Yet, in relation to foreign affairs, the last chapter of his reign is called "Prosperity and Alliances." At home, with the end of it ceases the power of the noble, and financially the country is left with a balance which would be represented by about £18,000,000 of our money. And this was accumulated not by oppression of the people, for Empson and Dudley had fleeced the individual, and such money as the nation had contributed had been merely the outcome of their own desire for war.

Of all this Mr. Gairdner has written the completest and most succinct account. It is to be regretted that, having given so able a history of the foreign policy of the reign, he has not told us more of its legislation, of the development of the Constitution and the people. These are, perhaps, matters too large to be summarised, and their history still remains to be told. But the work is such as every student will welcome. Its details are arranged as concisely and regularly as in a chronological table, and are above suspicion of want of completeness or accuracy. It is not a story-book, and though the chapters on Ireland and Perkin Warbeck are deeply interesting, its chief attraction will always be its severe attention to the subject in hand rather than the glamour with which the subject is invested. But it has its bright moments, and as its author says of Henry—

"It may be that these touches of humour were comparatively rare, but he was always a ready and pleasing speaker, and it was certainly well known that at times at least he could be very genial."

The Critical Period of American History (1783-1789). By John Fiske. (Macmillan & Co.)

This thoughtful and admirably written book is a sketch of the political history of the United States from the end of the Revolutionary War to the adoption of the Federal Constitution. It aims specially, as Mr. Fiske tells us, at grouping facts in such a way as to bring out and emphasize their causal sequence; and it sets forth and explains with great vividness and ability the main questions at issue during what has rightly been called the most critical period in the history of the American people. In 1783 the thirteen commonwealths, which fringed the eastern shore of the great continent from the St. Croix River on the north to St. Mary's River on the south, had managed to get rid of their allegiance to Great Britain; but when the pressure from without had been removed, they showed but little inclination to draw together into one body, or to relinquish any part of their individual independence for the sake of a common national good. For some years, indeed, there existed scarcely any sentiment of union, and in consequence of this there was not only an ever-present danger of anarchy, but in more than one district outbreaks from time to time actually occurred, of a very serious character. It is true, as Mr. Fiske points out, that the several States never enjoyed complete sovereignty. Under the government of England they had been completely independent of one another; and they were as sovereign over their own internal affairs then as they are to-day. But there never was a time when they presented themselves before other nations as sovereign, or were recognised as such. In the very act of severing their connexion with Great Britain they had entered into some sort of union. By the articles of confederation they had established, or sought to establish, a "league of friendship" between one another; but they had failed to create a federal government endowed with any real sovereignty. The Continental Congress had no military strength; it had extreme difficulty in obtaining a revenue, and, being unable to pay the army, grew afraid of it; until at last in June, 1783, it was actually driven from Philadelphia by a band of mutinous soldiers. Nor was this all. Congress found itself wholly unable to carry out in full the provisions of the treaty with Great Britain. It could not enforce the payment of debts to British creditors; and in Europe the commercial credit of the Government steadily shrank and dwindled till it seemed likely to disappear altogether. While, to make matters worse, in most of the States, and especially in the State of New York, bitter persecutions broke out against the Loyalists, who had been solemnly promised complete indemnity.

In 1783 Pitt introduced into Parliament a Bill which would have secured mutual unconditional free trade between the States and Great Britain; but his measure was defeated, and the regulation of commerce with America was left to the King in Council:—

"'Orders were forthwith passed," sarcastically remarks Mr. Fiske, "as if upon the theory that America poor would be a better customer than America rich." "The carrying trade to the West Indies," he continues, "had been one of the most important branches of American industry. The men of New England were famous for seamanship, and better and cheaper ships could be built in the seaports of Massachusetts than anywhere in Great Britain. An oak vessel could be built at Gloucester or Salem for 24 dollars per ton; a ship of live oak or American cedar cost not more than 38 dollars per ton. On the other hand, fir vessels built on the Baltic cost 35 dollars per ton, and nowhere in England, France, or Holland could a ship be made of oak for less than 50 dollars per ton. Often the cost was as high as 60 dollars. It was not strange, therefore, that before the war more than one-third of the tonnage afloat under the British flag was launched from American dockyards. The war had violently deprived England of this enormous advantage, and now she sought to make the privation perpetual, in the delusive hope of confining British trade to British keels, and in the belief that it was the height of wisdom to impoverish the nation which she regarded as her best customer. In July, 1783, an Order in Council proclaimed that henceforth all trade between the United States and the British West Indies must be carried on in British-built ships, owned and navigated by British subjects. A serious blow was thus dealt, not only at American shipping, but also at the interchange of commodities between the States and the islands, which was greatly hampered by these restrictions."

In 1785 John Adams tried in vain to negociate a commercial treaty with Great Britain. But he could see no escape from the difficulties which beset the subject except in systematic reprisal. But any such reprisal was soon found to be impracticable, for the several States imposed conflicting duties on imported goods. Attempts were then made to give Congress the power of regulating commerce; but these proved unsuccessful, and the various States began to make commercial war upon one another. New York quarrelled with New Jersey and Connecticut; Connecticut with Pennsylvania; and New York and New Hampshire came to loggerheads over the possession of the Green Mountain.

Everything seemed drifting towards anarchy. And the craze for paper money, and later, in 1786, the Shays insurrection added considerably to the general distress and excitement. On May 14th, 1787, the Federal Convention met at Philadelphia for the purpose (to use Hamilton's words) of devising such further provisions as shall appear to them necessary to render the constitution of the federal government adequate to the exigencies of the Union, and to report to Congress such an Act as, when agreed to by them, and confirmed by the Legislatures of every State, would effectually provide for the same. The Convention sat for four months. Into the details of its proceedings we cannot attempt to enter. Suffice it to say that they are treated by Mr. Fiske with admirable clearness and vigour, and form a chapter in constitutional history which no student can afford to neglect, and which, in Mr. Fiske's pages, are far more interesting than many novels. Few will be able to lay down the book till Virginia ratifies the Constitution (on June 25th, 1788), and the cause of federation is safe.

We have not attempted to enter into any criticism of this valuable and delightful book, because the questions to be discussed are far too large for the space at our disposal. Nor have we, indeed, found anything of importance in which we disagree with Mr. Fiske, either as to matter of fact or matter of treatment. Nothing could be better than the general arrangement of the book, the mode of expression, and the way in which the Constitutions of European States—and especially that of England—are made to bring out and render clear the particular difficulties of America. One learns more from the pages of Mr. Fiske's "Critical Period" of what is the real value of a constitution and constitutional government than one does from those of many treatises of a more general character—and one

does this without incurring a single moment of weariness. The Sixth Form of every Modern Side should make use of the book, which contains only 350 crown 8vo pages, and is provided with a capital index, and a very useful table of contents. We venture to assert that not even Green's History will be more heartily enjoyed.

Modern Views of Electricity. By Oliver J. Lodge, D.Sc., F.R.S. (Macmillan & Co.)—Dr. Oliver Lodge possesses in a marked and high degree the power of representing, by concrete appliances, the theories associated with "the imponderables." As Faraday with his tubes of force, Rankine with his waves and vortices, Clerk Maxwell with his sources, cells, and sinks, so Lodge with his rings, wheels, and gear, makes the theories he expounds as clear as day. If he does not succeed in showing what are, he shows what might be, the mechanical principles which produce the observed results of light, electricity, and magnetism. Dr. Lodge's pupils all know that he has quite a happy knack of clearing up a vague and misty statement by a half facetious and half serious analogy, and he here applies his natural gift to dress in a popular and easily intelligible form the mechanical theories of Electricity. He is himself a patient and laborious experimenter. Not content with labouring in unexplored fields, he is constantly putting accepted theories to experimental tests, frequently with the result of leading to their modification, or exploding them entirely. He tells us that "the doctrine propounded in his book is the ethereal form of energy." The book is divided into four parts, named respectively: 1. Electrostatics, or electricity at rest; 2. Current electricity, or electricity in locomotion; 3. Magnetism, or electricity in vortex motion (forming whirlpools); 4. Radiation, commonly called light, or electricity in vibration. To the question, "What is electricity?" the usual answer is, "We only know what it does; we do not know what it is." Dr. Lodge confesses that there is much truth in this remark; but "not as much as there was twenty years ago." We know electricity, as we know energy, by its effects. In earlier theories of electricity, two fluids were invented, one for positive, and the other for negative electricity: each kind of fluid repelling itself and attracting the other. The fluids were useful to assist the imagination and their use was justified by such facts as that electricity, as an energy, has got the property of indestructibility; it is constant in quality, as can be tested in various ways; it distributes itself as would a fluid which had no weight, but which repelled itself with a force varying inversely as the square of the distance. Dr. Lodge considers that electricity is most probably a form or condition of the ether which pervades space, capable of being transferred from place to place, but not of being destroyed. The properties of the imagined ether have varied with time. With Newton it was an elastic medium, pervading all matter and space, and conveying pressures from one place to another. C. Maxwell's ether is a viscous substance, formed into cells. The more modern ether is a continuous fluid, the whirlpools of which constitute the atoms of ordinary matter. Dr. Lodge's ether does not oppose the passage of material bodies; but only of electricity. Conductors afford no resistance to electricity, and therefore are gaps or holes in that medium. Magnetic effects are looked upon as due to vortices or whirlpools in the ether, or in matter around the lines of force as axes. Dr. Lodge accounts for an electric current by vortex rings generated in a dielectric about a wire, the surface of which acts as a slide on which the rings can move with very slight resistance. On this curious hypothesis Dr. Lodge accounts for the heating and other effects of the current. The mechanical models, which Dr. Lodge has devised to exhibit the electrical and magnetic actions of the ether, are described in his own fashion. An Appendix gives a number of equations referring to the latest developments of the mathematical theory, and to magnetic and electric units. The book is altogether one of the most original and most suggestive books for thinking workers in this subject, which the last few years have produced.

Handbook of Commercial Geography. By Geo. G. Chisholm, M.A., B.Sc., Fellow of the Royal Geographical and Statistical Societies. (Longmans, Green, & Co.)—This book is so far in advance of other books recently published with similar titles, some of them excellent in their way, that we must conclude that the highest excellence is not yet attained. It is not many years since the best Geography for schools was a compilation of extracts from Malte-Brun, and similar sources; but we have made some progress since then, as a comparison of the book before us with Cornwall's Geography will show. The author has succeeded in imparting what Mr. Goschen calls "an intellectual interest" to the study of the geographical facts relating to commerce. He informs us that—

"in writing the book he has had three classes chiefly in view—first, teachers who may wish to impart additional zest to their lessons in geography from the point of view of commerce; secondly, pupils in the higher schools and colleges that are now devoting increased attention to commercial education; and thirdly, those entering on commercial life, who take a sufficiently intelligent interest in their business to make their private studies bear on their daily pursuits."

The contents are arranged under the following heads—I. General facts relating to the production, distribution, and exchange of commodities. (2) Commodities dependent directly or indirectly on climate. (3) Products of fisheries. (4) Mineral products. (5) Manufactured articles in which various materials are used. II. Countries of Europe, of Asia, of Africa, of America, of Australasia, and Polynesia. III. Appendix of statistics. The sections under the head of commodities form a commentary on the annual statement of the trade of the United Kingdom with foreign countries and British possessions. It is this publication that is frequently referred to as simply the "Annual Statement," or the "Annual Statement of British Trade." In this commentary a brief sketch of the leading processes of manufacture has been given, as these processes have often an important bearing on the geographical description of industry. Moreover, there can be no intelligent interest in trade without an understanding of the reasons why certain commodities are produced and exchanged at all, and in many cases the explanation of this involves the knowledge of manufacturing processes. Commodities depending directly or indirectly on climate are arranged under the heads, "Products of the Temperate Zone, Sub-Tropical and Tropical Products." There are 29 maps in the book, 16 of which contain railways. These railway maps serve two purposes. Those of the parts of Europe where railways are abundant show the interruption to communication caused by mountain ranges. Those of parts of the world in which railways are still few show the lines along which traffic is already promoted by this means of communication, and the routes by which it is expected that traffic is most likely to be developed in the future by railway construction. We have probably said enough to justify the remark that the work possesses the intellectual interest above referred to.

Blackie's Modern Cyclopedia of Universal Information. A Handy Book of reference on all subjects and for all readers. Vols. I., II., and III. Edited by Charles Annandale, M.A., LL.D. (Blackie and Son.)—The aim of this Cyclopedia is described in the Preface as "to provide a convenient work of reference for readers of all classes—comprehensive in scope, handy in size, moderate in price, and generally adapted to the needs of the day. While matters that belong to ancient times are by no means neglected, attention is more especially given—as the title of the book suggests—to those which pertain to the present day and to the modern world." The editor, Dr. Charles Annandale, is also the editor of the new edition of the *Imperial Dictionary*, and in his hands accuracy is certain. The three characteristic features of the work appear to us to be the following:—(1) The volumes are convenient in size, and although they are far from cumbersome, the type is not microscopic. (2) The articles are written tersely; but clearly, and with a common-sense estimate of the kind of information which inquirers look for. They are always readable, and often suggestive. (3) The illustrations are excellent, and often teach more than a page of print would, although we must confess that they sometimes seem to us to occur where they are not particularly wanted, and sometimes do not appear where they are much needed. Why should there be portraits of Alfonso de Albuquerque, of Bacon, and of Sir Richard Arkwright, but not of the Alexanders, of Joseph Addison, or of Jane Austin? Scarcely a page but contains information which corrects common or popular misuse of words. For instance, opening the book at random, at page 40, we fall upon the following:—

"Advocatus Diaboli (Devil's advocate), in the Roman Catholic Church, a functionary who, when a deceased person is proposed for canonization, brings forward and insists upon all the weak points of the character and life of the deceased, endeavouring to show that he is not worthy of sainthood. The opposite side is taken by the Advocatus Dei, God's advocate."

Thus, the common notion that the Advocatus Diaboli, like the Queen's Proctor, interferes to save the wicked one from the just penalty of his misdeeds, is erroneous. We have only to say, in conclusion, that we have compared the third of these volumes with the first and second, and observe no falling off in the care bestowed on them.

OUR LIBRARY TABLE.

Magnetism and Electricity. By Edward Aveling, D.Sc. (Chapman & Hall.)—Most intending candidates for London Matriculation will be aware that the new regulations affecting the science subjects have been in force since last June. Chemistry and Natural Philosophy have been replaced by Mechanics, which is compulsory, and Chemistry, Light and Heat, or Magnetism and Electricity, at the option of the student. To meet these new requirements, Dr. Aveling has prepared a series of text-books on the specified subjects, of which the book before us is one. The book is of necessity planned on examination lines; and although the author hopes "that the matter and method may be of service in the introduction of students generally to the subjects considered," we could hardly recommend it to those who do not require it for examination purposes. However, it covers the complete syllabus, and gives accurate, though often scanty information. One chapter is devoted to "Examples on Formulæ," which will no doubt be of great service to students, although the title is rather suggestive of cramming. The book is well illustrated throughout, and although it is more an epitome of the chief laws and experiments than a text-book, it will no doubt be of great service to those for whom it is primarily intended.

Heat and Light. By Edward Aveling, D.Sc. (Chapman & Hall.)—This is another text-book of the series referred to in the preceding notice, and follows on the same lines. It is characterized by the same bare outline, the explanations of the methods of determining the various data generally including no suggestion whatever as to the difficulties and corrections. Perhaps the least satisfactory chapter in the book is that on the composition of white light and the spectrum. The merest outline of the subject is given, and there are one or two obvious slips. For instance, on page 165, the electric light and lime-light are quoted as examples of monochromatic light, and again on page 166 it is stated that "glowing gases yield spectra with *dark* lines." Like its predecessor, the book contains numerous examples and illustrations.

New General Atlas of the World: containing all the Latest Geographical Discoveries, with General Description, Gazetteer, and Alphabetical Index. Edited by G. W. Bacon, F.R.G.S. (G. W. Bacon & Co.)—This is an atlas for reference rather than for ordinary school use. Although the maps are very full indeed of names they are clear and distinct. They are not of the kind intended to give a general picture of the country, showing where are mountains and valleys, for it would be impossible to get a tithe of the names with anything like the distinctness in the modern pictorial maps. These are, in every respect, definite and full of instruction. Roads and railroads are very distinctly shown in all the maps, and even in England all railway stations, excepting those in the suburbs of large towns, are named. Maps of the principal towns and cities are given in the corners and at the bottoms of the larger maps. There are altogether fifty-five of these supplementary maps of cities and ports, and, considering their size, they are marvels of distinctness. The only serious inaccuracy we have been able to discover is in the astronomical diagram at the beginning; in this the number which used to be given as the distance of the earth from the sun, a number now known to be too large by two-and-a-half million miles, is here retained, and as it is the basis of the calculation of the distances of the other planets from the sun these also are much too great. The book is well bound, and the maps are preceded by a useful dissertation, entitled a "General View of the World," a Gazetteer of Towns, and a complete Index alphabetically arranged. We know of no more convenient or complete atlas for reference at the price (10s. 6d.).

Euripides: Iphigenia among the Taurians. By Isaac Flagg. (Ginn & Co.)—This is a volume of the College Series of Greek authors edited under the supervision of Professors J. W. White and T. D. Seymour. Those who are not deterred by the glaring blunder EURIPEDES with which the binder has embellished the side and back of the volume will find in it an excellent edition of what is justly called "one of the most charming of dramas, and especially well fitted, with its spirited adventure, thrilling suspense, and delightful happy ending, to captivate the minds of young and ingenuous readers." The introduction of over fifty pages deals very fully with the subject-matter, structure, and metres of the play. The commentary under the text is entirely explanatory, but there is a short critical Appendix in which the chief derivations from MS. authority are pointed out. On p. 87 is an unfortunate misprint of *Lyaeo* for *Lyeaeo* in a quotation from *Hor. Carm I.* 17, but the volume generally is accurately as well as handsomely printed. It is a feature of the series that a copy of the text only, printed in very large clear type, and with broad margins, is presented with each copy of the complete work.

Outlines of Mediæval and Modern History. By P. V. N. Myers, A.M. (Ginn & Co.)—The aim of the author of this History has been to blend in a single narrative, clear, continuous, and attractive, some account of the social, political, literary, intellectual, and religious developments of the peoples of mediæval and modern times—to give in simple outline the story of civilization since the meeting, in the fifth century, of Latin and Teuton upon the soil of the Roman Empire in the West. Events have not, as a rule, been gathered under reigns or dynasties, the principles of grouping being the laws of historic development. Due attention has been paid to recent occurrences, and the student is led up to the Egyptian War of 1885. The work is embellished with progressive historical maps. On the whole, although for examination purposes exclusively the book is hardly fitted, still it affords an admirable course of historical reading for students who are not bound down to our examination system.

Notes on Shakespeare's Play of Hamlet. By T. Duff Barnett, B.A. (Bell & Sons.)—Although this work covers only 100 pages, it contains all the student is likely to require in the study of the play:—Introduction; Date and Source of the Play; The Unities; The Masque; Folios and Quartos; Summary of the Play, scene by scene; Notes, Etymological and Explanatory; Prosody and Scansion; Various Readings; Puns; Anachronisms; Grammar Notes; Alliteration; Allusions; Familiar Quotations; Simile and Metaphor; Doublets; Examination Papers. Upon the etymological part of the notes, Mr. Barnett has bestowed special attention. Not a word of real value has he overlooked. Every derivation—and they are far from scant in number—has been verified in Skeat. To give an instance of the style in which words are dealt with, we have selected the following at random:—"Orchard, *garden.* O.E. ort-geard. Ort, *herbs, vegetables;* and geard, a *yard.* A yard is an *enclosed* piece of ground. In Scotland a garden is still called a yard, *cf.* 'churchyard.' The Lat. *hortus* is cogn. with geard or yard, not with ort, another form of which is wort."

The Empire: Royal England Readers. (Nelson & Son.)—This Reader, in common with the rest of the series, consists not of a number of detached subjects, but a single one—the British Empire from the time of the Britons to the Jubilee year. The matter is clearly arranged, and is so divided as to call the reader's attention successively to the religious, social, and constitutional aspects of each period. The paragraphs on constitutional history are, however, occasionally inaccurate. For instance, the *Habeas Corpus* is defined as a writ to a keeper of a prison requiring him to produce the prisoner for trial. The little girl whom by writ of *Habeas Corpus* Dr. Barnardo was lately required to produce was scarcely a prisoner for trial. Again, in the paragraph on the National Debt it is stated that it began with a loan of £1,000,000 in 1693. Now as a matter of fact the National Debt began in 1672, on the closing of the Exchequer by order of Charles II. and his Cabal Ministry. About a million and a half had been advanced to the Government by the London goldsmiths, who in return received assignments of the revenue. At the accession of William the interest on this was paid, but the principal remained to become the foundation of our National Debt. Statements on such matters, not absolutely correct, are very numerous. An Appendix contains a brief outline of the history of England, and an account of our colonies and constitution. The book is well printed, and a feature is the large number of good portraits of kings and statesmen.

General Geography. By Hugh R. Mill. (Macmillan.)—For a book which professes to be elementary, this Geography is exceedingly well filled with information. The first three chapters describe the general principles upon which geography depends, and the natural conditions of the earth as a whole, and the remainder of the volume is devoted to detailed descriptions of the continents. Instead of dry lists of mountains, plains, and rivers, the natural features of each continent are first described in narrative form. A good feature is the citation of such portions of a nation's history as have led to its existing people and its territorial boundaries. In effect the book is interesting and complete.

Les Trois Mousquetaires, par Alexandre Dumas. By F. C. Sumichrast. (Ginn & Co.)—This edition is a condensation of the original novel. Too frequent filling-out and passages of doubtful morality have proved insurmountable obstacles to the adoption of Dumas' novels for school use. In this edition, while the main features of the story, the brilliant descriptions, the characteristic dialogue, and the captivating rush of adventures are left untouched, all objectionable passages are excised, and the volume brought within such limits of length that it may be conveniently used as a text-book. At the same time the original division into chapters has been preserved. All difficult passages and allusions are explained in the notes. There are also brief notices of the principal historical personages and places mentioned in the course of the narrative. The book is well bound and well printed, and its appearance is pleasing in every respect.

Andocides de Mysteriis and de Reditu. By E. C. Marchant, B.A. (Rivingtons.)—The author has prepared this edition in the hope of enlarging the number of the readers of Andocides. In this country Andocides has been strangely neglected, although he furnishes us with a valuable example of colloquial Attic, and deserves to be studied by admirers of Greek idiom side by side with Aristophanes. The work contains a life of Andocides and introductions to both speeches, texts, and notes, which clearly explain the technical nature of the subjects dealt with, also an Appendix on the connexion of Andocides with the mutilation of the Hermae.

The Century Reading Sheets. (Blackie & Son.)—The sixteen sheets are arranged in progressive order, and are adapted to the use of the youngest of pupils. They are very durable, being printed on parchment-paper and suspended from a wooden rod. The printing is in the clearest of types, and is very effective.

(i.) *Cursive Shorthand.* (ii.) *Reading Practice in Cursive Shorthand, and A Primer. By Hugh L. Callendar, M.A. (C. J. Clay & Sons.)*—We have so often pointed out the advantage of having an universal system of shorthand, and we have recognized so fully the excellence of Pitman's system, that we cannot approve of the present epidemic of shorthand systems, which so often, in correcting some defect in Pitman, render themselves wholly unpractical. It may be an advantage, as the author of "Cursive Shorthand" claims, to have shorthand symbols of the same nature as longhand characters, but this does not console us for the exceedingly lengthy

combinations in which this involves us; and whatever method may be adopted of putting in the vowels, none seems to us so good as that which, as in Pitman's Reportorial Shorthand, leaves them out altogether.

The Traveller and The Deserted Village. By Oliver Goldsmith. With Life and Notes. Edited by the Rev. C. Ivens. (*John Heywood.*)—This unpretentious little book forms one of John Heywood's twopenny series of School Classics. It contains brief notes on the Life of Goldsmith, a very well printed version of "The Traveller" and "The Deserted Village," and notes appended to each poem. The notes are, on the whole, usefully explanatory, but occasionally they drop into unnecessary and useless criticism: *e.g.*, "an exquisitely beautiful line." Surely it would be better in such instances to point out its beauty in simple language, and leave the conclusion to the reader. Again, *laboured mole* is not sufficiently explained by "mound, or dyke." The editor in such instances should explain *why* the adjective *laboured* is employed.

La Société Française au Dix-septième Siècle. By T. F. Crane, A.M. (*G. P. Putnam's Sons.*)—We have in this work a picture of a period in social history, and an account of those great social influences that modified manners and affected literature. A large part of the volume is devoted to the Hôtel de Rambouillet, to the question of the education of women, and to the art of conversation. It gives a fair idea of the main currents of French society in the seventeenth century, and thus makes it possible for students to enjoy Molière's *Précieuses Ridicules* and *Femmes Savantes*, works which satirise the society of the seventeenth century.

Grammar of French Business Language. By Ed. E. Whitfield. (*Hachette & Co.*)—A work which declares itself exclusively intended for commercial students. Its exercises and sentences for translation are drawn from correspondence or from market reports. A distinctive feature is that the notes after each chapter give hints as to pronunciation. *Concise French*, by the same author, contains extracts which are supplementary to those contained in the preceding work.

Explanatory Notes of Shakespeare's Tempest. By O. Cooper. (*Heywood.*)—These notes are arranged especially for the use of those preparing for public examinations, are clearly tabulated, and amply sufficient for the purpose.

Théâtre de la Jeunesse. By Mrs. Hugh Bell. (*Longmans & Co.*)—These little French plays are for the use of young students in French. Without being difficult they contain a large number of idiomatic French expressions, and are interesting enough to fix the attention of the pupils who study them.

A Prose Translation of the Second Book of the Æneid of Vergil. By H. T. Dufton, B.A. (*Berryman & Sons.*)—The translator wishes his work to serve as a "dictionary," or book of reference, for those students who read Vergil of choice, or for such as are in for examination, by helping them, without unnecessary trouble, to a *suitable* word for translation and to the general meaning. Great pains have been taken in the choice of words, and on the whole the book, though literal, is yet readable and correct.

English Grammar and Analysis. (*Blackwood.*)—This series consists of a number of small text-books which contain information adapted to the intelligence which requires initiation into the practical use of nouns and verbs in a sentence, and to that which has mastered all the ordinary difficulties of parsing and analysis. The examples consist largely of verse, which is regarded as superior in attracting the attention of the pupil.

The Book of Genesis. (*Williams & Norgate.*)—This is a convenient pocket edition of the Hebrew text after Vander Hooght. No notes of any kind are supplied.

We are pleased to see that a second edition of *Professor Symes's* admirable little *Text-Book of Political Economy*, published by Messrs. Rivington, has been called for.

Illustrations of the Creed. By Elizabeth Wordsworth. (*Rivingtons.*)—We heartily thank the gifted Principal of Lady Margaret Hall, Oxford, for this handbook on the Creed. The various chapters were originally given, at least in substance, to a class of young lady students at Oxford three years ago. The exposition is largely based on Pearson's monumental work, but in every address may be noted original and happy illustrations of the great truths under review. We have been struck with the admirable manner in which the arguments for the existence of a God are presented in the comparatively long section devoted to this subject; and, indeed, with the exception of a few paragraphs in the chapter on the Holy Catholic Church, dealing with the so-called "separatists" and "schism," the whole of the volume commands our warm approval.

Reporting Hints and Practice. By Alfred Bacon. (*Isaac Pitman.*)—During the last few months there have appeared in "Pitman's Phonetic Journal" a series of articles which contain hints to reporters as to the method of summarising speeches, of writing descriptive reports, and of reporting such lectures as involve the use of technical expressions. These are now collated in book form, and under each heading an example is given of the kind of thing which it will be necessary to write. The extracts are all strictly to the point, and no information is given which will not be useful.

"The Chimes" and "A Christmas Carol" in Shorthand. (*Isaac Pitman.*)—This is another of the now large number of well-known English works printed in Pitman's shorthand. It is sufficient to say that in clearness of type and freedom from error this publication is no way behind its predecessors.

Key to Todhunter's Integral Calculus. By H. St. J. Hunter, M.A. (*Macmillan.*)—There is no doubt as to the practical utility to the private student of a key to an important work. But though it supplies him—if it is as well constructed as the present work—with the shortest and clearest ways of working out examples, it puts a premium upon that lack of energy which runs for assistance before it has given full attention to a difficulty, and it puts an end to the keen joy which the student finds in annotating an example himself with its ready solution. However, one cannot have everything, and so we must thank Mr. Hunter for what is, at least, a very good specimen of its class.

Chamisso. Peter Schlemihl's Wundersame Geschichte. Edited by Emma S. Buchheim. (*Clarendon Press.*)—Miss Buchheim has prepared a very satisfactory edition of Chamisso's simple and familiar story of the "Shadowless Man." The book is very suitable for a student of German in his first or second year, who has made fair progress with grammar and exercises. The notes are ample, and, with the Index, render too much rather than too little assistance to an industrious reader. But the whole apparatus of the book is admirably calculated to smooth the path of those who use it, and to increase their knowledge of the language, whilst economising both time and trouble.

Taciti Annalium, Lib. XIV. By J. R. Worthington. (*Longmans.*)—Mr. Worthington intends this edition chiefly for the use of candidates for the Pass degree examination at Dublin, but apparently hopes that it may also find its way into the public schools. The notes are a hasty and perfunctory piece of work, and do not seem likely to be very useful to either class of students. Many of them, from carelessness of expression and a certain clumsiness in the use of type, are scarcely intelligible until the text has been previously mastered. Others consist of the principal parts of verbs occurring in the text, as—"*Provoluta:* Pf. pass. p. of provolvo, -volvi, -volutum, 3." The edition is said to be "taken from the text of the highest authorities."

Ovid: Tristia, Book III. By S. G. Owen. (*Clarendon Press.*)—Candidates for the January Matriculation Examination of the University of London are to be congratulated on the appearance of this excellent edition, in which Mr. Owen places before them the results of his Ovidian studies in a text hitherto, we believe, unedited in England. The admirable notes, which are entirely explanatory, the text being simply reprinted from Mr. Owen's recently published critical edition, are expressed with a skilful clearness which makes them available to any schoolboy, while in spite of their moderate compass there are very few schoolmasters who will not have much to learn from them. We notice one slip in the note at p. 43 on the use in the Augustan poets of the oblique cases of *is*, where the reference under *eius*, "xix. 29, 240," should follow another reference to the *Heroides* under *eo*.

Horace: Odes I. Caesar's Commentaries, Book II. (*Bell & Sons.*)—In these instalments of a handy Lower Form series, the text and notes are taken from the well-known editions of Long and Macleane, the new features being vocabularies compiled respectively by Messrs. A. H. Dennis and W. F. R. Shilleto. Much care has evidently been bestowed upon these, and they will no doubt prove very useful. Each volume supplies a term's reading in a convenient form, and at a very moderate price.

The Royal England Reader, Standard VI. (*Nelson.*)—Instead of a number of heterogeneous extracts, the compilers have divided into sixty lessons a single subject—the History of the British People since the Union of the Crowns. An Appendix contains historical tables and lists. The book is printed in clear type, and is illustrated throughout.

The French Participles. By Henry Attewell. (*Hachette.*)—The participle has always been a stumbling-block to the student, and we have here a successful attempt to place before him its chief difficulties and peculiarities in a concise form.

Edmond About, Récits et Nouvelles. Edited by A. P. Huguenet. (*Hachette.*)—From About's *Souvenirs et Nouvelles* M. Huguenet has taken five extracts. These sketches widely differing in character introduce un unusual number of words and expressions, and at the same time afford an opportunity of forming an adequate idea of the author's style. A sufficient vocabulary and notes of more than ordinary completeness are appended.

Scott's Marmion. By Thomas Bayne. (*Clarendon Press.*)—We have in the editor's Preface some very interesting details of the poet's home at Ashestiel during the time that he held the office of Sheriff of Selkirkshire, his composition of "Marmion," its characteristics, and the criticisms which it met with. The notes on the text are concise and to the point, more especially in those relating to persons who are mentioned by Scott in the poem.

Magnetism and Electricity. By Arthur Wm. Poyser, M.A. (*Longmans & Co.*)—This is an elementary book intended for beginners and candidates at the South Kensington Examinations. There are many illustrations, exercises, and numerical examples. Different types have been used throughout with much effect. The book is sure to be of value to students who are reading magnetism and electricity for the matriculation examination of the University of London.

Lust und Lehre. By Otto Schlapp. (*Hachette & Co.*)—A progressive reading book in German for students who have gone through the accidence, and are familiar with the general outline of the syntax. There are notes on the text, and also a vocabulary.

Pictorial Illustrations of Trades. (*W. & A. K. Johnston.*)—Six very pretty plates form the first series of "Pictorial Illustrations of Trades":

The Bread and Biscuit Bakers, a view of a bakery in full working order, with a dozen persons busily engaged; The Smiths, going through the "Anvil Chorus" (we miss the children though in this plate: we thought they were a recognized institution at the door of a forge); The Carpenter's Shop, large and airy, with a "Bogie" in the background; The Shoemakers, with shoes in their various stages of completion at their feet; The Tailors; and the Builders. The description at the foot of each contains a great deal of information in a very limited space. The plates are well mounted and varnished; altogether they present a pleasing aspect, and should be found on all school walls.

Modern Atlas of the World. (*Ruddiman Johnston & Co.*)—We do not remember to have seen a more complete atlas at the price at which this is issued (one shilling). As many as eighty-eight maps, large and small, are included, and we notice that astronomical and physical maps find a place. The whole seems corrected up to date, and some of the maps, such as those of N. Egypt, New Guinea, and the British W. African Possessions, are specially interesting on account of recent events or disputes. We could wish that a stronger cover were provided, even though the price had to be raised to meet the additional cost.

Arithmetical Reviews. By J. L. Patterson, D.Sc. (*Ginn & Co.*)—This little book of twenty-six pages contain a large number of examples in the higher rules of arithmetic. Numerous hints for solution are supplied, and in some cases, as in dealing with interest and discount, new methods of working are indicated. For use in England the money problems will need to be expressed in terms of the English currency.

Euripides, Hecuba. By Cecil H. Russell, M.A. (*Clarendon Press.*)—The introduction to this edition is ably written. In a few words Mr. Russell gives us a clear account of the Legend of the Hecuba, and some remarks on the play and its scenic arrangements. The analysis of the play, too, is worthy of careful study. The text is well printed, in large and distinct type, and the lines are by no means crowded. The notes are more of an elementary character than is usually found in editions of Greek plays.

We note that *Cassell's National Library* is again enriched by the inclusion of a valuable copyright work. Professor Francis Turner Palgrave has followed the good example of Mr. Coventry Patmore, Mr. T. Woolner, and Mr. Aubrey de Vere, and presented the publishers with his *Visions of England* to appear as one of the weekly volumes in Prof. Henry Morley's popular series. The *Visions* consist of a number of separate poems, dealing with the most notable events in our national history; young and old will be stirred in spirit as they read them, and will be constrained to thank the gifted author for bringing the work of his genius within reach of the poorest.

New Editions.

Livy, Book V. By A. R. Cluer, B.A., and P. E. Matheson, M.A. (*Clarendon Press.*)—This is a reprint from the Clarendon Press Edition of Books V., VI., and VII. The only difference which we notice between this and the former edition of the three books is the omission of the text of Books VI. and VII., and the notes thereupon; for the Introduction, the Excursus on Livy's Latin, and the Index are unaltered, and all references that are given in these are to the complete edition.

Livy, Book XXI. By M. T. Tatham, M.A. (*Clarendon Press.*)—This book is an excerpt from the second edition of Books XXI.-XXIII., from which it differs only in the modification that has been made in the preliminary matter in order to adapt it to the single book. In this respect it is far more useful than the preceding, for the references in the Excursus on Livy's Latin are to Book XXI. only. There is a Map of the Trebia explaining the view the author has taken as to the site of the battle, and also one of Spain and Italy in the time of Hannibal.

Cassell's Modern School Readers. Standards VI. and VII. (*Cassell & Co.*)—The revised edition of Cassell's Sixth Reader, prepared to meet the requirements of the sixth and seventh standards of the New Code, lies before us. The selections from the works of eminent and popular English writers are full of interest, and well adapted to the understanding of boys. Difficult words are explained at the close of each lesson. Although the meanings given are generally satisfactory in some cases, a striving after brevity has caused an insufficient explanation: *e.g.*, *grim-visaged* means something more than "ugly appearance"; *engendered* has a fuller meaning than "produced, caused," or "brought about." The *pibroch*, too, is rather insufficiently explained as "a special piece of music played on the bagpipes; usually the war-song of one of the old clans." It is, in fact, a piece of music descriptive of a battle, imitating the different phases of an engagement—the march, the conflict, the flight, the pursuit, and the lament for the fallen. The book is provided with an Appendix containing sixty-one spelling exercises suitable for home-work, selected from the several reading lessons, and a number of rules and examples of word-building and derivation.

The Child's Bible Expositor. By S. E. Scholes. (*John Heywood.*)—This little book has reached its eleventh edition, and we therefore imagine that it has been found useful by some parents and teachers. It seems to us, however, to be of very slight value. The leading facts of Bible history are narrated in the form of question and answer, and some simple explanations given. But we fail to understand the utility of teaching a child that in the case of Naaman "his own cherished opinions and preconceived plans" were set at nought. The New Testament section is very incomplete, and there are many inaccuracies: as, *e.g.*, the reference to Sabaoth (given as Romans xxix. 29), and the explanation of 1 Cor. xiii. 12.

Practical Plane and Solid Geometry, Scales and Pattern Drawing, Revised and Enlarged Edition. By John S. Rawle, F.S.A. (*Simpkins.*)—This work is designed for use as a text-book for Government and other examinations. It has been revised throughout, and considerably enlarged, so that it contains now more than is required for the elementary course of the South Kensington Examination in Practical Plane and Solid Geometry. Nearly four hundred notes have been appended to the problems, to arouse the interest of the student, and some two hundred problems are given at the end of the work to test his general knowledge of the subject. The book is well printed, and in every way likely to be most useful to those preparing for South Kensington and similar examinations.

How we are Governed. By A. de Fonblanque. Revised by W. T. Gordon. (*Warne & Co.*)—It is now thirty years since A. de Fonblanque wrote "How we are Governed," and new editions have appeared from time to time. In this, the sixteenth, the whole has been re-written, and the amount of additional information introduced, and the omission of such as is obsolete, have necessitated a new arrangement of chapters. But the plan upon which De Fonblanque wrote, which was to impart a "knowledge of the institutions under which we live, of the machinery by which the government of the country is conducted, and of the judicial tribunals by which obedience to the law is enforced," is closely adhered to.

Illustrations, Mr. Frances George Heath's Magazine of Amusement, Art, Biography, Economy, Invention, Literature, and Science, will commence its fifth volume in October with a new pictorial cover, and its forthcoming issues will include, besides fiction, illustrated papers embracing drawings of the month, reproduction of National Gallery pictures, pretty places, art studies, eminent artists, pen and pencil portraits of celebrities, public and private schools, Tyrolese winter resorts, popular flowers, fern gossip, and miscellaneous "sketches" of men, things, places, art, literature, and science. *Illustrations* will be published by the firm about to amalgamate as Simpkin, Marshall, Hamilton, Kent & Co.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending September 30th, 1889

Amateur's Workshop (The), by Author of "Pattern-Making," cr. 8vo, 2s. 6d. cl.
Apollonius Rhodius' The Argonautica, trans. by E. P. Coleridge, cr. 8vo, 5s. cl.
Baedeker's Conversation Dictionary in Four Languages, 12mo, 3s. cl.
Bell (A.): De Locatavi in prisca Latinitate Vi et Usu, 1m. 50.
Bernthsea's (A.) Text-Book of Organic Chemistry, cr. 8vo, 9s.
Blackie's Modern Cyclopedia, edited by Annandale, Vol. 3, 6s.
Boone's (R. G.) Education in the United States, cr. 8vo, 6s. cl.
Brinsmead's (E.) History of the Pianoforte, cr. 8vo, 2s. 6d. cl.
Brown's (H. S.) Manliness and other Sermons, cr. 8vo, 6s. cl.
Chamisso's Peter Schlemihl's Wundersame Geschichte, edited by E. S. Buchheim, 12mo, 2s. swd.
Chisholm's (G. G.) Handbook of Commercial Geography, 8vo, 16s. cl.
Cornely (R.): Historicæ et Criticæ Introductionis in n. t. Libros Sacros Compendium, 7m. 20.
Davenport's (E.) Boy's Own Poetry Book, cr. 8vo, 3s. 6d. cl.
Dictionary of National Biography, edited by Leslie Stephen, Vol. 20, roy. 8vo, 15s. cl.
Folk-Lore and Legends, Germany, Oriental, Scotland, Ireland, 12mo, 2s. each.
Gizycki's (G. von) Student's Manual of Ethical Philosophy, adapted from the German by S. Coit, cr. 8vo, 4s. 6d. cl.
Greene's (W. T.) The Birds in my Garden, cr. 8vo, 2s. cl.
Gregorovius (F.): Geschichte der Stadt Rom im Mittelalter, Vol. 2, 9m. 50.
Haigh's (A. E.) The Attic Theatre, 8vo, 12s. 6d. cl.
Harrison's (W. J.) Elementary Text-Book of Geology, 2s. cl.
Hossfield's New Spanish Reader, 32mo, 2s. cl.
Johnson's (Dr.) Select Essays, edited by G. Birkbeck, 2 vols. 12mo, 10s. 6d. cl.
Johnston's (W. and A. K.) The Modern County Atlas of England and Wales, imp. 8vo, 12s. 6d. cl.
Koschwith (E.): Grammatik der Neufranzösischen Schriftsprache, Vol. 1, 5m.
Lange's (F.) Concise German Grammar, Part 3, cr. 8vo, 3s. 6d.
Lodge's (H. C.) George Washington, 2 Vols. 12mo, 12s. cl. (American Statesmen.)
Loney's (S. L.) A Treatise on Elementary Dynamics, 7s. 6d. cl.
Macaulay's (Lord) Lays of Ancient Rome, with Ivry and the Armada, Museum Edition, 12mo, 6s. cl.
Meadowcroft's (W. H.) The A B C of Electricity, cr. 8vo, 2s.
Menzel's (Prof. C.) German Exercises and Idioms, cheap edition, cr. 8vo, 2s. 6d. cl.
Ovid's Tristia, Book 3, with Introd., &c., by S. G. Owen, 2s.
Parker's (F. W.) How to Study Geography, cr. 8vo, 6s. cl.
Parkes's (L. C.) Hygiene and Public Health, cr. 8vo, 9s. cl.
Pitman's (C. B.) Earthquakes, translated from the French of A. Boscowitz, cr. 8vo, 5s. cl.
Skipton's (H.) The Essay Writer, 2s. 6d. cl. (Civil Service Series.)
Taciti Annalium, Liber 14, edited by J. R. Worthington, 2s.
Todhunter's Integral Calculus, Key to, by H. St. J. Hunter, cr. 8vo, 10s. 6d. cl.
Walker's (S. F.) Electricity in our Homes and Workshops, cr. 8vo, 5s. cl.
Weiss (R.): De Digammo in Hymnis Homericis Quæstiones, Part 1, 1m. 60.
Winckler (H.): Untersuchungen zur Altorientalischen Geschichte, 12m.

MATHEMATICS.

10219. (Professor Sylvester.)—(1) Three rigidly connected closed curves (without singular points) in a plane are thrown down on a grating composed of an indefinite number of parallel lines, the distance between any two consecutive ones of which is uniform and not less than the greatest diameter of the complex contour formed by the three given curves. Show that, if certainty is represented by the periphery of a circle touched by two consecutive parallels, the probability of intersection between the complex contour and the parallels will be represented by some one of a determinate group of homogeneous linear functions, with (positive, negative, or zero) integer coefficients, of the lengths of the double tangents that can be drawn between the curves and of the segments into which the curves are divided by their points of contact with those tangents.

(2) Let there be any two rigidly connected figures whatever (A and C) in a plane; suppose an endless string to be passed round them, crossing itself at O, and let a third figure (B *intermediate* between A and C), rigidly connected with A and C, lie within either of the two open angles of the crossing string. Round A and C pass a tight uncrossed endless elastic band (which B is supposed large enough to intersect), and bend in the part of it which spans the angle in which B lies, towards O, until it passes round and rests on B. Show, on the same suppositions as previously made, that the probability of A, B, C being all simultaneously cut by one of the parallels, will be equal to the gain in length of the elastic band in passing from its first position to the second.

(3) If, everything else remaining the same as in (2), the figure B does not intersect the uncrossed elastic band round A and C, show that the probability of A, B, C being all cut by a parallel, is the difference in length between the bands obtained by making the part of this band which spans the open angle in which B lies, twist right round B in opposite directions.

In (2) it is to be understood that A, B, C are so situated that, of *any* straight line cutting them all three, the portion lying upon B will be intermediate between the portions lying upon A and C.

Solution by D. Biddle.

(1) The function referred to is the sum of the three double tangents, represented by DE, FG, HK (Fig. 1), and of the three curve-segments, EF, GH, KD, extending between them so as to complete the circuit. Moreover, the same principle holds good for any figure; for *the ratio borne to the periphery of the given circle (touching two adjacent parallels) by the length of a string drawn tightly round any plane figure whatsoever (capable of lying in all positions between the parallels), is invariably the probability that such figure will be cut by a parallel*, if disposed at random on a ruled floor. Thus, to begin at the figure (if such it can be called) which has only two prominent points, namely, the finite straight line; if its length equal the distance between two adjacent parallels, the probability of its cutting a parallel is $2/\pi$, or the ratio borne to the periphery of the given circle by the length of a string passing round the extreme points of the line. For a line of shorter length the probability is proportionally less. The equilateral triangle, the square, and all regular n-gons are readily seen to follow the same rule, and in their case

$$P = 2r\,\frac{n}{\pi}\int_0^{\pi/n}\cos\phi\,.\,d\phi = 2rn\sin\frac{\pi}{n}\Big/\pi,$$

where $r \equiv$ the radius of the circumscribing circle, in proportion to the distance between parallels. [The rest in Volume.]

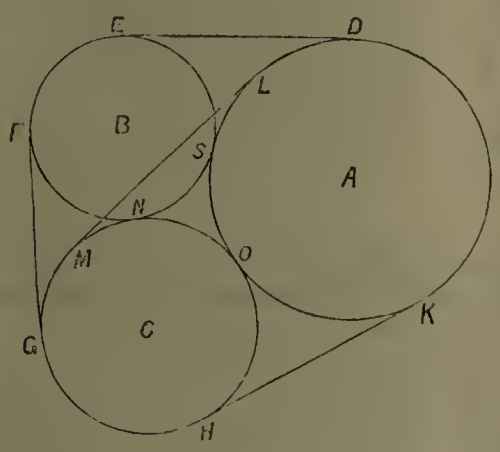


Fig. 1.

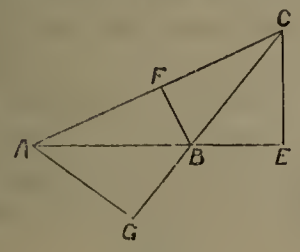


Fig. 2.

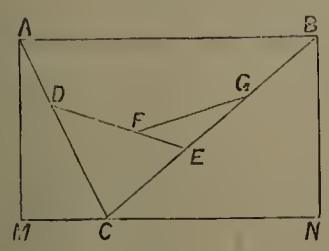


Fig. 3.

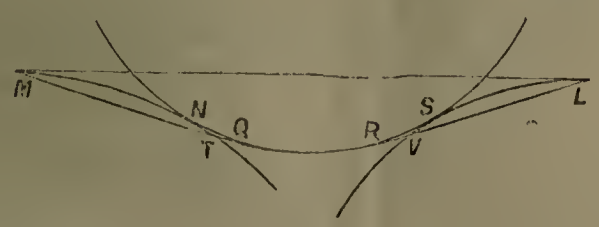


Fig. 4.

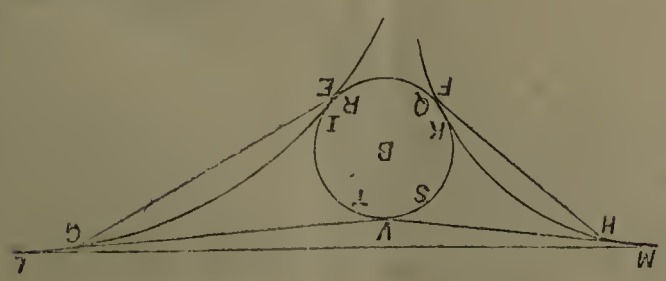


Fig. 5.

9165. (Professor Bordage.)—If a triangle having a constant angle is deformed in such a manner that, the summit of the constant angle being fixed and the opposite side passing through a fixed point, one of the two other summits describes a straight line, prove that the third summit describes *a conic*.

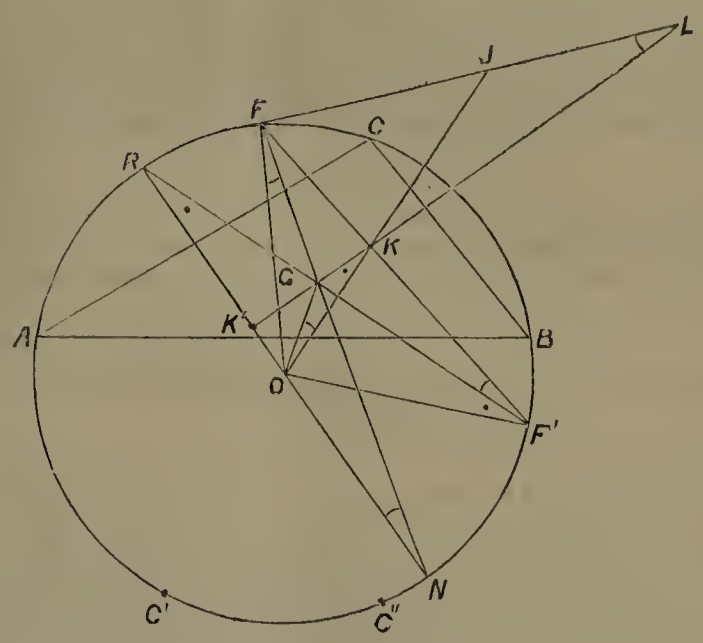
Solution by C. Taylor, D.D.

Let A be the fixed summit, B that which describes a straight line, C the third summit, D the fixed point through which BC passes. Then, by cross ratio, $A\{C\} = A\{B\} = D\{C\}$, and the locus of C is a conic through A and D.

Or, by making AB and AC successively coincide with AD, show that A and D are single points on the locus. Then, since there is one other position only of C on a line through A or D, the locus is of the second order.

[The theorem is the special case of Newton's organic description of conics and other curves used in Professor Cayley's Solution of Question 1409, Vol. I., p. 78 (1886). For another solution of Question 9165, see Vol. L., p. 107. In the general case, BDC is any constant angle turning about D.]

10036. (Professor Hudson, M.A.)—Two rough inclined planes make equal angles α with the horizon, and are separated by a short hard smooth horizontal plane: a perfectly elastic particle is projected directly up one of the inclined planes with a velocity just sufficient to carry it to a distance a, it then descends and after impact ascends the other plane: find the height to which it will rise; also the whole time of motion before it is brought to rest and the aggregate distance traversed in that time, the angle of friction being λ.



into K′ the new symmedian point, for those circles cut the circumcircle in C″, &c., the harmonic conjugate of C with respect to AB, &c.; hence the inverse corresponding chords cut the circle in the same manner with reference to the triangle A′B′C. [The rest in Volume.

10239. (E. Vigarié.)—Soient ABC un triangle et G son centre de gravité. Les droites AG, BG, CG coupent le cercle circonscrit respectivement en A′, B′, C′. Démontrer que le point de Lemoine du triangle A′B′C′ est sur le diamètre qui passe par les points de Tarry et de Steiner du triangle ABC.

Solution by W. S. McCay, M.A.

Let the circumcircle be inverted into itself, at G as origin; the three circles through G and the extremities C, C″; A, A″; B, B″ of the symmedian chords of the circle invert into the symmedian chords of the new triangle A′B′C′, and L, the intersection of the three circles, inverts

Solution by Rev. T. R. Terry, M.A.

Let v_n be the velocity with which the particle starts up the nth plane, and a_n the distance it gets up that plane; then, since the acceleration in going up is $g \sin(\alpha+\lambda) \sec\lambda$, and in coming down is $g \sin(\alpha-\lambda)\sec\lambda$, the formula $v^2 = 2fs$ gives

$$v_{n+1}^2 : v_n^2 = \sin(\alpha-\lambda) : \sin(\alpha+\lambda), \quad \therefore\ a_{n+1} : a_n = \sin(\alpha-\lambda) : \sin(\alpha+\lambda);$$

therefore the whole space traversed is

$$2a \sin(\alpha+\lambda)\left\{\sin(\alpha+\lambda)-\sin(\alpha-\lambda)\right\}^{-1} = \frac{a\sin(\alpha+\lambda)}{\cos\alpha\sin\lambda}.$$

[The rest in Volume.]

10282. (D. Biddle.)—Six balls of different colours, but otherwise indistinguishable, are placed in a bag. One is drawn, and its colour having been recorded, is replaced. The process is subsequently repeated five times, the drawer receiving a sovereign if he draw a new colour, but forfeiting a sovereign if he draw one already drawn. Prove that, if the drawer pay a sovereign to begin with each round, the bank secures on the average something less than sixpence, or about $4\frac{1}{2}d$.

Solution by A. J. Pressland, M.A.

Suppose the balls denoted by $\alpha, \beta, \gamma, \delta, \epsilon, i$, of which α is first drawn; then we have the subjoined scheme, from which it appears that the

Bank gains $\quad 1-\dfrac{7630}{7776}$ of £1 $= \dfrac{146}{7776}\times 240$ pence $= 4\frac{41}{81}d$.

[The "Scheme" will be added in Volume.]

10180. (Professor Sylvester, F.R.S.)—n round beads of equal size are arranged in a circular necklace each in contact with its neighbour on either side. i of the beads it is required shall admit of being cut by the same right line. Find the least value of n that will serve to fulfil this condition.

Solution by John J. Barniville.

Inscribe in the circle a regular n-gon. First let i be even. Draw a tangent at A_1, and on it a perpendicular $A_{\frac{1}{2}i}P$. Then, since the radius of each bead is $r\sin\pi/n$, it is required that $A_{\frac{1}{2}i}P \not> 2r\sin\pi/n$, that is,

$$\sin\frac{\pi}{n}+\sin\frac{3\pi}{n}+\sin\frac{5\pi}{n}+\ldots+\sin\frac{i-1}{n}\pi \not> 1.$$

The minimum value of n is therefore given by the equation

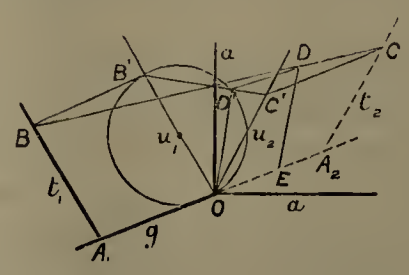
$$\sin\frac{i\pi}{2n}\sin\frac{i\pi}{n}-\sin\frac{\pi}{n}=0.$$

If i is odd, substitute $i+1$ for i.

9490. (Professor Schoute.)—Two non-intersecting lines are the directors of a congruency (1, 1). Show that the locus of the axes of the complexes of the first order passing through the congruency is a ruled surface of the third order, the double line of which is the shortest distance of the two directors, while its simple line, that is no generator, is the line at infinity common to all the planes parallel to both the directors.

Solution by the Proposer.

As the axis of a linear complex is the line perpendicular to all the rays of the complex that meet it, and the directors of a congruency (1, 1) are conjugated to one another with reference to every linear complex passing through the congruency, the question can be stated in this form:



"Given two non-intersecting lines A_1 and t_2. To find the locus of the line l, that meets orthogonally the generators of the regulus (t_1, t_2, l) determined by the three directors t_1, t_2, l." [The rest in Volume.

10164. (W. J. C. Sharp, M.A.)—Show that

$$\Delta^r(0!) \text{ or } r!\left\{1-1+\frac{1}{1.2}-\frac{1}{1.2.3}+\ldots+(-1)^r\frac{1}{r!}\right\}$$
$$=(-1)^r\left\{1-r+r(r-1)-r(r-1)(r-2)+\ldots+(-1)^r r(r-1)\ldots 3\right\}.$$

Solution by R. Knowles, B.A.; R. H. W. Whapham; *and others.*

Multiplying the left-hand term by $r!$ it becomes

$$3.4\ldots r-4.5\ldots r+\ldots+(r-1)r-r+(-1)^r,$$

and writing this in the reverse order it becomes the right-hand term.

[This question originated from a statement in Todhunter's *History of the Theory of Probability* that Lambert had shown that $A_r \equiv \Delta^r(0!)$ satisfies the equation of differences $A_r = rA_{-1}+(-1)^r$, the solution of which question gives the second form for $\Delta^r(0!)$ —. Mr. Sharp is the more disposed to draw attention to this because he believes that this function will acquire increased importance and repay study.]

9765. (Artemas Martin, LL.D.)—An urn contains 24 balls. The letter A is stamped on 8 of these balls at random, and the letter B is stamped at random on 6 of the balls. A ball is drawn from the urn at random. Find (1) the chance that the ball is not lettered, (2) the chance that it contains the letter A only, (3) the chance that it contains the letter B only, (4) the chance that it contains both letters.

Solution by J. C. St. Clair.

The chances are as follow, hereunder:—

$$(1)\quad \left(1-\frac{8}{24}\right)\left(1-\frac{6}{24}\right)=\frac{2}{3}\times\frac{3}{4}=\frac{1}{2},$$
$$(2)\quad \frac{8}{24}\times\left(1-\frac{6}{24}\right)=\frac{1}{3}\times\frac{3}{4}=\frac{1}{4},$$
$$(3)\quad \frac{6}{24}\times\left(1-\frac{8}{24}\right)=\frac{1}{4}\times\frac{2}{3}=\frac{1}{6},$$
$$(4)\quad \frac{8}{24}\times\frac{6}{24}=\frac{1}{3}\times\frac{1}{4}=\frac{1}{12}.$$

10136. (C. A. Swift, B.A.)—Prove that the expansion of tan tan tan ... tan x, the tangent being taken n times, is

$$x+2n\frac{x^3}{3!}+4n(5n-1)\frac{x^5}{5!}+\frac{8n}{3}(175n^2-84n+11)\frac{x^7}{7!}+\ldots$$

Solution by Rev. T. R. Terry, M.A.

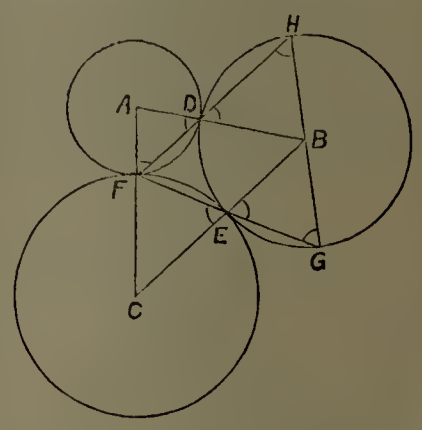
Let $f(n)$ be the required expansion; then, since

$$\tan^{-1}x = x-\frac{x^3}{3}+\frac{x^5}{5}-\frac{x^7}{7}+\ldots,$$

we may clearly put $f(n) = x+a_n\dfrac{x^3}{3!}+b_n\dfrac{x^5}{5!}+c_n\dfrac{x^7}{7!}$,

[The rest in Volume.]

9843. (Professor Mayon.)—Soient A, B, C trois circonférences deux à deux tangentes aux points D, E, F; les droites FD, FE rencontrent B en des points H, G; démontrer que PQ passe par le centre de B, et qu'elle est parallèle à la ligne des centres des circonférences A et B.



Solution by A. B. Evans; Prof. Sarkar; *and others.*

Join CEB, ADB and HB, BG

$\angle$ AFD = DDF = HDB = DHB,

therefore HB is parallel to AC,

$\angle$ CFE = FEC = BEG = EBG,

therefore BG is parallel to AC, therefore HG passes through B and is parallel to AC.

10110. (Professor Bhattacharya.)—Show that the value of $\int dS/P$ for all the points of the surface of the ellipsoid represented by the equation $x^2/a^2+y^2/b^2+z^2/c^2=1$ is $\frac{4}{3}\pi(b^2c^2+c^2a^2+a^2b^2)/abc$.

Solution by D. Edwardes, B.A.; Rev. J. L. Kitchin, M.A.; *and others.*

$$\iint\frac{dV}{dn}dS=\iiint\left(\frac{d^2V}{dx^2}+\frac{d^2V}{dy^2}+\frac{d^2V}{dz^2}\right)dx\,dy\,dz.$$

Let $V=\frac{1}{2}\left(\dfrac{x^2}{a^2}+\dfrac{y^2}{b^2}+\dfrac{z^2}{c^2}\right)$; then

$$\frac{dV}{dn}=\frac{dV}{dx}\frac{dx}{dn}+\&c.=p\left(\frac{x^2}{a^4}+\frac{y^2}{b^4}+\frac{z^2}{c^4}\right)=\frac{1}{p};$$

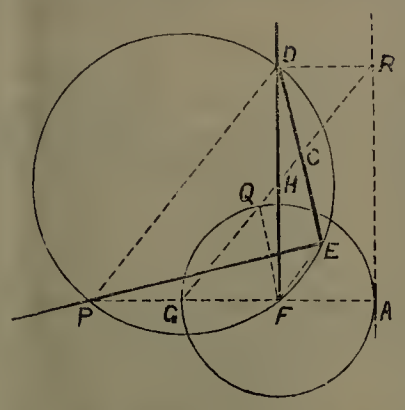
therefore
$$\iint\frac{dS}{p}=\iiint\left(\frac{1}{a^2}+\frac{1}{b^2}+\frac{1}{c^2}\right)dx\,dy\,dz$$
$$=\left(\frac{1}{a^2}+\frac{1}{b^2}+\frac{1}{c^2}\right)\frac{\phi}{3}\pi abc=\text{result}.$$

10051. (B. F. Finkel, B.Sc.)—Give Newton's mechanical method of describing the cissoid, with complete demonstration.

Solution by E. M. Langley, M.A.

Newton, in his "Arithmetica Universalis," says,—"The Ancients taught how to find two mean proportionals by the *cissoid;* but nobody that I know of hath given a good manual description of this curve. Let AG be the diameter and F the centre of a circle to which the *cissoid* belongs. At the point F let the perpendicular FD be erected and produced *in infinitum*, and let FG be produced to P so that FP may be equal to the diameter of the circle. Let the rectangular ruler PED be moved so that the leg EP may always pass through the point P and the other leg ED must be

always equal to the diameter AG or FP with its end D always moving in the line FD; and the middle point C of this leg will describe the cissoid." (Wilder's edition.)



Because DP, PF = DP, DE; therefore right-angled triangles PFD, PED are congruent; therefore EF is parallel to PD, and PF, ED equally inclined to PD; therefore GC is parallel to PD and EF. Let it meet FD in H, the tangent at A in R, and the parallel to ED through F in Q.

Then FQ = EC = FG; therefore Q lies on the circle. Also, because CD is equal and parallel to FQ, therefore HC = HQ; but HR = HG, therefore CR = QG; therefore C lies on a cissoid with the circle AQG for generating circle. [See Gregory's *Exs. in Diff. Calc.*, p. 130 (18461)].

9986. (Professor Déprez.)—Soit β l'angle compris entre la médiane et la symédiane issues du sommet B d'un triangle ABC, rectangle en A; soit γ l'angle compris entre la médiane et la symédiane partant de C. Démontrer la relation $\cot\beta\cot\gamma - 1 = 12\,(a/h)^2$, h étant la hauteur menée par A.

Solution by Professors Bhattacharya, Beyens; *and others.*

The equations to the medians and symmedians from B and C are

$$ax - cz = 0,\quad cx - az = 0,\quad ax - by = 0,\quad bx - ay = 0 \ldots\ldots (1, 2, 3, 4);$$

from (1), (2), we get $\cot\beta = c\,(3a^2 + c^2)/b\,(c^2 - a^2)$,

and from (3), (4), $\cot\gamma = b\,(3a^2 + b^2)/c\,(b^2 - a^2)$;

whence $\cot\beta\,.\cot\gamma - 1 = 12\,(b^2 + c^2)^2/b^2c^2 = 12\,(a/h)^2$,

since $h = bc/a$, and $a^2 = b^2 + c^2$.

QUESTIONS FOR SOLUTION.

10295. (Professor Sylvester.)—If U is lineo-linear Quantic in

$$x_1x_2\ldots x_n;\ y_1y_2\ldots y_n \text{ and } \Sigma\left(\frac{dU}{dx}\right)^2 [i = 1, 2, 3, \ldots n]$$

is reducible by an orthogonal substitution operated upon the x's to the form $\Sigma A_i X_i^2$ prove that by *two* orthogonal substitutions operated independently upon the x's and the y's U is reducible to the form $\Sigma\sqrt{A_iX_iY_i}$, and show that $A_1, A_2, \ldots A_n$ are all positive quantities.

—296. (Professor Crofton, F.R.S.)—Prove that (1) the number of ways (N) in which n things can be distributed among $x + r$ persons, in such a manner that *a particular set* of r persons must each receive something, is $N = \Delta^r x^n$; and hence (2) the number of ways in which n things can be distributed to r persons, each receiving something, is $N = \Delta^r 0^n$. [If $n > r$, $N = 0$; if $n = r$, $N = n!$]

—297. (Professor Ramaswami Aiyar, M.A.)—Four straight lines form four triangles with given circumcentres. Show that the line of collinearity of the orthocentres touches a fixed circle.

—298. (Professor Wolstenholme, M.A., Sc.D.)—An equilateral triangle is drawn circumscribing a given parabola $y^2 = 4ax$; prove that the envelope of its circumscribed circle is a hyperbola $3\,(x + a)^2 - y^2 = 12a^2$ similar to the hyperbola which is the locus of the angular points of the triangle. Of course the envelope of the inscribed circle is the similar hyperbola $3\,(x + a)^2 - y^2 = 3a^2$. [The locus of the angular points is well-known to be the hyperbola $(3x + 5a)^2 - 3y^2 = 16a^2$.]

—299. (Professor Neuberg.)—On projette une figure F_α, contenue dans le plan α, sur un second plan β; soit F_β la projection. On projette, ensuite, F_β sur un plan γ faisant avec β le même angle que le plan α, les traces de α et γ sur β étant perpendiculaires. Démontrer que F_γ est semblable à F_γ.

—312. (Professor Décamps.)—Par un point P pris sur le prolongement du diamètre BA d'un cercle C, on mène une sécante quelconque PMM'; on joint le centre C aux milieux N, N' des arcs AM, AM'; les droites CN, CN' rencontrent en D et D' la perpendiculaire menée au diamètre AB par le point P. Prouver que le produit PD, PD' est constant, quelle que soit la position de la sécante.

—313. (Professor de Longchamps.)—Soient A un point quelconque pris dans le plan d'une ellipse E; B, C les points de contact des tangentes issues de A. (1) Démontrer que l'orthocentre du triangle ABC et le point A sont conjugués harmoniques par rapport au cercle de Monge (cercle circonscrit au rectangle des axes). Examiner le cas particulier où le point A est situé sur E, et démontrer le théorème suivant:—La normale en un point A d'une ellipse E rencontrant le cercle de Monge aux points P et Q, le centre de courbure correspondant est le symétrique, par rapport à A, du conjugué harmonique de ce point, relativement au segment PQ.

10314. (Professor Morley.)—Equilateral triangles have corners on given lines; prove that the centre-locus is two parallel lines, coincident when lines concurrent.

—315. (Professor Cesàro.)—Démontrer l'identité

$$1 - C^2_{2n,1} + C^2_{2n,2} + C^2_{2n,3} + \ldots + 1 = (-1)^n\, C_{2n,n}.$$

—316. (Prof. W. S. McCay, M.A.)—Let P, Q be the feet of perpendiculars from the incentre of a triangle on the perpendicular bisector of the base, and from the circumcentre on the bisector of the vertical angle; prove that PQ passes through the incentre of the triangle formed by the middle points of the sides of the given triangle.

—317. (Prof. Lemoine.)—Appelons faisceau direct et faisceau rétrograde de Brocard les deux groupes de trois lignes $(A\omega, B\omega, C\omega)$, $(A\omega', B\omega', C\omega')$, ω étant le point direct de Brocard ($\angle\,\omega AC = \angle\,\omega BA = \angle\,\omega CB$; coordonnées normales $b : c$, $c : a$, $a : b$), ω' le point rétrograde. Faisons tourner le faisceau direct dans le sens ACB d'un angle λ autour de ω, et le faisceau rétrograde dans le sens ABC du même angle λ autour de ω'. Alors ωA, ωB, ωC, $\omega' A$ vient couper BC, CA, AB respectivement en $(\omega_{aa}, \omega_{ab}, \omega_{ac})$, $(\omega_{ba}, \omega_{bb}, \omega_{bc})$, $(\omega_{ca}, \omega_{cb}, \omega_{cc})$; $(\omega'_{aa}, \omega'_{ab}, \omega'_{ac})$ et $\omega_{ab}, \omega'_{cb}, \omega_{ca}, \omega'_{ba}, \omega_{bc}, \omega'_{ac}$ sont sur un cercle de Tucker. Démontrer que (1) $\omega_{aa}, \omega'_{aa}, \omega_{bb}, \omega'_{bb}, \omega_{cc}, \omega'_{cc}$ sont sur une conique; (2) les droites $\omega_{ac}\,\omega'_{ab}$, $\omega_{cb}\,\omega'_{ca}$, $\omega_{ba}\,\omega'_{bc}$ sont respectivement parallèles à BC, AB, CA; (3) si ω_λ est le centre d'homothétie de ABC et du triangle formé par les droites du (2), les coordonnées normales de ω_λ sont $(\cot\lambda - \cot A)/a\,[\cot\lambda - \cot(A - \omega)]$, &c.; et (4) trouver le lieu de ω_λ.

—318. (Prof. Guichard.)—Etant donné un triangle ABC, détermine dans son plan un point P tel qu'en menant la sécante PA'B' qui coupe AC en A' et BC en B', le point d'intersection M de AB', A'B décrive un cercle quand la sécante tourne autour du point P.

—319. (Professor Ramaswami Aiyar.)—The density at any point of an arc of a logarithmic spiral varies inversely as the distance of the point from the pole. Determine the centroid of the arc geometrically.

—320. (The Editor.)—Solve the equations

$$a\,(x - y + z)^{\frac{1}{2}}\,(x + y - z)^{\frac{1}{2}} = xy^{\frac{1}{2}}\,z^{\frac{1}{2}},$$

$$b\,(x + y - z)^{\frac{1}{2}}\,(-x + y + z)^{\frac{1}{2}} = yx^{\frac{1}{2}}\,z^{\frac{1}{2}},$$

$$c\,(-x + y + z)^{\frac{1}{2}}\,(x - y + z)^{\frac{1}{2}} = zx^{\frac{1}{2}}\,y^{\frac{1}{2}}.$$

—321. (Professor Cesàro.)—Ayant posé

$$u_p = \frac{\sin 2n\,x\,.\,\sin(2n-1)\,x \ldots \sin(2n-p+1)\,x}{\sin x\,.\,\sin 2x\,.\,\sin 3x \ldots \sin px},$$

on a $v_1 - v_2 + v_3 - v_4 + \ldots = -1\,.\,9\,.\,25 \ldots (2n-1)^2$ si v_p est le coefficient de x^{2n} dans le développement de u_p.

—322. (R. Tucker, M.A.)—The projections (α, β, γ) of the centroid (G) of a triangle ABC form a triangle, which is similar to ABC; find the modulus of similitude. If the mid-points (L, M, N) of the sides of ABC are joined to the mid-points (λ, μ, ν) of the sides of $\alpha\beta\gamma$, prove that they cointersect in the N. P. centre of ABC, and if λ_1, μ_1, ν_1 are the feet of the altitudes of $\alpha\beta\gamma$, prove that $A\lambda_1$, $B\mu_1$, $C\nu_1$ cointersect in the inverse of the aforesaid N. P. centre.

—323. (A. W. Panton, M.A.)—If the general equation of a circular cubic be written in the form

$$(x\cos\alpha + y\sin\alpha)(x^2 + y^2) + ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0,$$

prove that the coordinates of the double focus are

$$\tfrac{1}{2}\,(b - a)\cos\alpha - h\sin\alpha,\quad \tfrac{1}{2}\,(a - b)\sin\alpha - h\cos\alpha.$$

(a) If the double focus of a nodal circular cubic be situated on the curve, the tangents at the node are rectangular.

—324. (R. H. W. Whapham, B.A.)—If a parabola be drawn having contact of the third order with a rectangular hyperbola, the axis of the parabola is parallel to the line joining the point of contact to the centre of the hyperbola.

—325. (D. T. Griffiths.)—O is the circumcentre of the triangle ABC, and P a variable point in AB (or in AB produced). The circle on OP as diameter meets AC in D, and PD is produced to E, so that PD = DE. Find the locus of intersection of BD, CE.

—326. (Rev. T. R. Terry, M.A., F.R.A.S.)—A hemispherical shell, whose radius is equal to the mean radius of the earth, and whose thickness is one centimetre, is constructed of matter whose density is equal to the mean density of the earth. A particle starts from rest at the centre of the shell under the action of the attraction of the shell. Express as the decimal of a year the time it takes the particle to reach the surface of the shell, and find the velocity (in centimetres per second) of the particle just before it reaches the shell.

—327. (E. M. Langley, M.A.)—Deduce geometrically the existence of the symmedian point from that of the Brocard-points.

—328. (R. W. D. Christie.)—Euler has demonstrated that $2^m\,(4N + 1)$ where $4N + 1$ is a prime may be resolved into two integral squares. Extend the theorem to show that $(r^2 + 1)^m\,(4N + 1)$ = two integral squares.

—329. (H. L. Orchard, M.A., B.Sc.)—Solve, by a quadratic method,

$$x^8 + (x^2 - x)^4 + (x^2 - 2x)^4 + (x^2 - 3x + 2)^4 + 9\,(x - 1)^4 + 7\,(x - 2)^4 + 16x^4 + 63 = 0.$$

10330. (J. J. Barniville.)—A and G are opposite angles of a cube, ABCD and EFGH being opposite faces; EG is bisected in K, CD in P, GH in O, EF in L, BF in M, EG in I, EO in S, OP in T; EF is trisected in Q and BF in R. A sphere with centre A and radius AE meets AC in T, AK in U, AG in V, AI in W, AP in X, AJ in Y, AO in Z, AS in Π, AR in Ω, AM in Δ, AF in Σ, AL in Φ, AQ in Λ. Denoting by Ew, wT, Ew, wU, Ew, wV the segments of ET, EV made by AW, &c.; prove that (1) $TV = UW = EW$, $E\Lambda = \Phi\Sigma$; (2) $Ev = 3vU$, $2Ew^2 = wT^2$, $Eu^2 = \delta uT^2$, $Ew^2 = 3wV^2$, $Ev^2 = 2vT^2$, $Tv^2 = 3vW^2$, $3Vu^2 = 2uT^2$, $Wu^2 = 3uT^2$; (3) $AZ = 2ZO$, $2E\pi = 3\pi Z$, $16E\pi^2 = 5\pi X^2$, $4Ez^2 = 5zX^2$, $Ey^2 = 5yX^2$; (4) $9E\phi^2 = 5\phi\Delta^2$, $E\phi^2 = 2\phi\Sigma^2$, $32E\lambda^2 = 5\lambda\Omega^2$, $2E\lambda^2 = \lambda\Sigma^2$, $2E\sigma^2 = 5\sigma\Omega^2$, $E\lambda^2 = 5\lambda\Phi^2$, $\Lambda\sigma^2 = 2\sigma\Delta^2$, $E\delta^2 = 40\delta\Omega^2$, $18\Lambda\phi^2 = \phi\Delta^2$, $5\Lambda\phi^2 = \phi\Sigma^2$, $E\sigma^2 = 5\sigma\Delta^2$, $5E\phi^2 = 2\phi\Omega^2$; (5) $10Ew = 15wv = 12vK$, $33E\lambda = 88\lambda\phi = 40\phi\sigma = 35\sigma\delta = 63\delta R$, $14E\lambda = 35\lambda\phi = 15\phi\sigma = 12\sigma M$.

—331. (D. Biddle.)—A rectangle of given dimensions is divided by a random straight line. Find the average ratio which the smaller portion bears to the larger.

—332. (R. Knowles, B.A.)—Prove that (1) the trilinear coordinates of the centroid of the pedal triangle are proportional to

$$a^2\cos(B-C),\quad b^2\cos(A-C),\quad c^2\cos(A-B);$$

and thence (2) that $a^3\cos(B-C)+b^3\cos(A-C)+c^3\cos(A-B)$

$$= a(b^2+c^2)\cos A + b(a^2+c^2)\cos B + c(a^2+b^2)\cos C.$$

—333. (W. J. Greenstreet, M.A.)—AC, BD are fixed diameters at right angles to each other, and P any point on the circumference of the circle ABCD. PA cuts BD in E; $E\phi$ parallel to AC cuts PB in ϕ. Show locus of ϕ is a straight line.

—334. (F. R. J. Hervey.)—A pack of $N = mn$ cards is dealt into n packs, which are collected in the order of dealing, placing the 1st on the 2nd, these on the 3rd, and so on; and the process repeated with the same or different values of n. Show that (1) deals with different values of n are convertible in order; and hence (2) the cycles in which the cards are interchanged by any deal are independent of preceding deals. [For instance, 36 cards, in 4 similarly numbered suits, may be so arranged that, being dealt sometimes into 4, sometimes into 6, the first never disarranges the order of suits, nor the second the order of pips.] (3) Give the conditions which admit of any card being brought to a given place; and (4), this being possible, show, in the most general case, how to assign numbers p, q ... whose product $= N$, so that it may not be necessary to use more than $p-1$ deals of one sort, $q-1$ of another, and so on.

—335. (E. Vigarié.)—Soient ABC un triangle et G son centre de gravité. Les droites AG, BG, CG coupent le cercle circonscrit respectivement en A′, B′, C′. Démontrer que le point de Lemoine du triangle A′B′C′ est sur le diamètre qui passe par les points de Tarry et de Steiner.

—336. (Maurice d'Ocagne.)—Les perpendiculaires élevées par le sommet C et par le milieu M du côté BC, à ce côté, coupent le côté AB respectivement en D et en P. La perpendiculaire élevée en C à CP coupe PM en Q. Démontrer que la droite DQ et la perpendiculaire élevée en C, à CA, se coupent sur la symédiane issue de A du triangle ABC.

—337. (H. W. Segar.)—A fixed point P is taken on the auxiliary circle of a rectangular hyperbola, and Q, R are the ends of any diameter of the conic. O is the centre of the circle PQR; O has a certain locus. Find, whatever be the position of P, the equations to the tangents at the centre of the conic to these loci.

—338. (C. Bickerdike.—If the density at any point of a triangular lamina varies as the product of the perpendiculars on the sides, prove that the mean density is $\frac{9}{20}$ of the density at the centre of inertia of the area of the triangle.

—339. (L. Bénézech.)—On donne deux cercles O, O′ et un point P. On mène deux rayons parallèles OA, O′A′; sur PA, PA′ comme côtés on construit un parallélogramme. Pour quelle position des rayons parallèles la diagonale issue de P est-elle égale à la somme des rayons des cercles O, O′?

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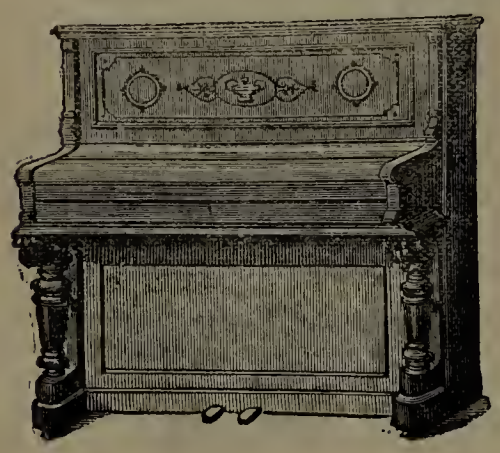

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For Advertisements, see pages 448, 449, 466, 468, 469.

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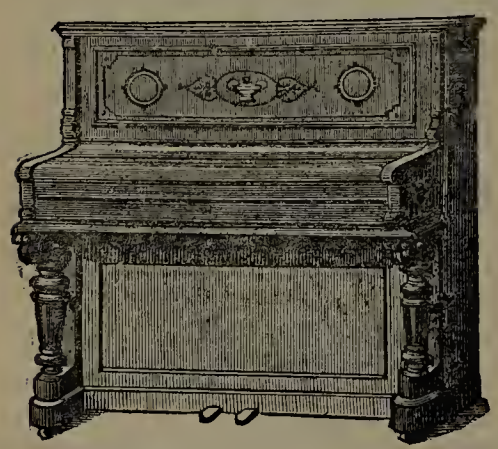

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The Educational Times.

COLLEGE OF PRECEPTORS.

EVENING MEETING, OCTOBER 16TH, 1889.

The Chair having been taken by H. W. Eve, Esq., G. ARMITAGE SMITH, Esq., M.A., read the following Paper:—

THE TEACHING OF ECONOMIC SCIENCE IN SCHOOLS.

THE subject of this paper has been suggested to me by noticing in the examinations of this College, and in other similar examinations, the very limited extent to which Economic Science is taught in middle-class schools, in comparison with other topics. Economics would seem to need some justification to teachers. I have therefore thought it might be profitable to bring the subject before the members of this College in order to elicit opinions, and perhaps gather the objections which may exist. I have put together, briefly, a few thoughts which seem to me to indicate the importance of Economics as a branch of secondary education; I will also attempt to anticipate a few of the possible objections. I do not propose to deal with the point as to how far exactly Economics shall compete with the other numerous branches of study in a crowded curriculum—doubtless a sufficiently perplexing question for teachers—I would rather confine the discussion to the prior question of the importance and suitability of the subject for fuller recognition as a branch of instruction during that period in which boys and girls are receiving that preparation which is to fit them for commencing the battle of life.

I would like to introduce the subject by illustrating the extent to which economic matters enter into this struggle, and to do so I turn over the pages of a daily newspaper, the contents of which may be regarded as a fair index of what is occupying the public mind; I find as one day's record the following, every one of which is at the root an economic problem:—A report of the discussion at the British Association of several economic papers; half a column devoted to the Bimetallic Conference at Paris; mention of a Congress which is to discuss the subject of Employers' Liability; references to the recent Trades Union Congress; two pages devoted to the Strike at the East End, and its consequences; a paragraph on German State Insurance for workmen; notice of a meeting of the Associated Chambers of Commerce; numerous small paragraphs and letters on the Factory Acts, the sweating system, the amount of pauperism, competition of German clerks in England, &c. Add to these the City news and Money Market article, containing a special account of a great Cotton Corner and also of the Harvest, a column of advertisement of a Bread Syndicate, and a paragraph devoted to a threatened Bakers' Strike. I think, after this catalogue, no newspaper reader can well deny the interest and importance of Economic Science, the sole aim of which is to enable mankind to form a sound judgment on these and similar serious and inevitable questions by supplying the elementary principles which underlie them, without a knowledge of which there can be no right interpretation of these complex facts or solution of the problems they offer. Now the chief aim of school life, of education generally, is to train and fit youth for a life of usefulness. This is done by cultivating the intelligence and forming habits of thought and conduct, so that the youth shall be prepared to understand the facts by which he is surrounded, and to deal with the problems which he encounters in the manner most to the interests of the society of which he forms a part. It is a peculiar merit of Economics that, while it is concerned with some of the most interesting problems which will enter into the daily life of every one, it tends to form the habit of accurate thought, by tracing familiar events to their more or less obscure causes. It especially trains the mind to observe and calculate the whole of the consequences of conduct. It teaches emphatically, and as no other study does, the importance of indirect results. It shows that remote and neglected consequences have often a greater and more enduring influence than the near and obvious, and that we may purchase a temporary advantage at the cost of a permanent loss.

The practical side of education has received emphasis in recent years in several directions previously neglected. Domestic Economy and the Laws of Health are examples of this tendency. It was found that much waste and suffering could be avoided by instruction in some of the elementary principles of economy in household management, and there can be no doubt that a reform in modes of expenditure will be attended by an addition in comfort. It is quite as important to know how to consume as how to produce.

Now sickness and health are treated as matters, to some extent, under human control; formerly plagues were regarded as visitations of God. Principles of health, laws of sanitation, the importance of pure air and water, are inculcated indirectly by lessons in science, or directly by specific teaching. Physical exercise and the development of the body receive their due amount of attention at our public schools. This is all well. Elementary truths on matters affecting our life and health cannot be instilled too early; some principles, to be of use, should be acquired early, so as to become part of our life: they are absorbed into our intellectual being, and we follow them almost unconsciously. Habits and thoughts become stereotyped, especially as regards familiar matters. When manhood is reached, we are all largely the creatures of habit, and people then receive with credulity, and perhaps impatience, suggestions that their modes of thought and action in matters of daily occurrence are faulty, and possibly injurious to themselves or others. Any one who has attempted to effect a reform in ventilation, or sanitation, among those who have paid no heed to such matters, will be able to endorse these remarks.

Let us apply the illustration to Economics, the science which is concerned with all the facts and conditions of material well-being. No facts are more familiar; concerning none are more fallacies prevalent. The principles are not widely taught in youth, only a small percentage of the full-grown feel the necessity for making a special study of them. Yet earning and spending form a large part of the business of life. The very structure of society creates economic relations; we all form parts of an organism: exchange, dependence, co-operation, are natural results.

Very soon every one becomes acquainted with wages, rent, taxes, profits, money, credit; all are concerned in buying or selling something, either goods or services: for all require food, clothing, houses, tools, &c. Yet the principles which explain the nature and govern the amount of these various economic quantities are very little studied or understood by the multitude. The subjects are talked about, they fill the newspapers as we have seen, but there is little systematic inquiry into the laws which operate here as in every other department of nature: to many persons it has never occurred that any serious study is requisite; they seem to think that knowledge of these things is a matter of course, and rather resent the notion of instruction from an outsider, whom they call a theorist, while they hold themselves, as practical people, to be fully informed. Whence arises the fallacy? It is a result of the extreme frequency and familiarity of the phenomena; we cannot get away from them, since they are the facts of our existence; the consequence is that every one is an economist, whether he admits it or not, for every one has opinions on these subjects, though many would be unable to give any other account of their opinions than that "they have always thought so." Views based on no deeper reasoning than

this are generally false, and will in practice be hurtful and misleading. There is no intuitive faculty which confers economic knowledge. No one claims to explain physical facts without the diligent aid of scientific method. Still less is it possible in the case of more complex economic problems, which include both mental and physical elements. The appeal to "common-sense" as adequate to explain all such matters is, in fact, generally an appeal to ignorance. There is no great stock of economic knowledge with which every one is endowed by nature or circumstances, to the exclusion of inquiry into the facts and causes. "Common-sense" for ages left people in ignorance of the commonest principles of health, and social health is not a less difficult problem than physical health. Sound Economics must be acquired, like other knowledge, by study; and if it is to exclude error and prejudice it must be commenced early, or there will be very great probability that it will never be acquired at all.

Whether we like it or not, economic questions are forced upon us by the primary wants of our nature. Much as we may prefer to dwell upon literature, art, and other refined and elevating studies, we must first satisfy our physical wants, and the science which makes the easy satisfaction of these its aim cannot be worthless or ignoble. All other pursuits presuppose the opportunity and means to carry them on. Literature demands books and leisure. Art, in any of its forms, implies even in a fuller degree a surplus of wealth, time, and energy. Physical science is mainly utilitarian; it seeks to effect economies in labour, and to augment the wealth and conveniences of mankind; it is an ally of Economics, its sole aim in practice is to satisfy economic wants.

Since, then, we cannot by any means escape economic facts, the only question is whether we shall make a systematic study of the causes and conditions of wealth, so as to find out laws, principles of guidance, as in other branches of science, or whether we shall take our beliefs from our own rough-and-ready generalizations of everyday experience, gained within very narrow limits, and with no attempt at scientific investigation or verification. In all other fields the empirical method has been found to be unreliable; we are, therefore, not warranted in adopting it as a satisfactory road to truth in the case of facts so difficult to interpret as the intricate procedure and relations of a complex society seeking to satisfy its wants in the most efficient manner. We cannot rest satisfied with the guesses which pass for explanations to those familiar only with some of the facts of wealth. Everywhere in nature there is law, order, uniformity; laws when established form science, and are the basis of conduct; so in the facts called economic because they relate to wealth, there must be principles which explain the facts, and which, when rightly understood, will serve to direct future conduct.

If we allow, then, that opinions on economic questions are inevitable, that owing to the complexity of the subject-matter correct judgment can only be formed with the guidance of scientific method, that the errors are likely to be obscured on account of the familiarity of the subject-matter, that their consequences to society are serious, it follows that the first principles should be inculcated, and habits of correct thinking on such topics should be commenced as soon as the minds of scholars are suited for their reception. To cultivate the intelligence, to train the thinking powers, to make young people take a rational interest in what surrounds them, is to form good and capable citizens with larger ideas of life, men and women who will discern their influence upon and duty towards the society of which they form a part. Interest depends largely upon understanding; many persons, for lack of it, pass through life with no idea of their relations to the rest of mankind, their mental horizon is very limited, their notions restricted, their views selfish. Economic study helps to a wider and loftier ideal, and to the conception of more general aims and interests; it shows our mutual relations and common interests—how, as members of one family, we must be affected by the conditions and conduct of the rest. One of the greatest objections to our large system of industry, consequent on the use of machinery and the subdivision of tasks, is the want of interest some workers display in the manufacture as a whole; a tendency to dulness and monotony arises by limiting the labourer to one mechanical subsidiary operation. A better education, especially if technical, and bearing upon his trade, has been proved to counteract this evil; the intelligence is then awakened, the worker understands the relation of his task to the ultimate object, and as he grows more enlightened and interested his work is more valuable, and his power to adapt himself to any alterations in the modes of production becomes greater. He is more of a man and less of a machine. Just so, if a youth be started in the world understanding the general conditions of the efficiency of labour, able to trace the tendencies of conduct to benefit mankind or to limit in any way the general welfare, with a clear grasp of the economic conditions which regulate production and distribute the results, with some knowledge of the laws of value, the theory of exchanges, and the principles of taxation—thus equipped, and not ignoring other branches of education, the youth will probably develop into a useful and intelligent member of society. In all the duties he may be called upon to perform, whether as workman or employer, clerk or merchant, co-operator or trades unionist, as vestryman, County Councillor, or legislator—in his public and in his private capacity—in his expenditure and in his mode of life he will have become a more valuable unit in society, for the simple reason that in all his actions he will be guided by scientific principles, the utility and validity of which he will be constantly testing and verifying; without such principles his judgment must inevitably be determined by the appeal to a limited experience, or by the popular sentiment which may chance to prevail at the time. Of equal importance is such knowledge to girls, who will become the wives and mothers of the future; their influence on the thoughts and conduct of their husbands and children cannot be sufficiently considered; while a large part of their own life, in any capacity, is directly and seriously concerned with economic procedure. I think I shall faithfully interpret the conception of duty which dominates the work of earnest teachers if I say that it goes far beyond the necessary task of passing examinees, and consists in the formation of good citizens—of useful members of society; and I have tried to show that this includes a fitness to deal with economic facts, since they are of the essence of society, and pertain to the fundamental basis and structure of society. Now very many parents have had little instruction in Economics, for the subject has never been widely taught in schools, and only a limited number ever find time or inclination for the study of its principles in the rush and worry of business; the most part, therefore, are unable for some reason to give such instruction systematically to their children; the duty, if it is performed at all, must, like other branches of education, be handed over to the teacher.

I would advocate the teaching of elementary Economics to all the older boys and girls (say above fifteen) in middle-class schools. It may possibly be objected that the study has a political tendency, and is better adapted to a later age; or that it is dull, uninteresting, would not secure attention, and would be, so to speak, over the heads of boys and girls.

The former objection has been partly met already by shewing that the subject is social, not political, and also that the danger of postponement is that it may never be studied at all.

The title of Political Economy is partly responsible for this objection; it is probably misleading, and has created some prejudice against the study, which has certainly nothing to do with party politics, nor indeed with government at all, except in matters relating to wealth; the inquiries of Economics then provide data for politicians which they can and must recognize in their reasonings if their legislation is to be beneficial. But, as a youth does not necessarily become an engine-driver because he has learned the principles on which the steam-engine is constructed, neither does he become an active politician because he knows certain principles which a politician ought to know. He is enlightened in each case, his intelligence is increased, and he may find other means of applying both his knowledge of steam and that of economics. As I have shown, he cannot fail to find problems for the latter, in whatever field his labours may be directed. One result of the study, carried on as an inquiry into causes—a search for truth—is that it will remove prejudice and bias, and keep the mind open to the reasonable discussion of all plans for social advancement, no matter from what quarter they may arise. Incidentally, such questions will be raised in the higher classes in schools. I cannot conceive even how general politics can be, or need be, excluded from the study of History; a wise teacher can impart knowledge on political theories and the science of government without forming prejudices, he can cultivate an impartial attitude and infuse a spirit of candour and fairness by his treatment of political history. However, I am not concerned to justify politics in schools, but to show that economic study in no sense fosters the spirit of party politics; it is a misconception of its province, due in part to the choice of a title which really means that it is the welfare of the State—the people as a whole—that is the subject of its inquiries.

As to the second objection: my experience is that the subject is very attractive to young students: it secures their interest at once if taught with intelligence, their minds expand with its study, they gain a clue to the solution of many problems which had perplexed them. They learn to take a wider view of consequences, and not to rush to hasty conclusions, but to look all round. Let them, for example, trace out the effects of a new tax on all the producers and consumers involved, or of a rise in the price of some commodity, like coal or bread,—to household consumers in reducing their buying power over other things, to manufactures in raising the price, and possibly reducing the demand, thereby affecting the wages of the labourers in that industry—the diminution of exports, and consequent equivalent reduction in imports—the effect on shipping, warehousing, employment of dock labourers, and the multitude of interests indirectly affected; apart from the special economic knowledge obtained, such an inquiry is an education in method which leaves its impress in a quickened intelligence, while the economic examination of one such problem puts it in a light which carries the explanation of many others which will arise.

In no sense can Economics be considered dull or dismal. Poverty is unquestionably a dismal fact, but economists do not make poverty, they seek to cure it. Sickness is a sad fact, but the study of medicine is not therefore shunned, nor are laws of health deemed worthless. Economists do not succeed in abolishing misery, neither do physicians secure perfect health; both, however, do something to alleviate and reduce misery, and both alike proceed by an investigation into causes. Reading-books like those on Social and Political Economy, published by the National Society, are entertaining even to young children, while they also instil sound principles. Lessons from such books as Jevons' Primer of Political Economy, and the small works of Marshall, Symes, or Mrs. Fawcett, can be made most instructive and enjoyable. The subject admits of such wide illustration—it is, in fact, the principle of object lessons applied in a higher sphere, and on a more advanced scale. The economic world is full of object lessons: as we have seen, the newspapers teem with them; but we need not go to newspapers—every object is a form of wealth or waste; consumption is always going on around us, productively (that is, usefully) or otherwise; production is being carried on in many forms; breakage illustrates loss and the fallacy of "good for trade;" a pencil, an inkstand, a book, serve to show co-operation and the advantages of division of labour; the purchase of any small article, or the contents of one's purse is a text for the explanation of the functions of money, and the errors which once prevailed about money: common things and events are filled with a new interest by being put in the economic light,—it is like the cultivation of a new faculty, or the gift of a new sense, when we can see and understand things in a manner that previously escaped us altogether.

Again, boys and girls know something of what is going on in the world, and, like their seniors, are daily forming opinions from contact. They have abundant opportunities of learning the existence of economic questions; strikes and trade unions are familiar terms. Without any systematic explanation they become partisans of one side or the other in a great dispute. They know nothing of deep-seated causes and far-reaching consequences; under the influence of feeling they imbibe views which crystallize and prevent a more judicial inquiry in after years. A very little economic teaching will tend to infuse a fairer judgment, to show the difficulties of the problem, and keep the mind from rushing impetuously to one extreme or the other; while it will foster inquiry, and direct their minds towards the right solution, when a riper judgment has been attained. At the present time, in speeches, in papers, in pamphlets, and in novels, social theories are advanced which postulate a complete subversion of existing things. Thousands in this way imbibe views which are never tested or corrected, for few ever give any study to economic works. It would be wise that the means should be supplied to the rising generation by which to test the practicability of such schemes when they shall come to deal with the problems, as assuredly they must. School children have shown how apt they are to imitate the least satisfactory features of some methods, and, ridiculous as schoolboy strikes may appear, they have a sufficiently serious aspect also in the kind of spirit they display. Every boy and girl becomes a social unit, and in some way influences the common welfare directly or indirectly; most will have a voice in future local and imperial rule. At present there is a tendency to settle all questions by popular vote: whether it be a tax on wheels, or a difficult and abstract question like Bimetallism, popular feeling is consulted, and the decision is much more by sentiment than by economic reasoning. It becomes more incumbent on those who are educated, and who can help to inform public opinion, to adopt the best means available to assure themselves of sound principles, and to aid in diffusing them. To my mind, economic inquiry and economic teaching are among the most important desiderata of the age, for the reason that questions which involve economic issues are daily growing more numerous and more serious, and that popular opinion is becoming the tribunal by which they are determined.

It is unnecessary, before this audience, to do more than mention the mistaken notions of Political Economy which arise from complete ignorance of its meaning. I allude to the notions that it is adverse to the interests of the poorer classes; that it countenances oppression and worships cheapness at any cost; that it is a gospel of selfishness;—all these are gross misrepresentations.

Political Economy is an inquiry into facts which exist, and which it does not create: such an inquiry can only seek to elicit truths of relation and state results. The practical end is to remedy the ills of poverty by showing their causes and finding out the conditions favourable to wealth. The aim is general—the welfare of all; it is antagonistic to selfishness. Political Economy favours no system, but simply tells the consequences of conduct, taking the facts of human nature as it finds them; it seeks only the cheapness that comes from efficiency, and it demonstrates that any other cheapness gained by oppression is opposed to the ultimate well-being of the community, as it only drags the producer down to a lower level: its aim it may be said indirectly includes the moral elevation of the lower classes, in so far as that can be effected by improved conditions.

All the effective social measures now adopted by enlightened reformers to ameliorate the condition of the poorer classes are based on results of economic inquiry. Economists have long pointed to education, healthy workshops, wholesome houses and recreations, to co-operation and sympathetic help of the kind that tends to independence and self-reliance, as the best modes of advancing the common cause of humanity and morality; for, as morals act upon the economic conditions, so the latter react upon the former, and the two seem in some degree to advance together, at all events in the lower levels. Economics has shown the folly and mischief of spasmodic benevolence—cheap charity which is content with careless giving; it has further indicated that, as progress rests on efficiency, real remedies must tend in that direction, and must involve more sacrifice, must be permanent, far-reaching, and enduring, though slow in operation.

I would briefly allude to the objection that economists are not entirely at one amongst themselves. Differences do undoubtedly exist on complex questions, but these are rather in the application of economic principles to cases where the facts are difficult to ascertain, as in the Bimetallic controversy, or again, when many other factors enter in beside the economic, and the difficulty arises in the due estimation and combination of all the forces which must be reckoned with in a complex social problem. On the main principles there is no important difference of doctrine. Similar objections could be raised against all the sciences; the abstract principles differ from the concrete facts. Where are the lines without length, the points without parts, the rigid levers and bodies moving in perfect ellipses? We are content to use the abstract statements for guidance; otherwise we must give up science altogether. Is morality to wait for application until all its difficulties are settled, and perfect agreement has been obtained between conflicting moral systems? And similarly in politics, shall there be no government until a perfect method is devised? In human affairs, with limited powers, we must often be content with approximations, and a science of tendencies, as regards human conduct, is invaluable in the absence of any certain knowledge of the future. If education is to wait until science is perfected, very much besides Economics will be excluded from schools.

Another cause of differences in writings on Economics is that society is progressive: new facts arise. Evolution does not deny the past, but finds new problems in the changed conditions. Nay, since society is a growth, and economic progress aids that development, it is itself a cause of the alterations which tend to provide new problems for investigation. Numerous modifying and interfering circumstances arise which must be considered in its practical application; they do not conflict with the abstract laws, but are factors in the new form in which questions are presented;—just as the discovery of a new planet does not impugn the laws of gravitation, but is a fact to be taken into

account in explaining the movements of other bodies. Ricardo's statement of the principle of rent would not cease to be true, though circumstances modified actual rents so that not one in the country accorded absolutely with the formula. Doubtless many fantastic doctrines have been put forth under the name of Economics, and it required years to find out their errors, and advance to sounder principles. Many mistakes were made in the early attempts to formulate a science of wealth (as of other sciences), but experience has done much to correct them, and the test of the success is in the vast mass of reform effected by economic teaching, the increased productiveness of the country, the great improvement in the condition of the poorer classes. Progress has followed the diffusion of economic knowledge, which has always tended towards freedom in the widest and best sense.

Again, it has been said that Political Economy dogmatises, and leaves no room for sentiment, thus constituting it a harsh science, and one that tends to suppress human feeling. In the same sense every science is harsh:—"fire burns," "water drowns," are harsh facts; but fire and water may be made the servants of man if we know all their properties. Economics as a science is very similar; it merely states laws of causation in human conduct which are ascertained by observations. It does not make the laws, neither does it commend them; but it asserts, human nature being what it is, certain tendencies will follow from certain proceedings. It admits that human nature may be changed, and that improvement can be effected by environment; and the practical outcome of Economics has been to alter the environment in desirable directions.

All science is dogmatic in so far as it states the results of experience in the form of laws; but this is not what is meant by dogmatism. Neither does Political Economy repress sentiment. It may, however, direct it to a better method of expenditure of force. Sentiment without guidance is apt to run wild, and is not then very practical; knowledge does not kill feeling, but affords it the necessary complement to give it balance and make it useful. It would be equally undesirable to eliminate from human nature either feeling or intellect.

Economics makes no pretence to solve all social problems: it discusses only one aspect or factor; but this by no means excludes the rest. In contributing one set of tendencies it is assumed they will be considered along with all the other factors which enter into the question. Education at the public cost will afford us an example. It has been urged that the outlay would be profitable: the addition to knowledge and skill would increase the efficiency of labour, augment production, cheapen produce, diminish want and crime; so that negatively there would be a saving on poor rates, prisons, asylums and charities, and positively there would be a real increase of wealth. Not only would there be cheapness at home, but it would tell in foreign competition, which demands that our labourers shall grow in skill and efficiency, if we would retain the markets of the world. The result then, of cheap education, it is said, would be industrial and commercial progress—economic gain.

Now, without discussing the validity of the argument, I wish to point out, that granting it, the force of the moral argument is not set aside; it may be argued independently that it is the *duty* of the more fortunate to remove the disadvantages of the less fortunate, whatever be the economic issue. Some persons would be convinced by one argument, and some by the other; many would hold both and maintain that they strengthened one another.

Economic questions are not restricted to legislators, they concern those who will choose legislators, and they enter into the individual actions of men and women, which in turn affect the other members of the society of which they are a part; hence a wide diffusion of economic truth is necessary to effect some results by changes in opinion. It is remarkable how widespread are some errors—such, for example, as the belief that the less people do, the more will remain to be done, and that destruction or waste only causes a change of possession. The logical conclusion would be to do nothing at all, since then everything would remain to be done. It is a step in economic knowledge for a child to learn that inefficiency is loss, that destruction, while it makes work to replace the loss, wipes out of existence the means of employment to the amount of the wealth destroyed. Many schemes are from time to time advocated which rest entirely on this fallacy: they would consume much more than they could produce; the projectors fail to see that the end of work is production, and not work merely, that labour and wealth directed to unproductive channels are lost. A letter in the *Times*, recommending the Welsh gold-mines to the public, illustrates this fallacy with such simplicity that I will quote the concluding sentence: "It must be remembered that every £1000 worth of fresh gold brought to the surface enriches the nation *just by that much, no matter what it costs to get it*, for the amount of costs is not thrown into the hole out of which the ore is taken; it only changes hands." On this principle, if a Company were formed, and with the expenditure of £1,000,000 worth of food, &c., extracted £1000 worth of gold, the £1000 would be clear gain! The writer must hold, in fact, that wealth cannot be destroyed: that it can only change hands; that a Company for digging holes and filling them up would be a source of wealth, since wealth would always be changing hands! Yet on this principle the world could soon be reduced to a desert. Examples could be multiplied of cases where the advantages of invention and discovery are lost by similar blindness with regard to economic principles. Early instruction in *the habit* of looking at things in the light of their economic results would render such blunders impossible.

Political economy is more popular with girls than with boys. I find that girls are very apt students in Economics, and that they reason well to principles in practical questions. Boys are frequently set to study at school some subject which has a special bearing on their future occupation. For commerce, banking, and business generally, few subjects would have so direct a value as Economics. The Bankers' Institute requires a knowledge of Economics for its certificate. The London Chamber of Commerce has included the subject in its syllabus. This College has long recognized it, and the Cambridge, Oxford, and London examinations for schools include it in both the Commercial and Higher Certificates. I should like to see it further recognized for its influence on correct thinking and its general utility. It enforces industry, thrift, prudence, and emphasises the importance of skill, knowledge, and efficiency, while it is opposed to waste, idleness, ignorance, and intemperance. The analysis of the causes of wealth helps to explain the conditions of the superiority of one country over others. Commercial geography thus appeals to Economics—indeed, it seems difficult to teach commercial geography without some aid from Economics. The best modern works on geography, such as Chisholm's "Commercial Geography," are crowded with economic data. In one college, at least, Political Economy and Commercial Geography are taught from the same Chair.

History is another subject which is illuminated by the teaching of Economics. Facts are dull and uninteresting things when they stand alone, but if we can find some principle behind them which accounts for them they become full of life and meaning. Many of the facts of English history, and some of its most critical periods, can only be understood in the light of economic principles. Craft Guilds, the Hanse League, Staples, Lombards, Statute of Labourers, Peasants' War, Agrarian Revolution, the Poor Law of Elizabeth, the long wars with Spain and with the Dutch, the Act of Navigation, the aims of early colonization, monopolies, privileges, international rivalries, trade wars with France extending over a century, are a few examples, taken at hazard, of events and institutions all of which had an economic origin. To understand them, to get behind them and see their relation to the times, we must read Economics into them. History becomes a pleasant study when we have the key to the processes that are going on; events arrange themselves in sequences, and are linked together by principles of action. The charm and excellence of such books as Seeley's "Expansion of England" is due to the lucid and forcible manner in which the causes of England's greatness are traced out and shown to be, in large measure, due to what may be called the economic virtues and economic forces. Historians cannot stay, in the narration of events, to expound Economic doctrine, even if all were qualified to do so fully; something must be left to be supplied by the imagination of the reader from his other stores of knowledge, and if he can bring to the study of history some such principles already acquired, he will interpret its facts with greater ease and pleasure, it will be more intelligible, and become more fully what history should be—a useful guide for the future in the intricate mazes of social evolution.

Finally, Economics comes in with practical aid to moral teaching. We must know not only what ought to be, but how best we can strive to attain to it; a study of the consequences of conduct can give some assistance in adopting the course most likely to lead towards the reality sought. Principles of duty are essential: to put them into practice we must employ means. Well-meant efforts are often defeated by the injudicious means

adopted, and have even increased the evil they were intended to remove. Charitable movements afford abundant illustrations, and many who have much experience of them come to adopt the economic method. Political Economy has incurred some unpopularity from its condemnation of the rash and spasmodic measures which are often warmly advocated by enthusiasts who seem to see in them instant relief. Political Economy does not stifle such efforts, it demands that they should become permanent, unremitting, steadily directed to the eradication of the causes, and such as to remove the necessity for temporary and feverish action. Charity organization is thoroughly in accord with economic teaching. The merits of steady and well-directed effort do not attract the attention or sympathy of those whose enthusiasm boils up at periods of popular excitement, yet no one knows better than teachers that it is by slow, steady, and persistent well-doing that any good results are attained, and that fervid periods are apt to be very transient. Here again appears the necessity for inculcating in early life sound principles, and forming good habits which may fructify in after life.

When we consider the numerous problems which daily arise to tax the ingenuity and skill of mankind, and the crude but attractive theories that are put forth for reconstructing social and industrial relations, it becomes more and more urgent that future members of society should be so trained as to lack no knowledge or method which may help them to form a sound judgment on the schemes which are put before them, so that they may avoid disaster and arrive at those conclusions which shall be most in the interests of society.

Much that has been said will doubtless appear common-place and familiar. It is the nature of Economics to deal with common and familiar subjects: on few subjects is there so much confident assertion with so little basis of study. It is for these reasons, and on account of the importance and interest of the subject, that I have ventured to advocate its wider instruction to the older boys and girls in middle-class schools. It will be found invaluable to them in after life. They cannot avoid its problems; by its aid they may be able to acquire a method which will enable them to give a reason for their faith, and to justify their conduct as being such as is consistent with the best interests of the society of which they form a part.

Mr. Wilson said there was a State in ancient Greece said to be so conservative that whoever brought forward a new law came with a halter round his neck; and he thought that a teacher who advocated the introduction of a new subject into the already overcrowded school curriculum should be placed in a somewhat similar position. Languages, mathematics, and natural science were studied for definite purposes, both for indispensable information and for mental training; and he was at a loss to see what subject could be advantageously displaced to find room for the study of political economy. So far from such substitution being desirable, he was of opinion that what had been called the "dismal" science was not a suitable study for boys of, say, fifteen years of age. Economics touched life at so many points that it was extremely difficult to separate it from other subjects, and to treat it as a pure science, as could be done in the case of, say, chemistry and physics. In any case, the sciences of observation and experiment should, he thought, precede the study of the more complex science. This seemed to him to be one of the main objections to its being taught in schools. It was rather a subject for the consideration of a mature intellect, that had already been trained on other sciences which depended on the selection and arrangement of facts. Another objection was its uncertainty, and the want of unanimity among its professors. American teachers of economics, for instance, all upheld Protection, while in this country there was hardly an advocate of that doctrine. The ground of this difference of treatment lay in the fact that in America economics was regarded as a branch of Sociology, and the advantages of the establishment of industries of various kinds among the people were regarded as outweighing mere cheapness of production. Witness, again, the difference of views prevailing among experts on the subject of Bimetallism. Political economists were, in fact, not agreed as to the chief doctrines of their science, and there were those among them who were at the present time labouring to remodel political economy so as to make it square with modern facts and theories. Until, therefore, it had been reformed and embodied in doctrines and principles of greater certainty, he did not see how it could claim to be introduced as a science into our schools. It would have no reason for its existence in a communistic order of things, and was only applicable to our present state of society. In other countries there were already labour laws which so interfered with freedom of contract that they struck at the very root of some of the chief doctrines of political economy. The reason why greater attention was given in ladies' schools to the study was, he considered, to be accounted for by their having to devote less time to classics and mathematics than was the case in boys' schools; but with the extension of the curriculum that was now taking place in our public schools for girls the case would be altered, and political economy would probably drop out of the programme.

Dr. Scott concurred, on the whole, with the views advocated by the lecturer, from his standpoint as to the principal object of school education. If this were to train boys to become efficient citizens, then undoubtedly there was a good case for the economists. He did not think the educational world was by any means as conservative as that Greek State to which the preceding speaker had referred. For example, Greek was gradually going out of the curriculum; while less time was being devoted to Latin. Men were apt to become narrow-minded and bigoted in the battle of life; hence the importance of giving them the opportunity of acquiring broader views before they left school. As the study of mathematics by the mechanic enabled him to avoid empiricism or rule of thumb, so by the study of economics boys would learn that their surroundings were continually changing, and would at the same time cultivate the power of adaptability. Now that social problems were being more widely discussed, and the interference of the State was being more largely invoked for the regulation of economic relations, it was especially important that the rising generation should be better acquainted with the principles which should underlie and control such interference. He was himself accustomed to give some instruction in economics to boys about to leave school, who seemed to learn with great surprise that school life and life in the world had a common ground; and were this the only result, the time spent on the subject would, he thought, not have been wasted.

Miss Bailey stated that economics had had a regular place for the last eight years upon the class time-tables for her elder pupils, girls from fifteen to seventeen years of age. She was sure that a knowledge of, at least, its elementary principles would add wisdom by-and-by to their management of their own houses and business matters, to their labours of charity, and to their exercise of any privilege as voters. The retired character of a girl's life afforded her but little preparation for possible self-dependence without some such study. Many girls' schools would provide a better scientific training by regular exercise of the pupils' reason and observation upon the principles of economics at work in daily life around them, than in the foolish effort to teach chemistry without persevering laboratory practice, or botany, zoology, &c., without an abundance of illustration, and reasonably long courses of lessons. There need be no fear of the subject being unattractive if only the teacher had a proper grasp of its facts, and knew how to handle a class well.

Mr. Moon suggested that, for reading-lessons, books illustrating the elementary principles of economics should be used. There were already such books in existence, written in the form of interesting stories; and were the demand for them increased, others would soon be written on the same lines.

Rev. A. Allen felt the full force of the practical difficulty raised by the first speaker in regard to multiplying the subjects of instruction, especially in the case of middle-class schools, where pupils left as a rule at an early age. The great object of school was to train the mind of the pupil so as to enable him to grapple with any new subject that might hereafter be presented to him. The average run of boys could with the greatest difficulty grasp principles such as those of political economy. It was indeed difficult enough to get them to apprehend the truth of less complicated subjects, such as the history of their own country; and all that could be expected was to give a smattering which would be of little use to them when they came to consider complicated social problems, such as the *rationale* of strikes, or the question of wages. Boys learned a vast amount after they had left school, especially in regard to questions in which their personal interests were involved.

Rev. C. Brooke thought that if the child were trained in the school to use his eyes, and apply his mind in a methodical way to grappling with difficulties, the problems of economics might very well be left to be dealt with when he had left school and gone out to take his place in the battle of life.

Mr. Orchard, in considering the introduction of a new subject into the curriculum, would be inclined to put in a claim for the study of Logic, as of more practical and general utility than almost any one of the so-called sciences. The subject of economics he regarded as too difficult for young minds, and was decidedly of opinion that it should, in any case, only be taken up in the last years of school life, and then only in combination with the study of logical principles.

The Chairman remarked that the admission of political economy into the curriculum clearly was dependent on whether there was time available for the study. A further question was whether it did not supply some of the elements of a liberal education that we tried to get in other ways. One of the chief advantages of classical education was that it gave a boy the power of putting his thoughts clearly into words, and forced him to reason about a number of common everyday facts which he would eventually have to consider. A boy reading the Republic of Plato was really doing two things, both more important than the study of Greek—he was going through the best possible discipline for an exact use of his own language, and was getting an insight into the elementary problems of human society. The study of economics would do something, at least, to supply both elements to non-classical boys. He should be glad to see the study of economics obtaining an increasing share of attention in the modern school curriculum.

The Lecturer, in replying to the remarks of the various speakers, said that, although it had been asserted that there was a great diversity of opinion among authorities as to the main principles of Economics, the only

example adduced was Bimetallism, which was a most intricate question, and anything but a fundamental principle of Economics. He objected to the assertion that economists endeavoured to square the doctrines of political economy with facts. Political Economy was a comparatively young science, and subject to conditions of growth; and what such men as Jevons and Bagehot did was to seize upon the new facts due to the progress of society, and try to explain them in the light of the principles of Political Economy, which would have to be modified if they were not able to do so. It had been said that boys of fifteen were too young to be taught the principles of Economics at school, but that they would acquire them readily as soon as they left school. In the world, however, they came into contact with facts, not principles; and mere training of the mind would not enable a youth to deal with the problems of economic science of which he knew nothing, any more than an ignorant man could deal with the facts of chemistry. Without trenching on very involved and intricate questions, schoolboys might with great advantage be made to understand the fundamental principles of Economics, to which common-sense of itself was not sufficient to supply the clue. A great number of the reforms which had been effected were the result of a knowledge of economic principles, and he denied emphatically that the tendency of modern legislation had been in contravention of those principles. *Laissez-faire* and Political Economy were not identical. Adam Smith had attacked with great vigour the state of things that existed in his day, and the vigour of the attack had produced, as usual, a corresponding reaction. It was, he contended, impossible to exclude from the school curriculum all subjects on the working principles of which there was not a consensus of opinion. If the importance of the subject were acknowledged, the question of want of time for its study would have to be met.

A vote of thanks to the Lecturer concluded the proceedings.

LANGUAGE AND LINGUISTIC METHOD IN THE SCHOOL.*

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Lecture V.

Language as Literature.

The third claim which language makes as a subject of instruction is that as literature it gives culture. Here, as in preceding lectures, we speak of our native tongue alone.

As *substance* of thought, language instructs and fills the mind of youth with the words of wisdom, with the material of knowledge, and guides it to the meaning and motives of a rational human life, and in doing all this it also trains the intelligence: as a *formal* study, it disciplines the intelligence, and gives vigour and discriminative force to intellectual operations in all the relations of the human mind to things, and therefore to the conduct of life; as *literature*, in which aspect we would now regard it as a school subject, it cultivates, by opening the mind to a perception of the beautiful in form and the ideal in thought and life. It does this by bringing the prosaic life of goodness and duty into the sphere of the idea, and so stimulating those aspirations, native to every human breast, which find their highest expression in spiritual realities.

In an excellent paper by Mr. Courthope-Bowen I find the following remark:—"If we were to inquire in any hundred English schools, taken at random, whether literature formed a part of the regular school course, I think we should get positive, very positive, answers in the affirmative from at least 99. And yet I am prepared to maintain that at least ninety-eight of the ninety-nine answers would be wrong." I believe Mr. Bowen to be right, and I say the same of Scottish schools.

The question, What is literature as distinguished from the straightforward, logical, and lucid expression of thought? is, like the question, "What is poetry"? one excessively difficult to answer. One thing is, I think, certain — that literary expression is not merely grammatical and logical and fit expression, but "beautiful" expression. Thus far all may agree, and we may amble out of the difficult on that uncertain and bright-winged Pegasus, the Beautiful, leaving each man here, as everywhere else, to attach to the word his own more or less vague conceptions, but always definite *feelings*. The revival of letters, as we know, restored to men the perception and enjoyment of the beautiful in language: and we do not misjudge the apostles of the Revival if we say that in their conviction the most beautiful language always contained the greatest realities of life. Barbarisms in Latin or Greek meant barbarisms and crudities in thought. The inevitable result of this view was that men strove after eloquence and elegance of expression, and style governed. Now to cultivate style for style's sake is the pharisaism of the intellect. The great masters of style, Sophocles, Euripides, Dante, Shakespeare, Milton, did not do this. With them, as with all writers who live in the esteem of generations, thought comes first, and style is nothing more than the apt and felicitous expression of thought. But style is not to be compared to the vesture which covers a man's body, but rather to the native and natural covering of the beasts of the field. The play and elasticity of the close-fitting lion's hide is very different from any vestment with which Poole covers the lion's master. In fact, a beautiful thought and a beautiful expression either occur as *one* in a man's mind, or the thought remains as a vague possibility or anticipation only (in the region of feeling) until it finds fitting words. Then only is the thought born, and it is born with its natural vestment. It is that natural vestment which, looked at apart from the thought, we call style.

My business here and now, however, is not with the principles of literary aesthetics, but only with so much of the literary, in contra-distinction to the merely grammatical, as concerns the education of boys and girls. And I have said enough in my first lecture, to show you that you cannot bring a pupil to the perception and appreciation of a beautiful and felicitous phrase without admitting him thereby to the comprehension of the beautiful and felicitous thought. I said when dealing with another aspect of language that it is through words that we educate to things, for words are the records of the past conquests of humanity over things, and but for them each generation would have to begin all over again, and barbarism would be permanent. Words are the title-deeds of the inheritance of each child of man. After what I have said, now and previously, on style and literature, I may now, in accordance with this view of words in education, say that it is by dwelling on beautiful language that I reach the beauty of the reality—thought. By this road alone can I enter into the temple of the Beautiful.

But to leave literature with the vague definition—the beautiful in utterance—is unsatisfactory, because of its vagueness. And it is imperative on me to unfold that portion of the content of this large expression which connects literature with the education of the young mind, and gives it a place in the school.

The true man of genius, as opposed to the *littérateur* who lives by simply borrowing the clothes of the great, is always in search of the idea. Do not conclude, however, that all who are in search of the idea are men of genius. The idea simply means the perfected truth of things and of each thing—be it the law of the stars, the law of the animal organism, or the "truest truth" of the encounter of man's mind with nature and human life. This truth, put in a concrete form, is then the idea materialized—the ideal. Hence the paradox, the ideal is the real, for the idea is the ultimate truth, and the ultimate truth is the sole reality.

Without dwelling longer on this question than is necessary for my purpose, I would now point out that literature—the beautiful in expression—is the ideal. It is the striving after the highest and truest truth of things finding fit utterance. As in the pursuit of the idea, so in the contemplation of it, there is a large element of emotion. There is an excitement of feeling which intellect by itself could not give.

Pass now then to the minds of boys and girls when, after the age of puberty, there begins the underground swell of ethical emotion, and, along with this, the tendency to idea and ideals. We as educators have to meet, to satisfy, to direct this into proper channels. Several agencies suggest themselves, but I here speak only of Language as a school subject. And it is at this point in the growth of a mind that language as literature exhibits its supreme power as an instrument in the hands of a sensible teacher.

Grant all this; yet the result of all literary instruction, it may be said, is after all only an æsthetic result. It adds to the happiness of life, and increases the pleasures of the imagination. This is a desirable thing, as all legitimate pleasure is, but it is not essential to a good life, nor even to a noble and heroic life.

Now it is precisely because it contributes so powerfully to the good life, the noble life, the true life, that I beg the teacher to take possession of literature as the most potent of all ethical influences at every stage and especially in the years of adolescence.

The condition of the spiritual as opposed to the merely moral

* A Course of Six Lectures delivered at the University of Cambridge and at the College of Preceptors, London, during the month of May, 1889.

man is (as I endeavoured to explain in my first lecture) that the former lives in ideas and the ideal as the true and ultimate expression of the reason of man—as the God-given reality of his nature. Ideas may be said to be the thought of God in man, and by living in ideas we truly live in Him and with Him. So potent indeed is the spiritual life—the life in ideas; so much does it transcend the merely moral relations of the home and the market-place, that men of strong spiritual tendencies have been led to regard the ordinary duties of the family and the State as superseded by spiritual emotions and ideal aspirations. There are very few strongly spiritual natures which have not had at some period of their lives a serious fall. They have forgotten that man's feet are on earth, and that the true ideal is the ideal of the ordinary and the commonplace, and, as such, the true real. They forget that all idealism of emotion, all religious aspiration, is spurious except in so far as it grows out of the soil of the domestic and civic virtues, and is dominated by Law. The true ideal can never transcend Duty, for at the very best it is always the recognition of Law—the true law of our nature. As a matter of metaphysical fact, the spiritual life, the life in ideas, the life in God, bears the same relation to the *real* of common duty as the abstract in the sphere of the purely intellectual bears to the real and concrete of things. Except in so far as the general and abstract is seen in things, except in so far as things are seen in the general and abstract, both are, in their isolation, unmeaning and unfruitful.

It is only after the age of puberty that a youth begins to be alive to ideas, and it is generally towards the end of the secondary period of instruction—the age of eighteen—that they begin to take possession of him as the potent factors of his life. It would seem that many boys and girls, and men and women, are constitutionally unfitted for ideal conceptions, and consequently for the ideal in living. But this is a wrong way of looking at the actual facts. The finer organizations, by their innate force, pass from the preceptive morality of the boy-life into the ideal life of adolescence without effort and without teaching. The mass have to be educated into it. The passage from the one mental condition into the other is what old theological writers meant by conviction and conversion and regeneration. This is to be born again. This is, fundamentally, Christianity. This is to escape from the schoolmaster the law, into the freedom of the spirit, the liberty of the child of God. Are parents and teachers to let this transformation come or not *as it pleases?* If so, then I ask what I have asked before, What do they mean by education, and why do they educate?

If you think that physical science will work this change, you are mistaken. Plato, Christ, St. Paul, nay Zoroaster and Mahomet, knew a secret hidden to the so-called "wise"—nay, sometimes to babes and sucklings the divine inspiration is given which is denied to the learned. I daresay you have heard this before. Our business is to try to give this inspiration, to help the bud to unfold itself to the light and warmth of the sun. A very difficult and delicate task this.

But however difficult and delicate it may be, our business is to look about among the materials of school education and see if we can find an instrument suited to our purpose. Direct instruction in the truths of religion does not seem often to succeed. Now we shall find that instrument in language as literature; for literature is the æsthetic or ideal expression of ideas, and by habituating the mind to live in this atmosphere we predispose it to all things spiritual. We do not call forth the antagonism of the young mind by dogmatically repressing its egoism, and trying to overawe it. We, on the contrary, lead it by the green pastures into the life in ideas which we believe will not stop short until it has become the conscious life in God—the religious life.

Language as literature, I have already indicated, belongs chiefly to the latter half of the secondary period; and it is not till a boy is about sixteen at least that I should endeavour, of set purpose, to interest him in literature for its own sake as an ideal expression of human life.

But this does not mean that we are not to bring the young mind face to face with literature before the age of puberty. Even in the infant school we begin our work. The simple verses which give fit and sweet expression to simple childlike thoughts are to be read and learned by heart. What is not literature, in the best sense, to us, is literature to a child. Every stage of mental life has its literature; and at each stage, as one succeeds another, we take care that the prose and poetry set before the child is, though simple, good of its kind. We take care, further, that he understands them, and by our own good reading of the pieces and by requiring them to be learned by heart, we gradually make our pupils *feel* the good in literary expression. We seek, in fact, for many years to make *impressions* of the right kind, deferring criticism, that is to say, the conscious discrimination of the beautiful, until a later period. In religious education all surely feel how important it is that good hymns be learned and sung by children. Hymns, aided by the simple story of the life of Christ, will together accomplish more for the religious education of children than anything else can do. I might illustrate this; but I am dealing with literature as part of secular instruction only, and I shall give one or two pieces which belong to the child-stage:—

Take Wordsworth's "Past and Present"—

> "I remember, I remember
> The house where I was born,"

the last stanza of which runs thus:—

> "I remember, I remember,
> The fir-trees dark and high;
> I used to think their slender tops
> Were close against the sky;
> It was a childish ignorance,
> But now 'tis little joy
> To know I'm further off from heaven
> Than when I was a boy."

This now is retrospective, and therefore may be said to anticipate the experience of a child; but I am far from thinking this an objection in a piece so easily understood as regards language. It is sufficiently understood at the time of learning, and it comes back after many days.

Take again Mrs. Hemans' "Child's First Grief," which I need not quote. Then Wordsworth's "Robin"—

> "Art thou the bird whom man loves best,
> The sweet bird with the scarlet breast
> Our little English robin—
> The bird that comes about our door
> When autumn winds are sobbing?
> * * * * *
> The bird that by some name or other
> All men who know thee call thee brother?"

Keble's "Book of Nature," Logan's "Cuckoo," Wordsworth's "Lucy Gray," "Alice Fell," and "Pet Lamb," and Tennyson's "May Queen," and many others of this class. All these, with the best of Longfellow's poems, not to speak of the riches of ballad literature, national songs (see "The Children's Treasury," by Palgrave), good prose pieces, which are almost innumerable, will fill the waking mental life of a boy up to the age of fifteen, till he, "by ever dwelling on great thoughts, becomes like greatest men."

Up to this point—the age of fifteen or so—we have been daily guiding the pupil in making acquaintance with words, that through them he may know *things*—the things of thought, the things that determine conduct. Mind and language have been growing together. Our object has been the nutrition and *training* of mind through language as a Real. Formal *discipline* of intelligence through grammar (in the large sense in which we have used that term) we have not neglected, but we have subordinated it to the claims of the Real. The pupil now not only comprehends language in a wide and various range, but he can use it for the expression, if not always of his own thoughts, yet for the reproduction with grammatical correctness of the thoughts of others. Nay, more, he has received in abundance literary *impressions* from simple and good poetry, and these have been gradually moulding his life.

But now we may venture a step further; and in our readings with our pupils attend not merely to the analysis of the thought, but to the beauty of expression, and its felicity in conveying the complex emotions of human experience, or, it may be, its failure to do so. We do not at this stage part with our past training and discipline: we carry it with us into the higher literary exercise. It all helps us to see that aptness of phrase, balance of rhythm, grace of structure, is not by itself good literature; that, on the contrary, the inner truth of the thing before us, and its logical coherence, are the necessary foundations of the best literary art.

It will be said, by a few, that this is to turn the young mind into the field of literary criticism—a premature occupation. It

certainly is literary criticism, because it is an attempt to see in what respects the piece of prose or poetry before him is good or bad, or middling. But why, I should like to know, should a growing mind be asked to accept phrases for realities, a jingle of words for truth, and be arbitrarily arrested by the will of another in its growing desire to discriminate, and so to form its own standard? Is not the very object of all education to guide and help the action of mind in its successive stages of comprehension of the world around it, and all that it presents to its experience, either directly or through the interpretation furnished by other minds? This is the "criticism of life."

Doubtless such literary exercises may be overdone, or, more likely, underdone and raw. In the hands of a pedant they will become pedantic, in the hands of a fool they will be foolish, in the hands of a one-sided enthusiast who can appreciate only one form of art—to whom Keats is perfection and Wordsworth prosy—harm may be done. But not so much harm, even then, as the good that will result from rousing the interest, and stimulating the activity, of mind, in its search for the ideal.

Perhaps I may illustrate from a personal experience, not three weeks old, what I mean by an elementary literary exercise. I was in a remote country school frequented by boys and girls, the children of ploughmen and crofters. The highest class, composed of five boys and four girls, of the average age of thirteen, had read to me a piece selected from their class-book by myself, but already partially known to them—Longfellow's "Building of the Ship." When they had finished, it occurred to me to say, "Now, instead of going to the subject and predicate and extension, and all the rest of it, go to your seats, sit apart from each other, read the poem carefully to yourselves, compare one part with another, and mark the lines you think the most beautiful." They did so, and it was to me, as an educationalist, a pleasant sight to see the intentness of countenance with which these rough and awkward country lads and lasses applied themselves to this, their first lesson in literary criticism. After about ten minutes had elapsed, I called for their opinions. One boy and one girl had selected the lines which suggested sadness; the remaining three girls had selected those which had reference to marriage—the bride and bridegroom; a second boy selected the most striking image, while the remaining three had selected the lines which had to do with intense action. Each read aloud the part which he had selected; when this was over, I made a few conversational remarks on one or two points in the poem suggested by their own selections, which they were all eager to receive. This is what I call a *literary* lesson; and I shall be much surprised to learn that any teacher does not see how much more educative and fruitful this simple and natural treatment of a piece of good prose or poetry must be than any amount of sentence-analysis.

I know that some will say, "Do not be in a hurry; all the needed appreciation of literature, and the culture, and the ideas it brings with it, will come in time." Now what I maintain is that they will not come, and that, as a matter of fact, they do not come. In language as literature we have to begin, as in all other subjects, low down. We have to lay the foundations early, and let them settle, if we are to build on them to any good purpose. Setting aside the exceptional boy, it is certain that if I suddenly introduce a boy of sixteen or seventeen to Wordsworth, who prior to that had had no education in the language of literature and no training in feeling its beauties, I shall fail to interest him. So it is in other studies: I should fail to interest the same boy in a truly *scientific* book on Physics, or even Geology, if I had not planted and watered and daily nurtured in him a habit of interest in nature in its more ordinary and superficial phenomena, and in the explanation of these. I speak, of course, of the ordinary boy, which means 95 per cent. of boys. With boys of genius the educator has little to do, save to guide and control. It is notorious that the mass of boys said to be educated take no interest in nature, and if we add to this that they take no interest in pure literature—that is to say, in the best thoughts of the best of their own species expressed in fitting from—what is the use of all our educational machinery? Surely there is a blunder somewhere. I am not such a cynic as to believe that the human animal is so constructed by his Maker as to have an aversion to the contemplation of the beautiful and various world in its causes and harmonies, and to the perusal of the greatest thoughts on things and men beautifully expressed by the prophets and seers of his race.

It follows from what I have said that at all stages of language teaching we should read largely. At the stage of which we are now speaking, our reading must be varied and liberal with a view to fill a boy's mind with masterpieces. This is what the teaching of English literature in the school ought to be.

As regards Method, we have done little as yet but apply the great rule that a subject should be begun from the beginning, and, as we proceed, be brought into fit relation with the stage of mental progress the pupil has reached. Step *by* step, step *after* step. In truth, however, there is scarcely a rule of method which is not as applicable to the teaching of literature as to the teaching of any other subject. Only, one is a little averse to be guilty of the pedantry of applying them in detail. For of literature, as of religion, it may be said that rules of procedure, which may be of great use to a teacher in matters of the pure intellect, are of little value unless he is himself inspired. The genuine love of literature, the sympathetic living with the growing minds of the young, and the impulse to give that which you enrich yourself by giving, supersede all rules of method. Still, a word or two may be profitably said in correction of existing faults, although the result may be merely negative.

Here let me quote again from Mr. Courthope-Bowen: "By the study of literature as *literature*, I mean the study of a poem or prose-work for the sake of its substance, its form, and its style; for the sake of the thought and imagination it contains, and the methods used to express these; for the sake of its lofty, large, or acute perceptions of things; its power of exposition; the beauty, force and meaning of its metaphors, its similes, its epithets; the strength and music of its language." I quote this because I think it well said, and also because it describes the working of the second governing rule of all method, "Let your process be analytico-synthetic." To work this out in detail is not my intention, but you will find most of the suggestions for teaching a piece of prose as concrete language, as substance of thought, applicable also in the domain of pure literature.

As a matter of fact, it is notorious that the schoolmaster cannot shake off his hardness, his formalism, his pedantry, in this field of instruction any more than in religion; and the result is that literature in the school resolves itself into a list of literary names, and sinks into the examination of words and of grammatical and historical forms and facts. A play of Shakespeare or Milton's "Lycidas" is read with a view to its anatomy, not to what the poems convey to the intellect and emotions—their satisfaction of the ideal in man. Thus the majority of boys at this secondary school stage care nothing for books except books of impossible adventure or comic presentations of serious things. In these they find relief from the dissection of a great writer, whether the writer be English or Latin or Greek. And they are justified in the course they take. How can we expect any one to enjoy "Lycidas," or Portia's speech, or Hamlet's soliloquy if they read ten lines a day, have to learn by heart a lot of notes (philological or antiquarian), and then begin to mangle them by writing out parsing and analysis tables—finally, perhaps, resorting to the degrading process of paraphrasing. This would be to expect an impossibility. You, the teacher, are ostensibly giving him literature, whereas truly you are cheating him and giving him grammar—words, words, words. You are ostensibly giving him the real of literature; you are truly cheating him with the formal and abstract. There are plenty of *corpora vilia* in the English tongue on which the experiments of grammar and analysis may be made. But be honest here, and if you affect to give him literature, give him literature. For one boy who enters with spirit into the formal, there are ten who appreciate the real. And do you not see that, if out of a class of forty boys you can send out even thirty inspired by the great writings of great men, you have educationally accomplished more for them than by sending them out with the most exact notions of grammar and analysis, but dead to literature? If you have ever realized to yourself that the final aim of all education, both of the school and the world, is an ethical aim, you will not doubt this for a moment.

Select then the books which are within the comprehension of your class, and read them liberally, generously. There is abundance of English literature of this class, not to speak of good translations from other languages. Then, read the book *with* the pupils at large. Let *them* read, and do you also take your turn of reading. Enjoy the book together—not as a lesson, but as a pleasant symposium. This is the sum and substance of the method. When you come to a particularly fine passage, direct attention to it, ask them to point out its artistic beauties, and then read it to them a second time as it ought to be read. That is to say, if you *can* read, which possibly you can't.

I do not mean to say that in such literary school-banquets you are to eschew all questionings. If a difficult phrase or allusion occur, ask in friendly and conversational way what the precise force of it is: above all, let it be understood that *you are there to be questioned.* If it be poetry you are reading, encourage the boys to learn beautiful passages by heart, but avoid *prescribing* them. This is no task-work in which you are engaged. It is now, if ever, that you are *living* with your boys. Now truly mind meets mind, or all is lost. It is here, and through this literary sympathy, that you lay deep the foundations of your moral influence on the whole future lives of your pupils. It is now that you are truly developing the religious possibilities of young humanity.

That obstructive the "practical" teacher will tell me, "Ah! this is theory; you don't know boys: why, even with the best teaching, one-half of them would find even this a bore." To which I reply that I think I do know boys, and that if one-half of them find such intercourse as this with their master a bore, it is due to previous neglect of the real, or to you the master. Perhaps you put on your gown and college cap, and come down on them with a magisterial and authoritative air, and with the aspect of omniscience. Even the luminous pages of Tennyson, or the deep calm communings of Wordsworth, cannot drive the superiority and the pedantry out of you. You come to your class-room to teach these poets, forsooth! to patronise them, and, through them, your boys. Now it is clear that this kind of work is too fine, too delicate for you; the college cap is out of place; the work must be done in your shirt-sleeves, if it is to be done at all. The boys are to lead, and you are to follow. Pray, how much more do you know than your boys in this field? It will be a stupid class that cannot puzzle you in the first five minutes by its questions. And you are no true educator if you do not rejoice to be puzzled by them.

A certain percentage of inferior organisms will doubtless be found in every class, and they will get no good; but how much larger is the percentage who resist and reject your formal and grammatical teaching? And yet you go on with it, and rightly so in its proper place, which, however, is not here in the sacred literary hour. Such things belong to the outer porch; we are now within the Temple of the Muses.

The question was recently debated in connexion with Oxford University, Can Literature be taught? It seemed to me that, as was natural in the case of university dons, the question was mixed up with a quite different one: Can Literature be examined on? "Chatter about Shelley and Harriet"—this was the description of the essays that would be sent up for degrees. There is much truth in the criticism which the bitter phrase would convey. I think that literature can never be an *examination* subject. But it certainly can be taught—taught in the Infant school, and in the High school, and in the University, and all through life. Nor should any curriculum for an Arts degree be held to be adequate which does not include attendance on a course of literary history and criticism, as is the case in the Scottish Universities.

The man who doubts whether literature can be taught must have strange notions of the meaning of the word teaching. Is it not one of the pleasantest occupations in the world to read a good piece of prose or poetry with a young and ardent mind, and, by dwelling on its true meaning and its beauties, to introduce that mind to the Humanities and thereby raise higher the platform of his daily life—spiritualizing him by humanizing him? Why then is it not done? The answer perhaps is, because it is very difficult to do. The teacher who will do the work successfully must be himself a man of humane culture, and of sympathy with the nascent and adolescent life of mind. If some so endowed have notwithstanding failed, it is because the foundations in the minds of their pupils, as I have said, have never been laid: the way has not been prepared. As summer is waning and autumn approaches, you hurry on with a view to a harvest, not only in literature, but in all that pertains to the spiritual life. You forgot to break up the soil in early spring, and to sow the seed, and to harrow. The warm summer sun consequently played ineffectually on a hard surface, and if anything has been produced at all, as will certainly be the case where the native qualities of the soil are worth anything, it is weeds or wild oats.

If you think it necessary in the later years of the secondary school to give some instruction in the history of literature, you will give it in connexion with the history of your country. You will give the minimum number of dates and the maximum of inner logical connexions. When this is done, the reading of a narrative of English literature will at least do no harm. But read an author before you read about him; "Matter before Form."

Is it not the fact that the general result of all our education is that boys and girls, youths and maidens, do not as a rule, even after they have grown up read, except narratives of events real or imaginary which have a power of exciting the mind, like wine or gin? They care also, perhaps, for accounts of proposals that affect their own *immediate* material well-being. As regards literature, they are barbarians. Listen to the drawing-room songs that are sung and applauded. No use complaining of this; so it will be to the end of time, as regards a section of every population. But if an enjoyment of literature and a genuine interest in the beauties of various nature be the marks of a cultivated mind, then the culture and civilization of a nation is to be, to a large extent, measured by the *proportion* of the population who love literature and have an open mind for the show of things, and the moral meaning of the world. This—not Latin and Greek—is the Humanities; Latin and Greek are the Humanities only in so far as they are these, and no further. As educationists, our duty is to increase the proportion of those so humanized in each successive generation; and this, because the ethical life of a people is largely determined by their interest in such things. In the sphere of religion and morality nothing can so surely promote and sustain purity of feeling, reasonableness of opinion, and elevation of standard, as love of literature and a feeling for nature. The extent to which such results are attained in the school depends on the conception which the teacher forms of his spiritual function, and the methods by which he gives effect to his conception.

I have now dealt, as briefly as I could, with language in the school in its concrete, its formal, and its literary aspects. It is the mother-tongue of which I have been speaking, and I hope I have made it clear that no subject, or combination of subjects, approaches the mother-tongue as an educational instrument. It is the centre round which the life of every earnest mind revolves: it is the soil in which alone it can truly live; and so also, and I may say *therefore*, it is and must be the centre round which all true education of the young mind must revolve, the soil into which every growing mind must strike its roots deep if its growth is to be vigorous, native, national and humane.

I now in my concluding lecture will speak of foreign tongues and the method of teaching them, taking Latin as type.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held on Saturday, the 19th ult. Present—The Rev. Canon Daniel, Vice-President, in the chair; Rev. R. Alliott, Miss Bailey, Rev. J. O. Bevan, Mr. Bowen, Mr. Brown, Miss Buss, Mr. Chettle, Rev. Dr. Conder, Dr. Dillon, Mr. Eve, Rev. Dr. Frost, Sir Philip Magnus, Rev. G. P. Pearce, Mr. Reynolds, Mr. Robinson, and Mr. Southee.

The minutes of the last meeting were read and confirmed.

The Secretary reported that Mr. H. J. Mackinder, M.A., Reader in Geography in the University of Oxford, had undertaken to deliver at the College a course of four lectures to teachers on the Teaching of Geography in the month of November.

The question of the conditions on which the Scholarships for Intending Teachers could be allowed to be held at a school was considered, and it was decided not to dispense with any of the conditions that had been laid down, as a minimum, by the Council—viz., (1) That the scholar should receive systematic instruction in the art of teaching; (2) That he should pass certain examinations in the Theory and Practice of Education; and (3) that he should be allowed a considerable proportion of free time (deducted from the regular school work), to be devoted to his professional studies.

The report of the Finance Committee was adopted.

Miss E. P. Hughes, Principal of the Cambridge Training College for Women Teachers in Secondary Schools, was elected a member of the Council.

The following persons were elected members of the College:—

Mr. W. H. Begg, The Grove, Ashton-under-Lyne.
Miss F. Cutler, L.L.A., 1 Oliver Grove, South Norwood, S.E.
Miss A. A. Haysman, Cleveland School, Bath.
Mr. F. H. Hughes, Foleshill, near Coventry.
Miss P. E. Plock, 83 New Oxford Street, W.C.

The following books have been presented to the Library since the last meeting of the Council:—

BLACKIE.—First Mathematical Course; Harrison's Elementary Geology.
LONGMANS.—McWilliam's English Literature, Part III.
MACMILLAN.—Calvert's Virgil's "Æneid," Book VII.; Deighton's Shakespeare's "Tempest."
ROBERTS.—Spry's Student's Note-Book of English History.
Calendars of the City of London College, Mason Science College, Birmingham and St. Thomas' Hospital Medical School.

GIFT BOOKS OF THE SEASON.

The Blue Fairy Book. Edited by Andrew Lang. (*Longmans & Co.*)—The interesting old fairy tales, so dear to the hearts of children, are again retold by Mr. Lang. Here are the well-known stories of "Little Red Riding Hood," "The Sleeping Beauty," "Cinderella," "Aladdin," "Rumpelstiltzkin," "Beauty and the Beast," "Puss in Boots," &c., and some equally interesting but less generally known, as, "The Bronze Ring," "The Red Etin," "The Black Bull of Norroway" (from Mr. Robert Chamber's "Popular Traditions of Scotland"), "The Master-Maid." In all, there are thirty-seven stories, so that the work is one of the best collections of classical fairy tales we have. The most prominent features are the carefulness of the revision, the neatness and excellency of the illustrations, and the clearness of the arrangement and printing. The stories from the *Cabinet des Fées* and from Madame d'Aulnoy are translated, or rather adapted, by Miss Minnie Wright, who has also, by M. Henri Carnoy's kind permission, rendered "The Bronze Ring" from his *Traditions Populaires de l'Asie Mineure.* The stories from Grimm are translated by Miss May Sellar; another from the German by Miss Silvia Hunt; the Norse tales are a version by Mrs. Alfred Hunt; "The Terrible Head" is adapted from Apollodorus, Simonides, and Pindar, by the Editor himself; Miss Violet Hunt has condensed "Aladdin"; Miss May Kendall has done the same for "Gulliver's Travels"; and the "Fairy Paribanou" is abridged from the old English translation of Galland.

Ballads of the Brave. Poems of Chivalry, Enterprise, Courage, and Constancy. Selected and arranged by Frederick Langbridge, M.A. (*Methuen & Co.*)—All the best examples of courage, heroism, and daring which English poetry can supply are here collected and arranged. We find nothing omitted that we can think of in the class, and there are many pieces within these 430 pages not often to be met with. "Although in the nature of things the mail-clad daring of the knight rings louder down these pages than the daring of the missionary, the martyr, or the hospital nurse," still the author has made it clear that he rates constancy and quiet devotion to duty not a whit lower as expressions of courage than the most splendid dash or the most romantic chivalry.

The Children's Treasury of Pictures and Stories. 1890. (*Nelson & Sons.*)—These stories are as interesting and appropriate as usual, and are well illustrated.

Favourite Book of Fables. (*Nelson & Sons.*)—Not only are these old fables dressed in modern attire, but they are also illustrated by entirely new designs that are very suggestive. For instance, the cock before the jewel is a picture of pride and ignorant conceit. The miller's ass is pictured in the very middle of his flight from the bridge. The clownish fellow who was told by Hercules to put his shoulder to the wheel is kneeling before a broad wheel in a deep rut.

Gladys; or, The Sister's Charge. By E. O. Byrne. (*Blackie & Son.*)—Gladys is introduced as a precocious child of eight, who is treated coldly and with indifference by her parents, but who is ardently loved by a baby-brother. The father obtains a governorship in India, and the parents leave the two children with a selfish, narrow-minded and tyrannical maiden aunt. Lady Whrenley asks the elder of her two children to see that the younger does not forget his mother. Almost simultaneously a visitor opens Gladys' eyes to another charge, speaking to her of the words "Lo, I am with you always." Gladys, in thinking over these things, makes two resolves—"I must not forget mamma's words. She said I was to stand between him (her brother) and all trouble, and I want to have him beautiful and good for her when she comes back. We will be soldiers together; Jesus will be our Captain." Thus she resolves to use a Bible and a book of Bible promises, one for each day in the year, as books of orders from her Captain. The story tells how she carried out the two resolutions during the four years of the parents' absence.

Cassell's Book of the Household: A Reference on Domestic Economy. (*Cassell & Co.*)—This useful book is intended for those who are their own housekeepers, rather than for those who leave the management of their homes in other hands, or who substitute boarding-house publicity for the sacred privacy of the domestic household. It recognizes fully all modern conditions. Discarding isolated recipes and scattered odds and ends, it sets forth the main points of what a housekeeper or householder needs to know in articles comprehensive, interesting, and available for future reference. It deals with "The House," under which head come drainage, heating, ventilation, lighting, spring cleaning, water supply, &c. Under the head of "Household," the judicious ordering of daily work, management of servants, &c. In the article on "The Daily Food" no attempt is made to give a list of dishes in detail, but plain general directions as to *how to cook* are given to both cook and mistress. The treatise contains other articles on The Family Life, The Wardrobe, Health and Disease, Furnishing and Furniture, Household Mechanics, Children, &c. All these are instructive and interesting.

The Yarl's Yacht. By Jessie M. C. Saxby. (*Nisbet & Co.*)—This story is the sequel to "The Lads of Lunda," by the same authoress. It is an interesting and exciting story of the life and adventures of some half-dozen boys in the far-away Shetlands. The descriptions of long vacations spent in roaming about the coast at will in the old Yarl's yacht, the rescue of shipwrecked sailors, &c., are all most fascinating to boys. In these excursions our old friend, the Laulie, figures conspicuously. The tale mingles throughout quiet humour and exquisite pathos.

(1) *Things will take a Turn.* (2) *Max or Baby.* (3) *Jack a Dandy.* (4) *A little Man of War.* (*Blackie & Son.*)—Are books for children who are still in the nursery, or who are about to leave it. They are brightly written, interesting, and, it need hardly be said, healthy in tone.

The Castle on the Shore. By Isabel Hornibrook. (*Blackie & Son.*)—This little book has not the literary merit of the other books of the same series. There are many expressions in it approaching slang, and some quotations quite beyond the comprehension of children; in fact, the language is too matured for the subject. The following quotations will be sufficient to justify this criticism:—"Hearty Lil with the burden of a family on her obstreperous shoulders;" "littler darlings than even she were left missing something too;" "She had on a little black frock, and the little black tail of it wagged ferkily;" "Below it the tide lapped . . . leaving a stretch of shimmering mud;" "little son of Tyre;" "spasm of blinking;" "staring like stuck pigs;" "The name of Lil was like a red rag to a bull."

The Lost Thimble, and other Stories. By Mrs. Musgrave. (*Blackie & Son.*)—This consists of eight pretty little stories, prettily told.

(1) *Knight Asrael, and other Stories. By U. Ashworth Taylor.* (2) *My Boynie: The Story of some Motherless Children. By Evelyn Everett Green.* (*Swan Sonnenschein & Co.*)—These tales are partly fairy stories, partly allegories, and partly fables. They are not like the ordinary stories for young children, and all are original in form and style. "The Fairy Pilgrim," "The Magic Mask," and "The True King" are specially to be praised, and there are several others more worthy of the first place in the book than that which gives the title, namely "Knight Asrael." For older boys and girls who have not lost their early love of fairly tales, these will have a freshness and vigour which cannot fail to give pleasure.

Lost Dimplechin: A Fairy Cantata for Juvenile Voices. By Thomas Murby. (*Murby.*)—As usual in his numerous works, Mr. Murby has in this instance supplied us with wealth of melody. His cantatas improve as they increase in number. "Elsa" was better than the first; "Shakespeare's Merry Meeting" better than "Elsa"; and so far, "Dimplechin," as regards the music and the libretto, is best of all. A special feature in this cantata is the purely instrumental portion, consisting of an elaborate overture with many distinct movements, and a tarantella in which the composer displays his customary versatility. We can recommend this work to such of our readers as desire a musical composition replete with novelty, while not putting too great a strain on the executive capacities of the juvenile performers.

The Crew of the Water Wagtail. By R. M. Ballantyne. (*J. Nisbet.*)—One fine day the "Water Wagtail" sets sail from Bristol for Norway, but never reaches her destination. Contrary winds blow her out of her course, and she is wrecked off one of the islands near Newfoundland. A serious quarrel arises between some of the survivors, and the result is that Paul Burns, Trench and his son Oliver are turned adrift in Newfoundland. They find the island abounding in game, and extremely fertile. They meet with an inhabitant named Hendrick, who takes them to his home to his wife and children. Meanwhile the crew of the "Water Wagtail" change their quarters and settle in Newfoundland. Here they are attacked and taken prisoners by savages, but deliverance is at hand, for the crew is saved by our heroes, and winter is passed at Hendrick's home. By spring-time the "Morning Star" is completed, and the crew of the "Water Wagtail" sail back to England, leaving Hendrick to return to his former pursuits. This thrilling story, full of spirit, daring, and bravery, will be sure to please our boys.

Adventures of Johnnie Pascoe. By G. Norway. (*Nisbet & Co.*)—The reader is introduced to Johnnie's family in their lowest state of poverty. His father, through drink, the cause of their condition, meets with an accident whilst intoxicated, and is killed. His wife does not long survive him. Johnnie is thus an orphan, with the charge of an infant sister. He means to rise in the world, and by steady perseverance, and by manfully overcoming the many small temptations he encounters, he is able to resist greater ones. He gradually rises and attains his aim. There is a delicious absence of "dryness" in this book—no departure from the subject—and many a good lesson may be learnt from it.

Geoffrey Hallam. By the Rev. J. Jackson Wray. (*Nisbet & Co.*)—Geoffrey is a strange compound of cobbling poetic ardour and pious fervour as parish clerk of the village of Wemborough. All the characters introduced by Mr. Wray are very original, and are well sustained throughout. The general brightness of the book, and the genuine ring of the religious teaching, render it a model of what a work for the young should be.

Mr. Lipscombe's Apples. By Julia Goddard. (*Blackie & Son.*)—The good boy in this book is Michael Watson, who is on several occasions the object of unjust suspicion. All turns out well, however, and Michael advances in life. Robert Brandson, the bad boy, repents and is forgiven. A capital story, with a cleverly constructed plot and an excellent moral.

John A'Dale; or, The King and the Tinker. (*Blackie & Son.*)—John A'Dale is a tinker, who falls in luck's way and becomes Sir John A'Dale. The story is laid in the times of James I., is very well told, and cannot fail to impress young readers favourably.

A Warrior King. By J. Evelyn. (*Blackie & Son.*)—Adrian Englefield, an English boy of sixteen, accompanies his father on a journey of exploration inland from the West Coast. He falls into the hands of the Berinaquas, and becomes the friend of their prince, Moryosi, but is on the point of being sacrificed when he is saved by the capture of the kraelah by a neighbouring hostile tribe. He is soon after retaken by the Berinaquas, and saves the life of Moryosi. The two tribes are ultimately united, and

Adrian and his friends are set at liberty. Adrian's adventures are very exciting, yet not too far-fetched. The account, too, of life in Central Africa is reliable, and will be sure to interest boys.

Jock and his Friend. By Cora Langton. (*Blackie & Son.*)—Jock is a strange child, but in what ways we will leave our youthful readers to find out for themselves. We can recommend the book. Its binding is good, and the illumination of the cover bright and cheerful. The fact that it is printed in large and distinct type removes at once one of the great difficulties in choosing books for children.

Thorndyke Manor. By Mary C. Rowsell. (*Blackie & Son.*)—Thorndyke Manor is an old house, near the mouth of the Thames, which is convenient, and on account of its secret passages is used by Jacobite conspirators as the base of operations. In consequence its owner, Mr. Harry Thorndyke, a kindly, quiet, book-loving squire, who lives happily with his sister, bright Mistress Amoril, finds himself suddenly involved by a treacherous steward in the closest meshes of the plot. He is conveyed to the Tower, but all difficulties are ultimately overcome, and his innocence is triumphantly proved by his sister. Unlike many other historical tales, the characters in "Thorndyke Manor" have life. The narrative never becomes wearisome.

Sir Aylmer's Heir. By Evelyn Everett Green. (*Nelson & Sons.*)—Eyton Desborough, a little boy, is sent from Gibraltar to his uncle's house in England by his father, Captain Desborough, who is called away on foreign service. This uncle, Sir Aylmer Desborough, hates his fine old home, and, thoroughly discontented, is wandering on the continent. When he comes home, his soured and blighted life is completely changed by Eyton, and, through the latter's influence, the estate, which had fallen to decay in its master's absence, is once more restored to its former condition. The character of Eyton Desborough is typical of loving duty, and is carefully delineated.

Tales of Daring and Danger. By G. Henty. (*Blackie & Son.*)—An excellent book for boys; the contents are exactly suggested by the title. The first tale is of an English officer's bear-shooting expedition, and his capture by Dacoits. The second is a strange story of the prophecies of an Indian fakir with reference to two British officers. The third is situated at the gold-diggings of Pine Tree Gulch, and a boy saves the life of a miner at the cost of his own. There is also a story of a yachting adventure in the Channel, and the adventures of two midshipmen with the Chinese.

The Loss of John Humble. By G. Norway. (*Blackie & Son.*)—The hero of this story is a lad named John Humble. This boy becomes an orphan at an early age, and is taken care of by his uncle Rolf, who receives him as "superior ship-boy" on his ship, the "Erl King." Rolf conceives the idea of making a trip to England. After participating in some exciting adventures on the South Coast, John Humble is left behind at Portsmouth. He is impressed by the crew of a ten-gun brig, from which he escapes to a Norwegian vessel, the "Thor." Driven from her course in a voyage to Hammerfest, the "Thor" is finally wrecked on an inhospitable shore. The survivors, of whom John Humble is one, experience the usual disasters and discomforts of a long sojourn in the Arctic regions, but reach home again after an absence of many months, after having passed through many adventures, the situations attending which serve to define the individualities of characters of this well-written and interesting book.

Master Travers. By Florence M. Story. (*Nelson.*)—Raymond Marmaduke Travers, a precocious boy of seven, and his sister. Dorothy Muriel, of four years of age, orphans, and living with their uncle and aunt, Mr. and Mrs. Ellerton, are the hero and heroine of this little book. Unexpectedly the two children have a fortune left them, and Raymond becomes squire of Winsdale, with two guardians. His adventures and misadventures, his kindness to his tenants, and his schemes of childish benevolence take up the rest of the story, which concludes pleasantly with an account of his birthday party and its guests.

With Lee in Virginia. By G. A. Henty. (*Blackie & Son.*)—The sympathies of the hero, Vincent Wingfield, a Virginian planter, have always been with the slaves, and when the Civil War in America breaks into flame, he enlists as a trooper in the Confederate ranks. His career is studded with most of the battles, and he is a spectator of the famous fight between the Merrimac and the Monitor. The traitor of the book "falls dead in his tracks," and Vincent, after affording us the spectacle of an adventurous and exceedingly instructive career, reaches home and takes unto himself a wife.

An Emigrant Boy's Story. By Ascott R. Hope. (*Blackie & Son.*)—The German emigrant's story is that of a boy employed by an English family in America at the time of the Indian rising of 1869. The boy plays the part of a man in it, and is at last delivered out of all his troubles. The book gives a vivid picture of the horrors of a war with uncivilized tribes.

Roger Willoughby. By W. H. G. Kingston. (*Hodder & Stoughton.*)—Roger Willoughby is quite one of Mr. Kingston's heroes, and he is the medium by which we are introduced to a tale of the British navy of the time of Benbow. He takes service with this captain, and encounters under him all those adventures—we might say all those pirates and shipwrecks—which have made the author of this tale so popular a favourite with every English schoolboy.

Jack and his Ostrich. By Eleanor Stredder. (*Nelson.*)—The ostrich might almost have been put first in the title, for he plays the most important part. Like Bret Harte's emu, he seems able to eat anything, and his leaning towards coat-linings discovers a banknote, affords a number of adventures to the co-hero Jack, and finally establishes the innocence of another character of the story. The tale is vigorous, well written, and interesting, and possesses sufficient local colour to make it instructive.

Maud, Florence, Nellie; or, Don't Care. By C. R. Coleridge. (*National Society's Depository.*)—A story, showing how a veritable scapegrace of a boy, Harry Whittaker, and his careless sister, Florrie, are gradually brought to see the costs that may be entailed by the spirit that says "Don't care" to every gentle correction of a fault. It also teaches the evils that generally result from hot and angry words; and, to many of those who have the care of young folks, the plan that Mrs. Warren adopted to control the turbulent Florence will be found worth more than a mere cursory reading. But the whole story of the Whittakers and the Cunninghams points out in a really useful way some of the many influences that may be brought to bear upon the young, both for good and evil.

Yours and Mine. By Anna B. Warner. (*Nisbet & Co.*)—The simplicity of Hester's character contrasts favourably with the frowardness of Daly, and the friendship with Hester of Orphah, who has a tendency to be headstrong, produces results which finally change the entire course of her life. The book forms one of the "Golden Ladder Series," and is in no way inferior to the other volumes of the series which are known so well and welcomed by children with such glee.

Miriam's Ambition. By Evelyn Everett Green. (*Blackie & Son.*)—Miriam's ambition is to make some one happy; an invalid boy is the object of her care, and while endeavouring to ease his hard lot she solves a mystery of identity. The humorous child-talk of Miss Babs, aged five, is an attractive feature of the story.

Dora's Dolls' House. By the Hon. Mrs. Greene. (*Nelson & Sons.*)—Mrs. Greene's stories are always pretty and well told, and the lessons they are meant to convey cannot be missed even by the most careless reader. The lesson in "Dora's Dolls' House" is one of self-denial and obedience, the "dog in the manger" feeling is much reproved, and disobedience and selfishness are always punished, while obedience and self-denial meet with their reward.

A Gipsy against her Will. By Emma Leslie. (*Blackie & Son.*)—Lizzie is a discontented servant girl, who is persuaded to join a travelling caravan. She dislikes her new life even more than her former lot, and longs for the old days. Her brother seeks for her, and after much trouble finds her and brings her home again.

(1) *Lady Daisy, and other Stories. By Caroline Stewart.* (2) *Things will Take a Turn. By Beatrice Harraden.* (*Blackie & Son.*)—The short stories in these little volumes are adapted for our very young ones. The lessons deduced from them are very profitable, and the tales are attractive and well told.

A Day of Adventures. By Charlotte Wyatt. (*Blackie & Son.*)—Two little girls in their mother's absence set out to visit their grandmother, whose house was about five miles distant. They mistake their way, and, after falling into a pond and getting into many other scrapes, lose themselves in a wood. They are found asleep by two gentlemen, and taken home. An exceptionally well-told story.

Exiled; or, When my Great Grandmother was Young. By Catherine Mary MacSorley. (*John Hogg.*)—This is a girl's story which recounts the lonely life of a little foreigner at an English school. The period of the story is that of the French Revolution, and incidentally a good deal of information is given about the wild doings of the *sans culottes*. The book contains two full-page illustrations, and is attractively printed and bound.

The Ups and Downs of a Sixpence. By M. Seymour. (*John Hogg.*)—The Sixpence, which asks us in a sub-title to "guess the many curious places I've been in," passes an exciting life from its first appearance from a grandfather's pocket. Finally it becomes promoted, on its withdrawal from active service, to the position of a talisman on the neck of Master Bertram departing from school.

Ada Norman's Trials and Difficulties. By M. Seymour. (*John Hogg.*)—Ada is sixteen years of age at the opening of the story, and has just left school. She is a lonely, solitary girl, and, after many trials and difficulties, finds her place in the world which at one time she believed had no need for her.

UNIVERSITY AND COLLEGE INTELLIGENCE.

Cambridge.

This year's entry reaches the tremendous total of 956, which is 54 more than in 1887. St. Peter's, Clare, Corpus, King's, Jesus, Christ's, St. John's, Emmanuel, Sidney, Downing, Selwyn, and Non-Collegiate students all show an increase on last year. The other colleges show a trifling falling off.

Mr. H. Courthope Bowen, M.A., will deliver a course of twelve lectures on the Theory of Education during the Michaelmas Term, on Wednesdays and Saturdays at 2.15 p.m., commencing Saturday, October 26th. The lectures will be delivered in the Literary Schools, Trinity Street, and will be open to members of the University free of charge.

J. T. Nicholson, B.Sc. of Edinburgh University, has been appointed Demonstrator in Mechanism and Applied Mechanics.

Mr. F. J. H. Jenkinson has been elected without opposition to the office of University Librarian.

Professor Foster has been re-appointed a Manager of the Balfour Fund for a period of five years from June, 1889.

T. T. Groom, Scholar of St. John's College, has been elected Harkness Scholar for the ensuing year.

The Smith's prizes have been adjudged to Mr. H. F. Baker, B.A., St. John's, and Mr. J. H. Mitchell, B.A., Trinity. The adjudicators have placed the names in alphabetical order, not desiring to assign precedence to one essay over the other.

Dr. Butler, Master of Trinity, has been admitted Vice-Chancellor of the University.

OXFORD.

Mr. C. B. Heberden has been elected Principal of Brasenose.

Dr. Bellamy, President of St. John's, has been nominated Vice-Chancellor for the fourth and last year of his tenure of that office.

Mansfield College—the new Congregational institution—has been duly inaugurated.

The examiners have made the following elections to the University Hebrew Scholarships:—*Junior Kennicott Scholarship*, J. F. Stowning, exhibitioner of Wadham. *Pusey* and *Ellerton Scholarships*, G. G. Grey, non-collegiate, and G. H. Box, scholar of St. John's.

OTHER UNIVERSITIES, COLLEGES, AND SCHOOLS.

We hear that Dr. Morris has resigned the headmastership of the Royal Masonic Institution for Boys. We understand that a proposal to grant him a pension is being considered.

In connexion with the University of Otago, Dunedin, New Zealand, Mr. H. Auld, Agent for the Presbyterian Church Board of Property, Dunedin, has received intimation that Mr. Thomas Gilray, of the University College, Dundee, has been selected to fill the Chair of English Language and Literature, recently vacant by the death of Professor Mainwaring Brown. There were upwards of forty candidates in Great Britain.

Mr. Robert Williams, B.A., of Merton College, Oxford, has been appointed Professor of Welsh at St. Davids, Lampeter.

UNIVERSITY OF ST. ANDREWS—L.L.A. (WOMEN'S) EXAMINATION, 1889.—The results of this examination for the present year have been issued by the University, showing that 536 candidates entered for examination at 26 centres. Of these, 194 entered for the first time, as compared with 174 in 1888, when the number of subjects in which a candidate required to pass in order to obtain the title was raised from five to seven. The centres were—Aberdeen, Belfast, Birmingham, Bristol, Cardiff, Coblentz, Cork, Dublin, Dumfries, Edinburgh, Lausanne, Leeds, Leicester, Liskeard, Liverpool, London, Loughborough, Muskau, Newcastle-on-Tyne, Paisley, Paris, Pietermaritzburgh, Simla, Wolfenbüttel, and St. Andrews. Manchester and Inverness will probably be added in 1890.

CORRESPONDENCE.

ON THE PRONUNCIATION OF EARLY ENGLISH.

To the Editor of the Educational Times.

YOUR correspondent is evidently unaware of how much has been done to explain this subject in a sufficiently easy manner.

A student should learn four things, viz., the pronunciation of Anglo-Saxon, that of Middle-English (Chaucer), that of Tudor English (Shakespeare), and that of modern English.

And he should learn them in the order of their difficulty: *i.e.*, he should learn the pronunciation of modern English first (and most men know this practically, though not scientifically); then that of Chaucer; then the Anglo-Saxon; and then that of Shakespeare.

The pronunciation of Chaucer is all contained in an epitome written, as desired, by Mr. Ellis himself, in the Introduction to my edition of Chaucer "Man of Lawes Tale" (Clarendon Press) It is all contained in eleven pages.

The pronunciation of Anglo-Saxon is all contained in the Introduction to Sweet's Anglo-Saxon Primer, in a very short space.

The pronunciation of Chaucer, bythe way, is also given in Sweet's *Second* Middle-English Primer.

The pronunciation of Shakespeare is best learnt from Mr. Ellis's specimens in his great work, pp. 986–996; all in eleven pages.

Mr. Sweet's "History of English Sounds" covers the whole ground; and the pith of the matter is contained in a single page, p. 405.

Most of it is given in my "Principles of English Etymology." There is an epitome of the chief results, all in two pages, pp. 340, 341.

One rather wonders how much shorter these epitomes ought to be, in order to be assailable by a student.

WALTER W. SKEAT.

LONDON MATRICULATION.

AT

MATRICULATION,

JUNE, 1889,

78

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THE EDUCATIONAL TIMES.

LONDON, NOVEMBER 1, 1889.

THE *Times* has followed its usual course at this season, and has lent its columns for a discussion of a complaint respecting one of the public schools. This time the subject is not connected with work, or with examinations: it has to do with play. According to the *Times*, the controversy is on the "wisdom of compulsory games at public schools." It is evident that such a subject cannot be a matter of general interest to the teaching profession; for, as a rule, boys are only too eager to get to their games, and most teachers have to use their influence to prevent athletics from usurping too large a share of the time and thought of their pupils. But the discussion was not so simple as the above title would suggest. As usual, those who took the different sides were really considering different questions. Altogether three questions were involved:—

1. Ought boys who are indisposed by temperament to join in school games to be compelled to conform to the prevailing custom, and to keep the time-table for athletics as exactly as that for study?

2. If so, who ought to coerce the unwilling—the athletes amongst the boys, or the masters?

3. Ought the stronger amongst the boys to be allowed to apply physical force to all juniors indiscriminately—to those who are physically unfit for violent games as well as to those who are simply indolent—for the purpose of driving them into the games of football or cricket?

Most of those who have taken the affirmative side are really supporting the first question, while most of those who are opposed to the affirmative side are thinking only of the third.

With regard to the first question, there will not be two opinions amongst teachers. Where is the teacher who will deny for a moment that a certain amount of open-air recreation is absolutely necessary for all boys, and that our popular games afford the best kind of recreation? Equally unanimous will be the opinion that the influence of the boys on one another in these games, when they are properly played, constitutes the education of the playground or cricket-field, and is as important as the physical exercise. It is therefore perfectly right that the school opinion should be in favour of all joining in these games in one form or other. On the one hand, this opinion ought to prevent the formation of an exclusive clique of players, and on the other hand it should forbid the indulgence of solitary exercises which are sometimes preferred by those who have timid, retiring dispositions. The general opinion will usually be sufficient to prevent abuse on either side. It should be aided by the rules of the school, and should be backed up by the influence of masters.

Now let us look at the third question. Are there to be no exceptions? Are the boys with valvular weakness of the heart, or a brittle composition of the bones, to be driven with the crowd? There are in all large schools boys who, without having positively defective health, are so built that they would incur more than warrantable danger if they mingled in a scrimmage or stood behind a wicket. Are there not recreations less violent than football which will supply both healthful exercise and the social influence to which we have referred, in a form which will meet the needs and the tastes of these boys without exposing them to the risks which attach to their special cases? Undoubtedly there are such recreations, and hence there should be a judicious discrimination in regard to the games and exercises which boys are to be compelled to join. We deprecate the driving of all into the same games, just as we should deprecate the forcing of all through identically the same studies.

It is no justification of the destruction of the tender plant to say that the hardening process has succeeded with all the rest. The exceptions must be provided for, and must be protected. Who is to judge of the claims to exceptional treatment? Not the athletes; not the boys. A master's watchfulness and experience are alike required to detect the indolence which leads to a disinclination to join in the school games, and which ought to be counteracted, as well as to detect the constitution for which nature claims exceptional treatment. This is the answer to the second question. Those who have an excessive veneration for athletics have adopted the device of the Dock-strikers, and have given a question-begging *sobriquet* to all those who wish to avoid participation in athletic contests, no matter what may be the particular cause. All are called "loafers." But which is most contagious in a large school, loafing or bullying?

We have no doubt as to the answer which will be given by all who have had extensive experience of the ways of boys and youths. The dispositions of boys are plastic and are easily affected. The lack of consideration for the needs, the wishes, the feelings of others less strong or less favoured than ourselves soon grows into a delight in coercion, in the infliction of pain, in the sight of physical distress. If, therefore, the compulsion is effected by the boys, not through the influence of popular opinion, but by means of kicks and cuffs, more will be injured—it may be irreparably injured—in character than will be cured of the so-called "loafing." Both loafing and bullying are best repressed by the tone of the school, which, when healthy, will cause them to be looked on with popular disfavour. But, when physical compulsion is allowed to be applied by the athletic section of the Sixth Form, there is a danger that it will be applied, not for the good of the victims, but for the pleasure of their oppressors. We never yet knew this kind of compulsion to change a dread or dislike of the games in question into self-confidence or liking for these games. The unexpected pleasure begotten of experience has effected this change; but, as participation may be secured by a judicious exercise of a master's influence, argument, or persuasion, it must not be set down to the credit of the particular kind of compulsion. We see no way out of an emphatic condemnation of the exercise of physical coercion in this matter by one section of the boys upon another section.

We have so frequently discussed the question of physical training that we shall neither be suspected of setting an insufficient value on athletics, nor of having too great a veneration for them. We have frequently shown that success in them is quite compatible with success in study, and recently instanced the splendid example of St. Paul's School, in which all the athletic leaders last year won open scholarships. We do think, however, that school athletics should be rigidly regulated by school authority, and that the young and weak should be protected by the regulations against the inconsiderate, injudicious, or it may be even vicious, coercion by the strong.

Grown-up people generally, parents not excepted, have a careless, irresponsible way of treating the antics of children as matters merely for their own amusement, laughing at what children do or say as if these tricks were the tricks of monkeys and pet animals. They quote the children to their faces; make fun of their childish misdeeds; and show an absolute want of comprehension of how keenly children are affected by all that goes on around them. The attitude of mind often seems to be—children are a nuisance, unhappily unavoidable, and so the best thing we can do is to try and get some amusement out of them. The little people are over-praised, and for things not always worthy of praise; they are given free license to do just what they like, so long as they do not bother; and, if mamma does wake up at times to the necessity of a little discipline, it not unfrequently assumes the form immortalized by Du Maurier: "Maud, go and see what baby is doing, and tell him he mustn't." We have even known cases in which what no doubt went by the name of maternal fondness was only a subtle disguise for maternal self-indulgence; while, on the other hand, fathers have been known to frankly state that, when their day's work is done, they do not wish to be troubled with worries and frets about children.

Now, we are very far from thinking that children and their errors and misdeeds should be treated with too great seriousness and severity. It is quite as great an error to make too much of trifles, to be too fussily interfering, or to grow unduly solemn and shocked; and so to depress and quench that light-hearted sunny gaiety without which a child's best virtues will hardly grow at all. We do not plead for more austerity, but for more intelligence in the treatment of children: more sense of responsibility, less cynical indifference to results; and this not only in the case of parents, but also in that of all who have opportunities for influencing the lives of the young.

As an instance in point, we may mention the way in which the public generally—or at any rate most of the daily newspapers—have regarded and written about the novel, but by no means wholly ludicrous, antics of the children in so many English and Scotch elementary schools of late. However absurd the whole idea of a "children's strike" may appear to some, it is by no means a laughing affair for the children themselves, and for the schools and teachers. If steady orderliness, obedience, and good discipline are of any great value in the education given at school, then disorderliness and defiance of authority must surely have their serious side. We cannot by a shrug and a laugh obliterate all the consequences of what has taken place, and so set things once

again as they were. Defiance was successful, though short-lived; the lesson remains. Unruly children in elementary schools will be somewhat more difficult to manage than heretofore; and the small demagogues, who here and there (to afford amusement to the public) have been made the heroes of an hour, are sure to suffer harm themselves in consequence, and to be sources of harm to others. That such an outbreak—fortunately this time very restricted in extent, and very short-lived—was not unlikely to occur before long, many of us have from time to time pointed out when remarking on the harm that was being done to school authority and discipline by the attacks of sentimentalists without practical experience in the management of large numbers of children. If we are wise, however, we shall not restrict ourselves to saying, "I told you so"; but strive to see whether we may not learn some lesson from what has taken place.

Apart from questions of management and discipline, which will no doubt occupy the proper school authorities, it may be well to remember that even from apparently the most unreasoning complaints of children there is often something to be learnt. Amongst those which the children themselves have striven to make prominent, there is one complaint which seems to us not wholly unworthy of consideration. It is that which concerns "home lessons." The difficulties which children of the very poor experience in trying to do work at home are very real, and often very great. Even in families which cannot be described as poor, the children can seldom be provided with a room by themselves. They have to do their work as best they can, in the midst of much talk (generally much more interesting to them than their lessons), and other disturbances of various kinds are constantly occurring. It is wonderful, indeed, how they manage to do any good work at all in such cases; while the pleasantness of the family circle must itself suffer at times by the necessity of their exclusion.

That children should do some private individual work in connexion with their oral lessons is now accepted as an axiom. But is it absolutely necessary that they should do it at home? Might it not be possible to arrange so that, in the cases of all but quite the oldest, this individual work, or the greater part of it, should (after a brief break) be done during the last hour of school? We believe—and we speak with some experience in the matter—that as a net result the work would be immensely improved in consequence. The plan is adopted in some schools. Why should it not be tried by others?

In our opening remarks we referred to the indifference and lack of skill which some parents display in the management of their children. It may interest some of our readers to be informed that a large and influentially supported society has been started, and is at work, with the object of devising and rendering generally accessible some plan for breaking down this indifference, and for providing help where help is needed and asked for. This society is called "The Parents' Educational Union." On its Council are many headmasters, bishops, well-known educationists, and others of social influence, all of whom are anxious to promote an improve- of the kind indicated. The society will hold about a dozen meetings in various parts of London between the 11th and 17th November. No doubt the public will be duly informed of the matter. But we are asked to say that those who are particularly interested should write to Miss Mason, Mornington House, Bradford.

Adam Smith published his "Wealth of Nations" more than a century ago. It is hardly an exaggeration to say, with Stanley Jevons, that to this book we owe, in as great degree as any other circumstance, the wealth and prosperity of this kingdom; or with Bagehot, that the life of almost every one in England—perhaps every one—is different and better in consequence of it. No book since published has, in fact, exercised a tithe of the influence of the "Wealth of Nations." Nor had it to wait long years before the importance of its teachings was recognized. Six editions were called for in fifteen years. Pitt was so impressed with its doctrines that he did not hesitate to try and make them operative in legislation. One of the first-fruits of the Minister's study of Adam Smith was his famous Irish resolutions, by which he sought to confer on Ireland many of the benefits of free trade. The ill-informed rhetoric of Fox in the English Parliament, and of Grattan in the Irish, frustrated his aim, and caused the proffered boon to be rejected. Several of Pitt's most distinguished successors applied the economic principles enunciated by Smith to simplify our tariffs, repeal our navigation laws—to, in short, remove all fetters from trade and commerce, and get rid of such laws as unduly interfered with the freedom of masters and workmen in making their own contracts about work and wages.

Such were some of the very important reforms effected by English political economy as it came from its founder and his earlier expositors. It is true that its triumphs have been chiefly of the negative order. They have been won in destroying what was positively bad and in retarding, rather than in establishing or framing any great measures of constructive legislation.

Having effected so much, it is very singular that the science should fall into the position of neglect, if not of discredit, in which we now find it. Statesmen have relegated it to the planet Saturn. Economists themselves proclaim its unsatisfactory character. "Almost chaotic," said Jevons a dozen years ago. "It lies rather dead in the public mind," wrote Bagehot in the same year. "Not only it does not excite the same interest as formerly, but there is not exactly the same confidence in it. Younger men either do not study it, or do not feel that it comes home to them and that it matches with their most living ideas. . . . . They ask, hardly knowing it, will this 'science,' as it claims to be, harmonize with what we now know to be science, or bear to be tried as we now try science? And they are not sure of the answer."

Other economists of eminence hold that the science must be entirely recast in method and materials, from the point of view of historical evolution, if it is to fulfil any useful mission in modern life.

Now, at a time when not only the applications, but the fundamental theories and even the definitions, of political economy are *sub judice*, it looks most inopportune to bring before the public the mathematical theories of the science elaborated by Cournot, Walras, Jevons, and others. This, however, is what Prof. Edgeworth did at Newcastle as

President of the Economic Section of the British Association. It is impossible to read the paper through without being struck with the industry, ability, ingenuity, and even humour of its author. So well illustrated is it with diagrams that it might at first sight be taken as a chapter on curve-tracing. It is quite clear that Mr. Edgeworth is indifferent to being widely read; for, as he admits himself, mathematics "is, unfortunately, Greek to many economists," and of those who do read him we fear many will conclude that his paper is a waste of intellectual effort. He never misleads his reader; on the contrary, he points out the limitations and drawbacks of applying mathematics to economics with much frankness.

"If you accept these parallels," he says—meaning the calculus of probabilities and the symbolic laws of thought, as formulated by Boole—" you will, perhaps, come to the conclusion, that the mathematical theory of political economy is a study much more important than many of the curious refinements which have occupied the ingenuity of scientific men; that, as compared with a great part of logic and metaphysics, it has an intimate relation to life and practice; that, as a means of discovering truth and an educational discipline, it is on a level with the most theoretical part of statistics; while it falls far short of mixed mathematics in general, in respect of that sort of pre-established harmony between the subject-matter and the reasoning which makes mathematical physics the most perfect type of applied science." This is a sufficiently modest estimate of the value of applying mathematics to the exposition of economics, and with it we have no fault to find, although we are not quite sure we understand what it is that Professor Edgeworth means by "educational discipline" in the passage just quoted. Elsewhere he states that "the regulative effect, the educational influence of studies like those of Cournot and Jevons are probably very extensive." If all that is meant by this is, that the application of mathematics to economics enables those who can use this instrument to define accurately the limits between theory and practice—to perceive, and perceiving to avoid, the confusions which economists not thus equipped are only too prone to fall into—we have no objection to make; but, if any claim is made for economics as an educational discipline *per se*, we must demur. So far as it is a deductive science, it follows the method of mathematics; so far a it is an inductive science, it borrows the methods of the experimental sciences; and, so far as it professes to be an orderly arrangement of economic facts, it must take for its model the natural history sciences. Thus, the adequate study of one branch of each of these groups of sciences supplies all the training in method that economics can possibly supply.

There are, however, some serious objections to the use of mathematics in economic reasoning which are not noticed by Professor Edgeworth, the most formidable being the impossibility of fixing units. Units of utility, of desire, and value are too vague to allow of deductions of any cogency being founded upon them.

We are afraid also that the mathematical treatment of political economy exposes the science to the charge that it is too abstract and unpractical—that it does not repose on a solid basis of fact and reality, but rather on arbitrary abstractions having little relation to the facts of business, and that it will come to be regarded as "the stars which give no good light because they are so high."

By the death of Dr. James Prescott Joule, on the 11th ult., at his residence near Manchester, we have lost one of our greatest, but probably the least known to the general public, of our scientific discoverers. As long ago as August 25, 1843, Joule read a short paper before the chemical section of the British Association meeting that year at Cork, announcing to the world a discovery which has since revolutionised modern science. This was the determination of the mechanical equivalent of heat. By this discovery he laid the foundation of chemical dynamics and of thermal chemistry. As the indestructibility of matter constitutes the basis of chemical statics, so the indestructibility of energy constitutes that of chemical dynamics. But the applications of this principle are not confined to chemistry. They extend to every branch of physical science

Dr. Joule, who was present in 1887 at the Association meeting of Manchester, received from Sir Henry Roscoe the homage due to his life-long devotion to science, and we may now fitly recall some of the words then used. Sir Henry, having quoted and adopted the language used by one of his predecessors in reference to another Manchester man, Dalton, as applicable then to Joule, went on to say: "James Prescott Joule it was who, in his determination of the mechanical equivalent of heat about the very year of our first Manchester meeting, gave to the world of science the results of experiments which placed beyond reach of doubt or cavil the greatest and most far-reaching scientific principle of modern times; namely, that of the conservation of energy. This (to use the words of Tyndall) is, indeed, a generalisation of conspicuous grandeur fit to take rank with the principle of gravitation; more momentous, if that be possible, combining as it does the energies of the material universe into an organic whole, and making the eye of science to follow the flying shuttles of the universal power as it weaves what the 'Erdgeist' in *Faust* calls 'the living garment of God.'"

As we have hinted, Joule was never much before the public; he carried on his admirable experiments through a long series of years in his private laboratory, avoiding the excitement of public lectures and demonstrations, for which he was unfitted by the delicate state of his health. He did not seek honours or fame. Yet he received honorary degrees from the Universities, and he was elected to the Fellowship of many learned societies at home and abroad. Of rewards of a more material sort there is but one to record: the veteran scientist, in the year 1878, received a letter from Lord Beaconsfield announcing that it was the Queen's pleasure to grant him a pension of £200 per annum. This modest recognition by his country of his services to science afforded much gratification to Dr. Joule. It would have been only fitting that the dust of this great Englishman, an epoch-making man in physical science, should have mingled with the dust of his equals in Westminster Abbey. The delay in the announcement of his death, it is said, prevented any application being made for his interment there.

REVIEWS, NOTICES, &c.

F. Max Müller: Three Lectures on the Science of Language and its Place in General Education, delivered at the Oxford University Extension Meeting, 1889. (*Longmans.*)

Another subject for the unfortunate schoolboy! Mr. Romanes, in his "Origin of Human Faculty," sought to prove that lan-

guage is no impassable barrier between man and animals. Max Müller somewhat cruelly holds him to have proved the direct contrary. Assuming Mr. Romanes to be quite in the wrong—we should like to hear Mr. Romanes on the subject—it seems to Max Müller—

"disgraceful that in our general system of education, and even of elementary education, no place should have been found as yet for the science of Language, and that a single child should be allowed to grow up without knowing the worth and value of his most precious inheritance, without knowing what language is: language which alone distinguishes him from all other animals; language which alone makes man man."

When scholars recommend us a new subject, will they kindly state how many hours a week they expect for an adequate treatment, what other subject is to be displaced for it, where the teachers are to come from; and, while they are about it, they might find out for us the psychic span of a boy's mind,—can a child of thirteen, say, learn thirteen subjects at the same time?

The hope of learning what language really is causes us to read on eagerly, but the rest of the first lecture and the beginning of the second are taken up with the reduction of the 250,000 words in English, to 460 out of the 587 roots of primitive Aryan. These roots "nearly all express acts, such as bearing, striking, pushing, cutting, tearing." Now the perception of such single acts rose into our first conceptual knowledge through being repeated and viewed collectively as a single action; these acts, especially such as were done in common with other men, were accompanied by certain natural noises, such as the *clamor concomitans* of sailors shouting *Yo heo*. The coupling of these sounds with the action forms the concept, and, as "animals have not what we call concepts, . . . this is the true reason why they have not what we mean by language." Suppose two wild dogs had frequently gone hunting together in a pack, and that one, when asleep, emitted in his dreams the cry used in seizing the prey, would not the other have a very definite concept of hunting, and would not the puppy who listened and made the same sound when he first went out be uncommonly near to speech? We fail to see here any impassable barrier. Besides, does Max Müller see in the Aryan roots—on which scholars are by no means agreed—ultimate elements of human speech? If a Chinese mandarin reconstructed Latin roots from a case of Romance books, he would be as near solving the fundamental problems of language as we are with our primitive Aryan. In the third lecture, a vigorous attack is made on the attempt to classify men ethnologically: because man is now more or less of a mongrel, and we cannot analyze his blood into its ancestral elements, we must take language as our test-stone of classification. Surely this reasoning, based on a loose comparison of blood and language, is fallacious. No element of language affords a more infallible test for grouping men than the hair does ethnologically: how do we know that primitive Aryan was not profoundly modified by some external factor parallel to that of Latin prose on English syntax, or of the English occupation on Canadian French? The rest of the lecture is occupied in turning into ridicule the claim of Scandinavia as the primitive home of the Aryans. Instead of taking the extreme views of Penka, we wish Max Müller had discussed the temperate statement of the question by Schrader in his *Sprachvergleichung und Urgeschichte*.

Pamir is chosen as the Aryan home because geologists tell us that life first became possible there; even accepting this statement as true, the argument is of no weight, because man has been on the earth for 30,000 years, at least, and we can hardly imagine him to have stayed in Pamir all that time, gradually learning to speak primitive Aryan.

The omission of the name of Karl Verner from the list of scholars at the end is somewhat startling; his article on the "exceptions" to Grimm's Law is the most brilliant contribution to philology within the last twenty years. We wish our author had insisted at greater length on the imperative necessity for an enlarged study of language in England: he says, with perfect truth, "that the discovery of the Sanskrit language and literature has been of more value to England in the retention and increase of her Indian Empire, than an army of a hundred thousand men." How many students of Sanskrit were there at Oxford and Cambridge last year? Suppose we took five per cent. of the excess of classical students turned out every year by our Universities, and set them to work at Keltic, others at Arabic and Chinese? Our disproportionate encouragement of Latin and Greek may one day cost us dear.

Chaucer: The Legend of Good Women. Edited by the Rev. Prof. W. W. Skeat. (Clarendon Press.)

Professor Skeat certainly seems determined to overwhelm us at once with gratitude and astonishment. We have only just paused for a while from discussing and enjoying his masterly edition of the "Minor Poems"; and here we have another Chaucer volume in every way as masterly as its many predecessors. Our readers would not thank us were we to repeat the criticisms which we so lately made in the case of the earlier and larger volume. So we shall in this case mainly restrict ourselves to a description of the most marked features of the volume before us. Let us say at once that it is impossible for any one to be quite so charmed with "The Legend of Good Women" as with other poems of Chaucer. The laments of the good ladies who suffered grievous things for love's sake—Cleopatra and Thisbe, and Dido and Ariadne, and the rest—are very like one another, and somewhat monotonous; and the poems about each consist almost entirely of these laments, the stories of the lives of "Cupid's Saints" being cut down to the barest outlines. Did Chaucer feel that this was not a good plan? He constantly repeats the statement that he must leave out everything but the main points, as if he were not quite easy in his mind about so doing. And he left the "Legend" only half finished.

But if the sections of the poem, in spite of many felicities of thought and language, are a little tedious here and there, the Prologue—with its autobiographic touches, its description of May-morning, its tribute to the Daisy, and the meeting with the Lord of Love and his bride and queen, the lady Alcestis—the Prologue makes up for everything. Chaucer never wrote anything more delicately fresh and beautiful. And it is precisely with regard to this Prologue that Prof. Skeat has been most lavish of skill and labour. Each page of it is divided into two parts by a horizontal line, and two texts are given, one above and one below this line; while at the bottom of the page all the various readings from the other MSS. are added. In the rest of the poem only one text is given, with the various readings as before. At first the double text arrangement is somewhat of a trial to the eye. But one soon grows accustomed to it, and comes to realize its very great advantages. Every one now knows how thorough and complete Prof. Skeat's Introductions and Notes are. Here, as elsewhere, nothing is omitted that can help us with respect to the date, sources, text, and metre of the poem. The MSS. also, and the earliest printed editions, are carefully described. And we are well provided with Indexes and a Glossary. But, after all, we think that the greatest service Prof. Skeat has done, and is doing, for us is giving us a good sound text. Not every one, not even every editor, seems to realize that to produce this, before all things else the text-maker must possess a thoroughly sound knowledge of Chaucerian grammar and Chaucerian pronunciation. The emendations proposed and adopted by editors possessing little knowledge of either of these, are simply amazing; and Prof. Skeat does not omit many quiet or keen hits at their delinquencies. It would seem, he says in one place, that "when the author to be edited happens to write in Middle-English, the editor may do even what he list, and no man regards his errors." Many of the readings, even in some of the MSS., are at once inadmissible simply because they are bad grammar, or impossible rhymes. In mere matters of spelling, too, it is high time that some definite and consistent agreement were come to. Ninety per cent. of the variations in spelling are practically meaningless; and they render the study of Chaucer (especially in schools) far more difficult than need be. Prof. Skeat will confer an immense boon on us if he gets a uniform spelling adopted. These last two books of his have shown that the thing is possible, and have been great moves in the right direction. Even while we write, we hear that the Clarendon Press edition of the "Canterbury Tales" is to be revised in the way we propose. We may therefore soon have our desire accomplished, and thus have another reason for thanking Prof. Skeat as heartily as we do now.

On Early English Pronunciation; with especial Reference to Shakespeare and Chaucer. Part V. The Existing Phonology of English Dialects compared with that of West Saxon Speech. By Alexander J. Ellis.—Mr. Ellis is to be congratulated on the completion of his colossal work. The first beginnings of his dialectical work reach back to 1848; the present volume alone has demanded fourteen years. To get phonetic transcriptions of 1,145 places from 811 correspondents might easily fill up the time. Those of us who fear to set to work on the five volumes will await the abstract promised in the Preface. This,

we understand, will run to about 200 pages, while an abridgment of the present volume for the English Dialect Society is already in the printer's hands. We cannot attempt to criticise the work; ability as well as space are lacking. Students will probably derive great assistance from studying the dialect of their own home; we all preserve more of our native vowel flavouring than a "correct speaker" would care to acknowledge. It seems a note of the new school of phonetics to indulge in a large number of abbreviations; the reader will do well to spend an hour or two over the preliminary matter, and to draw for himself a map marking the six main divisions as a rough guide in dealing with the forty-two districts into which the English-speaking portion of Great Britain has been divided. The work is so systematically arranged that the student will not be long before he finds his way among the enormous wealth of matter presented to him; elaborate word-lists make reference easy, a point of capital importance in books like these, as they are often consulted for purposes other than those for which they were specially written. The most important chapter in Part IV., on "Educated English Pronunciation" (pp. 1090—1167), must be supplemented by pages 78—88 in this volume. A point of capital importance for the teaching of languages cannot fail to be driven home to us through Mr. Ellis's work: the infinite variety and complexity of a language really living, the striking contrast of thorough-going change with the retention of old material, ought to make us ready to throw off the false views of fixity in language which we have unconsciously absorbed from the traditional Latin grammar. The forthcoming abridgment will doubtless take into account Mr. Sweet's "History of English Sounds"; may we ask Mr. Ellis to give the *Visible Speech* symbols to which all other can be referred, and to put into the pocket of the book, with the dialect maps, a card of the abbreviations? When once we begin to study Mr. Ellis's volumes we somehow forget their size, and the bits of amusing information which he so skilfully interweaves with the text make his writings eminently readable. May we thank him for the *magnum opus* he has been fortunate enough to see completed, and to hope that his health will allow him soon to round it off with the abridgment?

A Treatise on Elementary Dynamics. By S. L. Loney, M.A. (*Cambridge University Press.*)—This book (pp. 326, crown 8vo.) is, as its author wishes it should be regarded, a fairly complete text-book of those parts of the Dynamics of a particle which can readily be treated algebraically and geometrically, but without the use of the infinitesimal calculus. The book is excellently printed and copiously supplied with examples; but, as is almost invariably the case in treatises of this kind, the working out of the examples affords exercise, not in the application and consideration of the principles of dynamics, but simply in geometry and algebra, and the manipulation of formulæ. The manner, if not the method, of many of the proofs is fresh and new; and the hodograph is used effectively in dealing with normal acceleration and the motion of a particle in a conic section. So too, in treating of pendulum and cycloidal motion, the introduction of the conception of simple harmonic motion certainly considerably simplifies some of the proofs. We are not at all sure, however, that this plan does not tend to draw away the student's attention still more from what is distinctly dynamical to what is purely geometrical—and in this sense it would not be a gain. But we have graver fault than this to find with Mr. Loney's book. He does not always seem to be alive to what is necessary for the complete cogency of a proof. For instance, in his *Parallelogram of Velocities* (p. 7) his particle is transferred in the usual way from one corner of the parallelogram to the opposite corner, and he assumes—he does not prove—that its path is a straight line; as indeed he has already assumed in the exercises on page 4. Nor do we think it quite wise to assume as an axiom that because the two component velocities are constant in magnitude and direction, therefore the resultant velocity must also be constant in magnitude and direction. Again, we fail to see the value of defining (p. 15) the *Change of Velocity* as "not the difference in magnitude between the magnitudes of the two velocities, but that velocity which compounded with the original velocity gives the final velocity." It is straining language, and is sure to confuse the beginner, to describe what produces a change as if it were the change which it produces—especially since, when (as on p. 17) the initial and final velocities are in the same direction, "the change of velocity" *is* the difference between the magnitudes of the two velocities. Undoubtedly teachers will find much that is useful and suggestive in Mr. Loney's book; but in its present form we cannot recommend it unreservedly as a text-book for boys and girls at school.

(1) *Solutions of the Examination Papers in Algebra, Mensuration, and the Theory and Use of Logarithms, set for Entrance to the Royal Military College, Sandhurst. By the Rev. John H. Robson, M.A., LL.D.* (*Relfe Brothers.*) (2) *Mathematical Examination Papers set for the Militia Further and Sandhurst Entrance Examinations, with Answers. By W. F. Austin and J. V. Elsden, B.Sc.* (*Edward Stanford.*)—Mr. Robson's book contains a book of questions (1880 to 1888 inclusive) fitting within a pocket in the larger book, so as to be removable. By this plan the opportunity is secured to students of working or attempting the questions without the aid of the solutions. We agree with Dr. Robson in his opinion that, "without adopting the theory of the Correspondence Classes that teaching in black and white is superior to oral teaching, we may assume that students who cannot obtain this oral teaching may find in his solutions no mean substitute for it." In addition to this, we have no doubt that many teachers will find it serviceable, in these days of pressure, to have the solutions at hand. Dr. Robson's methods are always neat, and his solutions are nearly always clear even to beginners. In some cases, however, a few words are required to make a student who has not seen the method before comprehend what has been done. We will give as an instance 5 (i.), p. 89. It stands thus:—

Let $$\sqrt{18+8\sqrt{5}} = \sqrt{x}+\sqrt{y},$$
$$\therefore\ \sqrt{18-8\sqrt{5}} = \sqrt{x}-\sqrt{y},\quad \therefore\ x+y = 18,$$
$$x-y = \sqrt{324-320} = 2.$$
$$\therefore\ 2x = 20,\quad \therefore\ x = 10,\quad \therefore\ \sqrt{x} = \sqrt{10},$$
$$2y = 16,\quad \therefore\ y = 8,\quad \therefore\ \sqrt{y} = 2\sqrt{2},$$
$$\therefore\ \sqrt{18+8\sqrt{5}} = \sqrt{10}+2\sqrt{2}.$$

This would be clearer to a beginner thus:—

Let $\sqrt{18+8\sqrt{5}} = \sqrt{x}+\sqrt{y}$ ..... (1),
then also must $\sqrt{18-8\sqrt{5}} = \sqrt{x}-\sqrt{y}$ ..... (2).
Square (1) and equate the rational parts,
$\therefore\ x+y = 18.$
Multiply (1) by (2), $\therefore\ x-y = \sqrt{324-320} = 2.$
Adding these, we obtain $2x = 20$ or $\sqrt{x} = \sqrt{10}.$
Subtracting, we have $2y = 16$ or $\sqrt{y} = 2\sqrt{2}$, &c.

The work is remarkably accurate throughout. The other book before us contains the questions set since the Revised Regulations of 1885 came into force, with answers, but without solutions.

The Sacrifice of Education to Examination: Letters from all sorts and conditions of men. Edited by Auberon Herbert. (*Williams & Norgate.*)—This is a volume of letters written in connexion with the famous "Protest." The following is the editor's account of these letters:—

"Many of them were not written in the first instance for publication, but, perhaps, are not the less interesting on that account. My friend Mr. Knowles has kindly handed me over such letters as he himself received, and of these—with permission of the writers—I have added many to the collection. I have tried to hold the balance fairly by printing all the adverse letters I received, and I do not think I have kept back any criticism that seemed of value. I have also added some extracts from an interesting pamphlet that has lately been published in America, 'Examination and Education.'

"It has been said that we, who have protested, desire to protect education from the competition that prevails everywhere in the world. If we did, we should undoubtedly fail in our effort, and deserve to fail. Competition is the path by which all improvement comes to us. But the natural and healthy competition of method against method, each seeking for the approval of the public, and a highly artificial competition that assimilates all methods to one pattern, and draws its principal inspirations from the racecourse, are two very different things, that must not be confused together."

OUR LIBRARY TABLE.

Cynewulf's Elene, by C. W. Kent, M.A.; and *Elene, Judith, Athelstan, and Byrhtnath, translated by J. M. Garnett, M.A., LL.D.* (*Ginn & Co.*)—The text of Mr. Kent's edition is that of Zupitza's second compared with Wülker's and also Zupitza's third, and may consequently be relied upon. Zupitza and Wülker, too, are the sources from which almost the whole of the Introduction is derived. The Latin original takes up a few lines at the bottom of each page of text, and may possibly be of assistance. We are thus left with the notes and Glossary. The former occupy just twelve pages, and we notice with surprise that six of these pages are devoted to the first 200 lines of the poem, the remaining 1,100 receiving but scant attention. Nor can we speak highly of their general quality. The student who reads the "Elene" has learned long since that *wæs* is 3rd

p. s. pret. from *wesan*, that *geara* is gen. pl., that *geteled* is p. p. from *tellan*, *ahæfen* from *ahebban*, and that *gumena* is gen. pl. from *guma;* nor need he be told that *sæmearh plegean* recalls the prancing steed, and that *wadan wægflotan* suggests the swimmer. There are a few good notes, however, notably those on *leneten* (line 1227), on *wigsped* (line 165), and *æt wendelsæ* (line 231), but the above is a fair sample of their quality. The Glossary is more complete than is usual in English editions of Old English poems, and will be of value to the student. In Dr. Garnett's translation the line-for-line form has been employed. Although this necessitates many *lapsus* in correctness of rhythm, yet it is unquestionably more serviceable to the student. There are a few notes, but they are mainly references to the texts of the poem and to points in which the translator differs from the views taken by Dr. Weymouth in his translation of 1888, or else alternative translations.

Campbell: Gertrude of Wyoming. Edited by H. M. Fitzgibbon, M.A. (*Clarendon Press.*)—It is somewhat difficult to imagine why the Clarendon Press should have brought out an elaborately annotated edition of this feeble and artificial poem. As Mr. Fitzgibbon himself confesses, "it is a second- or third-rate poem, containing a few first-rate things"—very few we should have said. The Introduction runs to 37 pages, but is interestingly and carefully written. Then come 29 pages of text. And lastly, we have no less than 118 pages of notes and appendices. We may well exclaim, "O monstrous! but one halfpennyworth of bread to this intolerable deal of sack!" But when an editor thinks it necessary to explain "deathlike," "bowstring," "serpent," "shadow," and the like, and to spin out some single notes to more than two pages of small print, it is evident that the author's own work must become of wholly minor consideration. Still, there are some people who like this kind of thing; and those who do will find that Mr. Fitzgibbon has done his work very thoroughly.

Wives and Daughters. By Mrs. Gaskell. (*Smith, Elder, & Co.*)—This is the first volume of a handy pocket edition of Mrs. Gaskell's works which is now being issued by Messrs. Smith, Elder, & Co. The type is necessarily somewhat small, but is clear and readable. The volume measures six inches by four, and costs eighteenpence. There will be eight volumes in all.

The Royal English Classics. (1) *Addison: Sir Roger de Coverley.* (2) *Milton: Paradise Lost, Bk. I.* (3) *Scott: Marmion, Canto VI.* (*Nelson & Sons.*)—The two former of these cost fourpence each; the last costs sixpence. They are well-printed and satisfactorily annotated little books. Etymologies are very wisely omitted. It would have been well if most of the grammar notes had also been left out, as they do not seem to be wanted. The brief introductions are carefully written, and to the point. Altogether the series deserves to be successful.

Arithmetic for University Examinations (Scotland). (*W. & R. Chambers.*)—This is a new edition of classified examples in arithmetic taken from papers set in University examinations. It would perhaps have been more useful if the examples had not been classified. Children get little good from working out strings of sums all on the same lines.

Education: A Monthly Magazine. (*Thomas Laurie.*)—We have received the September number (the first of Volume x.) of *Education*, which is published both in Boston, U.S.A., and London. It is, as usual, extremely well printed on good paper, and this number contains 72 octavo pages. *Education* is one of the best educational periodicals of the United States. The article on the "Education of Girls" (by Mary E. Cardwill) is thoughtful, moderate, and encouraging, and shows very clearly how little is to be gained and how much lost by maintaining a marked difference between the education of boys and girls. "The Future of Geometrical Teaching" is well dealt with by Mr. G. W. Evans. And we are given a useful bibliography of current periodical literature (not professedly educational) likely to be interesting to teachers. The other articles are quite up to the usual standard. In particular, we may mention a good summing-up of the late controversy on examinations by Mr. Barr Ferree.

On the Causes, Treatment, and Cure of Stammering. By A. G. Bernard, M.R.C.S., L.R.C.P. (*J. & A. Churchill.*)—Mr. Bernard was once an inveterate stammerer himself, and effected his own cure by careful attention to the rules which he now gives us in his small book (of 71 pages). There are set before us a description and explanation of the cause of stammering; a method for its treatment; and, lastly, several exercises to be used as directed.

Blackie's Science Text-Books: An Elementary Text-Book of Geology. By W. J. Harrison. (*Blackie & Son.*)—This is a very fair specimen of books of its own class—small books of science compiled mainly for examination purposes, by writers fairly conversant with the subject and with examinations. There is nothing new or striking in the book, but it is put together with some care and neatness. Those who like the author's "Earth-Knowledge" will, we think, like this book—and will, we also think, find it freer from slips and inaccuracies. The subject is divided into three parts. Part i., Descriptive Geology, pp. 5–103; Part ii., Palæontology, pp. 104–112; and Part iii., Historical or Stratigraphical Geology, pp. 113–190. An Index and a few examination papers are added. Part i., which is the longest, seems to us the best done, and is undoubtedly the part of the subject best adapted for schools. Part ii. might very well have been omitted altogether in a book of this size.

The Life and Times of Isaiah as illustrated by Contemporary Monuments. By A. H. Sayce, LL.D. (*Religious Tract Society.* 1889.)—This is one of the excellent series of handbooks issued under the title of "By-Paths of Bible Knowledge." We need hardly say that Professor Sayce brings to his subject the knowledge of a life-time and the enthusiasm of an explorer. It is interesting to notice how marvellously recent discoveries have vindicated the accuracy of the Old Testament writers, and removed many of the difficulties which beset some parts of the Jewish chronology. As Mr. Sayce observes, "a world which had seemed hopelessly past and dead has in the good providence of God been suddenly quickened into life."

Athanasius: his Life and Life-Work. By H. R. Reynolds, D.D. (*Religious Tract Society.* 1889.)—The venerable President of Cheshunt College has found a congenial task in relating the life-struggles of the great champion of the Church in the fourth century; he is in full sympathy with the living martyr, filled "with the impulse of one stupendous thought." The record of the work of Athanasius is made as popular as the character of the great Arian controversy allows; and readers will find in this small volume an interesting and accurate survey of one of the most momentous periods in the annals of Christianity.

First Mathematical Course. (*Blackie & Son.*)—This small book includes a complete exposition of the principles of Arithmetic, of Algebra up to Simultaneous Simple Equations, and of the First Book of Euclid, and follows the requirements of the Science and Art Department. The explanations are necessarily condensed, but are clear and sufficient. The very large number of exercises and problems greatly increases the value of the book.

Moll's Guide to Fishing in Norfolk Waters. (*Jarrold.*)—The average visitor to the Broads goes there with the idea that he is bound to catch fish. His enthusiasm is generally cooled by his early attempts in the rivers, and seldom survives his experiences of the more secluded waters, where he will either have to pay for his sport or be warned off by notice-boards, which never vary their warning that no fishing is allowed except to give the information that these waters are strictly private, or to curdle the intruder's blood by telling him that he will be prosecuted. If Mr. Moll will tell us where we may fish in peace and quietness, with some probability of catching a number of fish that will not have to be multiplied by ten to round off the fishing anecdote, then he will earn the gratitude of those thousands who are anglers by accident rather than by profession.

Picturesque Geography. (*Bacon & Co.*)—The twelve pictures of this series have been designed for the purpose of school-wall decoration. They will supply the mind of the young with images more definite and lasting than those gained from books alone, but we cannot speak highly of their artistic merit. The series will serve as a pictorial introduction to geography, and with the notes, which are in a separate book, we have an outline of the chief features of physical geography.

Deductions from Euclid. (*Moffatt & Paige.*)—In this book there are 615 deductions fully worked out. By reason of the absence of an index of the enunciations, we are led to suppose that the students who use it are to commit to memory the whole of its contents. If this is so, we cannot commend the work. As a book of reference it might be of some use, but in its present state we are unable to appreciate it.

English Composition Exercises. By T. M. Laine. (*Chapman & Hall.*)—These exercises are intended for the use of children in Standards VI. and VII. A subject is selected—for instance, "Heroism," "Ginger," or the "Complaint of a Grocer"—of which a skeleton of the kind of thing expected is provided. A model essay, showing how to incorporate the various headings, is given at the beginning of each section, and the author hopes that the pupil will gradually learn to clothe the skeleton with flesh, and make the dry bones live.

Principles of Book-keeping. By the Rev. C. N. Nagel, M.A., and Alexander Hall. (*Relfe Brothers.*)—The great number of graduated examples in this work will prevent the teaching of book-keeping from degenerating into a mere writing-lesson. The authors have kept clearly in view the fact that, to ensure success in the understanding of book-keeping, a pupil must work out many examples independently. The book is very well printed in large and clear type, and the Appendix contains notes on Cheques, I O U's, Promissory Notes, and Bills.

First Grade in Inorganic Chemistry. By T. Ward, F.C.S. (*J. Heywood.*)—There are some good points in this work which adapt it especially to young pupils. Technical terms have been gradually introduced, the earlier subjects being treated in a familiar style, leading facts are tabulated, definitions are printed in prominent type, illustrations have been largely used, and after each lesson there are questions.

Daily-Working and Examination Cards. By Dr. Beach. (*Joseph Hughes.*)—The series consists of packets from Standards II. to VII. inclusive, and a packet of "Long Tots," containing some forty, some thirty-two cards each. The Daily-working Exercises are on one side of the cards, the Examination Tests, furnishing separate exercises for boys and girls, on the other. They will be an immense relief to the teacher.

P. Vergili Maronis Aeneidos Lib. VII. The Wrath of Turnus. Edited for the use of Schools, with Vocabulary, by Arthur Calvert, M.A. (*Macmillan & Co.*)—Another good addition to the "Light Blue" series.

Tables for Chemical Analysis. By A. T. Richardson, B.A.—These tables are for students commencing the analysis of simple acids and gases. The tests are arranged in groups according to the reagents applied; the precipitates are described in the first column and the confirmatory tests supplied in another. One section is devoted to blowpipe reduction on charcoal, and to borax beads.

Selections from Wordsworth, with Notes. By A. J. George, M.A., Editor of Wordsworth's Prelude. (*D. C. Heath & Co.*)—These selections

have been chosen as the best representatives of the poet's work. They have not, however, been limited to those poems which represent his *best* work, for it is part of the compiler's plan to exhibit the growth of Wordsworth's mind and art. Wordsworth wrote so much, and his work extends over so many years, that one needs to be familiar with the best product of each period of his work—dawn, midday, and sunset—in order to appreciate the beauty and the variety of his contributions to literature. The text adopted is in every case the poet's last revision. The notes are partly the poet's own, which are in the main historical, and partly the author's, which are intended to be explanatory and supplementary. Messrs. Heath & Co.'s publications are all to be obtained from their English agents, Messrs. Isbister & Co.

Modern French Readings, with Helps for Composition. Edited by A. Jamson Smith, M.A., Headmaster of King Edward's Grammar School, Camp Hill, Birmingham. (*London and Boston: Ginn & Co.*)—The extracts contained in this volume were selected by Mr. William J. Knapp, Professor of Modern Languages in Yale College. They possess several advantages of great importance—(1) they are modern, and fitted to make the learner familiar with the actual current language of the Frenchman of the present day; (2) they are not so short that the subject-matter is easily forgotten. Translation and composition are brought into close connexion, the French text being made to tell its own story of composition.

Chambers's Expressive Readers. Book IV. (*W. & R. Chambers.*)—This is another well-illustrated and well-annotated reader of the usual class of extracts adopted in Code-governed schools, but is a little more difficult than the ordinary Fourth Standard Reader.

Blackwood's English Grammar and Analysis. Standards III., IV., and V. (*W. Blackwood & Sons.*)—These little books, of prices 1½*d.*, 2*d.*, and 3*d.* respectively, contain definitions, short explanations, and exercises of the three standards.

Solutions to Questions in the following Subjects at the May Examinations of the Science and Art Department:—Building Construction, Magnetism and Electricity, Animal Physiology, Principles of Agriculture, 1881–1886; *Hygiene, with Hints and Notes,* 1884–1886. (*Chapman & Hall.*)—These little volumes are intended to supply students with model answers to questions set by the Science and Art Department.

Outlines of Physiography. By G. Thom, M.A., LL.D. (*Simpkin, Marshall, & Co.*) *Lessons on Elementary Physiographic Astronomy. By F. Mills.* (*Chapman & Hall.*)—These are text-books written for elementary students of Physiography who are preparing for the May examinations of the Science and Art Department. Though Mr. Mills only deals with a section of the syllabus, we would strongly recommend every science teacher and student to procure his book. It deals with the most difficult part of the subject in an interestingly scientific and practical manner. Mr. Thom's "Outlines of Physiography" is a good text-book, clearly written and presented in a pleasing form.

Handbook of English Literature. Part III. By R. McWilliam, B.A. (*Longmans & Co.*)—Part III. of the "Handbook," in one hundred pages, treats of the literature of the marvellous half-century which closed with 1640, and includes an account of the life and writings of Ben Jonson, the minor dramatists of Shakespeare's age, the two brothers Edward and George Herbert, Jeremy Taylor, Milton, Barrow, the two historians, the Earl of Clarendon and Bishop Burnet, Izaak Walton, Bunyan, Dryden, and Locke. A good feature of Mr. McWilliam's work is that at the end of each part there is a summary in a few pages of what precedes, as a special aid to revision. The book is studded with short selections from the works of the various writers; there is hardly a page of which these telling pieces do not occupy the greater part.

Shakespeare's "Tempest." By K. Deighton, B.A. (*Macmillan & Co.*)—This is one of the volumes of the series of selections from the works of the great English classics, primarily intended for the use of Indian students. Thus many of the notes will, to English students, be unnecessary; for example, no English boy even need be told the meaning of boatswain, lime, loud, affection, and many of the colloquial expressions of Shakespeare. Many of the notes, however, will be useful, and the Introduction is exceptionally good.

Shakespeare's "Henry the Fifth." By Roscoe Mongan, B.A. (*Thomas Murby.*)—The author has given us a comprehensive and practical work for the use of teachers, pupils, and private students preparing for examination. The Introduction deals with the history of the play, the historical sources, the plot, critical comments, anachronisms, and notes on the versification and accentuation. There is, also, on the last page, a time analysis of the play. The notes, although somewhat meagre, are carefully written.

Handbook to the Code Examinations. Standards VI. and VII. (*J. Heywood & Co.*)—The subjects of these questions are composition, grammar, geography, and mental arithmetic. The selection has been made from examinations in all parts of this country. It does not profess to be exhaustive, but it is fairly representative of the kind of knowledge which will satisfy a reasonable examiner, and will be most suggestive to a painstaking teacher. This handbook has been edited with the same care as the other members of the series.

Solutions of the Examples in Higher Algebra. By Hall and Knight. (*Macmillan & Co.*)—The publication of this very complete set of solutions to this now popular Algebra will considerably increase its usefulness.

Mind: A Quarterly Review of Psychology and Philosophy. October, 1889. (*Williams & Norgate.*)—The place of honour is given to Prof. H. Sidgwick's article on "Some Fundamental Ethical Controversies." Prof. Sidgwick reviews objections which have been made to various points in his great work, "Methods of Ethics." He criticises the objections of Prof. Fowler, Dr. Martineau, Von Gizycki, and Mr. Rashdall. Prof. Sidgwick's method of dealing with his opponents is most admirable. He further explains in detail, when necessary, his own views, and candidly asks for further explanation where he does not understand his critics. He thus aims at "diminution of the amount of misunderstanding which philosophical controversy—especially on fundamental points—has always involved." There are also articles on "Mental Activity," by Dr. E. Montgomery; "The Classification of Pleasure and Pain," by H. R. Marshall; and the usual Discussions, Critical Notices, Accounts of New Books, Foreign Periodicals and Notes.

The History and Management of Sunday Schools. Parts I. and II. By John Palmer. (*Church of England Sunday School Institute.*)—In this Manual we have an account of the circumstances connected with the rise and progress of Sunday Schools. There are very many valuable hints to teachers on management, Sunday-school literature, discipline, examinations, rewards and treats, and retention.

New Paragon Arithmetical Tests. By a Practical Teacher. (*John Heywood.*)—This little book contains ninety-six tests of four sums each, adapted to Standard VII. An answer book is also published.

French Pronunciation Chart. By P. Delecourt. (*John Heywood.*)—We think the Chart would be much more useful if some kind of an explanation were added to it, to elucidate the method of working. It is to be hoped that Mr. Delecourt will see his way clear to make this alteration in a subsequent edition.

Elementary Manual of Magnetism and Electricity. Part I. By Prof. Jamieson. (*Griffin & Co.*)—Part I. of this work treats of Magnetism; Parts II. and III. are to treat of Voltaic Electricity and Electro-statics respectively. The Manual is adapted to the requirements of first-year Science and Art Department and other electrical students. The part before us is divided into eight lectures, full of illustrations of apparatus and experiments, and almost all the lectures are followed by test questions, with answers. There is also an excellent Appendix, containing practical notes on making experimental apparatus.

How to Prepare for Matriculation at the London University. By Tudor Rogers. (*John Heywood.*)—The first eighteen pages of this work are taken up with hints to students, and an exposition of the system of the author in his management of correspondence classes. The remainder of the book contains a complete series of papers set by the University, with answers.

Domestic Economy in Public Education. By Mrs. Ellen H. Richards. New York, 9 *University Place.* (*Thomas Laurie.*)—This is one of the educational monographs published under the auspices of the New York College for the Training of Teachers. Mrs. Richards is the Instructor in Sanitary Chemistry at the Massachusets Institute of Technology, and we must therefore accept her as an authority on the subject of domestic economy. The paper is wonderfully concise, yet clear and comprehensive.

Blackwood's English Grammar and Analysis. (*Blackwood & Sons.*)—There is a small volume devoted to each standard, ranging in price from three-halfpence to threepence. A boy or girl who goes through the whole of the stages will have an excellent knowledge of the subject. There are many exercises for practice, compiled mainly of quotations. It should be in the hands of all teachers.

The Amateur's Workshop. (*Swan Sonnenschein & Co.*)—This volume is a reprint of articles which were written for the *English Mechanic.* A few alterations have been made, and descriptions of new machines and appliances introduced. The amateur engineer will find much information respecting the principles of the construction, and the modes of operations of machines and tools. In many cases sufficient details and dimensions are given to enable skilful amateurs to construct tools, &c., for themselves. The book is divided into two parts: I. Machines; II. Tools. Under Part I. special prominence is given to lathes, lathe chucks, drilling machines, shapers, and planers, circular and band saws; there are also chapters on the smithy and the foundry. Part II. contains only three chapters, concerning tools for metal-working, for wood-working, and for measurement. No amateur engineer should be without the book.

Manual for Beginners, and for the London University Matriculation Examination. By the Tutors of the University Correspondence Classes.—This Manual, which is an aid to self-education, may be obtained from the secretary of the classes. It contains much good advice about books, papers set at recent examinations, and also all information concerning the classes.

The Duplex Sliding Paradigm and a Sliding Synopsis of the Terminations of French Verbs. By Leopold Courtial. (*Hachette & Co.*)—The aim of the author is to throw some light on the French verb, by the aid of synoptical tables. The Sliding Paradigm is in three parts. Part I. contains the general accidence of the verbs, or paradigms of the active, passive, reflective, and neuter verbs, of the progressive, emphatic, subjunctive construction contrasted, &c. Part II., the syntax, with an appendix illustrating the accidence and syntax of the French verbs. Part III. contains the sliding paradigms of the terminations of French verbs, the regular and irregular verbs being brought into an identical conjugation. M. Courtial must have taken immense pains with his work. His "sliding scale" is very ingenious. We confidently await successful results from its use.

(1) *Some Eminent Women of our Times. By Mrs. Henry Fawcett.* (*Macmillan & Co.*) (1) *Good Men and True. By Alexander H. Japp.* (*T. Fisher Unwin.*)—Mrs. Fawcett has had a purpose in these biographies other than that of recording facts. Her object is to prove that, simultaneously with the development of literary activity among women which has characterized the last century, there has been an equally remarkable activity in spheres of work held to be peculiarly feminine. Education does not spoil women for woman's special work. The biographies of Elizabeth Fry, Mary Carpenter, Sarah Martin, Agnes Jones, Florence Nightingale, and Sister Dora prove philanthropic activity of women, and when placed side by side with those of Jane Austen, Charlotte Brontë, Elizabeth Browning, Harriet Martineau, and Maria Edgeworth, justify Mrs. Fawcett's view that both classes of achievement are due to the same impulse of the age. The second book, though somewhat larger and fuller, may be well classed with the first as exhibiting similar good work accomplished by men. It contains biographies of Norman Macleod, Edward Denison, Arnold Toynbee, Charles Kingsley, The Stanleys (father and son), Thomas Guthrie, Sir Titus Salt, and Samuel Plimsoll.

The Brook and its Banks. By the Rev. J. G. Wood, M.A. (*Religious Tract Society.*)—This is one of the last books of the late Rev. J. G. Wood, and fully equals, if not surpasses, the previous work of this ardent student of Nature's ways. The anecdotes and experiences of Mr. Wood are charming, and the illustrations numerous and artistic. The writer commences with a description of the brooks, and then narrates very accurately the habits of their inhabitants and frequenters, passing from the water-rat by an interesting chain of descriptions, which includes the habits of birds, beetles, and the more minute denizens of the fresh-water brook, to the batrachians, reptiles, and fishes; and, lastly, dwells on the vicissitudes of the common caterpillar and moth. The book is sure to keep up the interest of any true lover of nature of ordinary capacity, and at the same time impart much useful information of a thoroughly practical nature, admirably adapted for field use.

"The Argonautica" of Apollonius Rhodius. Translated by Edward P. Coleridge, B.A. (*Bell & Sons.*)—The translator has used the text of R. Merkel, of Leipzig, and, in addition to the actual translation, gives a copious life of the author, two arguments of the "Argonautica" gathered from different sources, a detailed account of the route pursued by the Argonauts on their journey, a useful compilation of Apollonius' divergences from classical usage in grammar, and numerous footnotes of a varied character. He has abstained from introducing any mention of variant readings in his work, but has taken the best critical text which has hitherto appeared, and translated it. The volume is an addition to Bohn's Classical Library of no small importance.

The Story of Father Damien. By Frances E. Cooke. (*Swan Sonnenschein & Co.*)—The story of the life of this hero of our own time is written for young people, and we recommend it to their careful attention. "We care not what this man's theology may be; he is surely a Christian hero," was the sentiment expressed in a Honolulu paper when J. Damien de Veuster obtained permission from his bishop to devote his life to the outcasts on the island of Molokai—the land of precipices; and this same sentiment echoes in the heart of all broad-minded people.

New Editions.

A School Manual of English Grammar, with copious Exercises. By William Smith, D.C.D., LL.D., and Theophilus D. Hall, M.A. Tenth Edition. (*John Murray.*)—To the tenth edition an Index has been added, and a few minor alterations have been made.

A Treatise on Infinitesimal Calculus. By Bartholomew Price, M.A., F.R.S., F.R.A.S. Vol. IV. Second Edition. (*Clarendon Press.*)—We rejoice to see this new edition of Price's Vol. IV., on the "Dynamics of Material Systems," for it has been long wanted, and the good books on "Rigid Dynamics" are so few that for one of the best of them to be out of print is a serious matter for the student. The work has been corrected and revised throughout, and in some parts enlarged, but the principle and arrangement remain the same. The investigation of some matters, as, for instance, that of the Problem of the Gyroscope, has been carried to higher terms than in the former edition.

Animal Biology: an Elementary Text-Book. By C. Lloyd Morgan. (*Rivingtons.*)—The call for a second edition of this useful and well-arranged manual has enabled the author to revise the text, to substitute in several cases improved woodcuts, and to add a brief classification of the types, and a Glossary.

Elements of Physiography. By John J. Prince. (*John Heywood.*)—This work has now reached its seventh edition. It has been thoroughly revised and much enlarged. It contains a mass of reliable information in a condensed form, and follows closely the syllabus of the Science and Art Department.

A Year with the Birds. By W. Warde Fowler. Third Edition, Enlarged. (*Macmillan & Co.*)—This charmingly written work has reached a third edition. It will be remembered that the birds whose habits are described were residents of one of three localities—"an English city, an English village, and a well-known district of the Alps." The author tells us that, though his "knowledge of birds has naturally grown fast since he wrote these chapters, he has thought it better, except in one instance, to resist the temptation of re-writing or interpolating for this edition." This is as it should be. The charm of the book might be marred by such a process, and there is room for other books telling of the author's later observations. A better gift-book for young people than this will hardly be found.

A Short History of England, from the Earliest Times to the Present Day. In Two Parts. By Prof. Cyril Ransome, M.A. (*Rivingtons.*)—Prof. Ransome's "Short History" is now tolerably well known to all teachers. It is a political and constitutional History, and deals also with the working of economic causes. In its own way it is excellent. It is now published in two parts: the first ending at the year 1603 A.D., the second at the year 1887 A.D. Each part costs two shillings.

The Prince of Peace; or, Gospel Stories for the Young. By the Rev. Edward Bickersteth. Fourth Edition. (*Jarrold & Sons.*)—This story of the Life of Christ, drawn in a simple and easy way from the Evangelists by a pious woman, has deservedly reached a fourth edition.

English Men of Letters: Fielding. By Austin Dobson. (*Macmillan & Co.*)—The first edition was published in 1883. The author has taken advantage of the present cheap issue to add, in the form of Appendices, "some supplementary particulars which have come to my knowledge since the book was first published." The most material of these is the curious confirmation and extension of Fielding's love affair with Sarah Andrew. Besides these additions, a few necessary rectifications have been made in the text.

Maria Grey Training College for Teachers.—The Clothworkers' Scholarship of £15 has been awarded to Miss L. M. Benger, of Newnham College, Cambridge. Two scholarships of £25 each, offered by Mrs. Garnett and Mrs. Winkworth, and the "Old Students' Association" Scholarship of £13. 2s. 6d., have also been awarded to students in the college.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending October 31st, 1889.

Arnold's (R.) Ammonia and Ammonium Compounds, 5s. cl.
Beard's (C.) Martin Luther and the Reformation in Germany, 8vo, 16s. cl.
Bengesco (G.): Voltaire, Bibliographie de ses Œuvres, Vol. 3, 20fr.
Carrive (P.): La Nouvelle Législation de l'Enseignement Primaire, 6fr.
Chamber's Exam. Bookkeeping, by J. Bell, cr. 8vo, 2s. cl.
Chemical Technology, edited by C. E. Groves and others, 30s. cl.
Church's (A. J.) Early Britain, 5s. (Story of the Nations.)
Collin's (F. H.) An Epitome of the Synthetic Philosophy, 8vo, 15s. cl.
Cowper's (Countess) Month in Palestine, 8vo, 5s. cl.
Curtis's (W. E.) Capitals of Spanish America, 8vo, 18s. cl.
Delitzsch's (F.) Iris Studies in Colour and Talks about Flowers, 8vo, 6s. cl.
Desjardins (A.): Traité de Droit Commercial Maritime, Vol. 8, 64fr.
Dunman's (T.) Glossary of Anatomical, Physiological, and Biological Terms, cr. 8vo, 2s. 6d. cl.
Dupont (E.): Lettres sur le Congo, 15fr.
Emerson's (P. H.) English Idyls, 12mo, 2s. cl.
Ever's (H.) Steam and other Prime Movers, cr. 8vo, 3s. 6d. cl.
Exell's (Rev. J. S.) St. Luke, Vol. 2, 8vo, 7s. 6d. cl. (Biblical Illustrator.)
Fawcett's (Mrs. H.) Some Eminent Women of our Times, 12mo, 2s. 6d. cl.
Fichte's (J. G.) Science of Knowledge, 8vo, 10s. 6d. cl.
Fichte's (J. G.) Science of Rights, 8vo, 12s. 6d. cl.
Glover's (R.) Teacher's Commentary on the Gospel of St. Matthew, demy 8vo, 4s. 6d. cl.
Godet's (F.) Studies on the Epistles, trans. by A. H. Holmden, cr. 8vo, 7s. 6d. cl.
Gould's (S. B.) Historic Oddities and Strange Events, 1st Series, 8vo, 10s. 6d. cl.
Harrison (J. T.) On the Creation and Physical Structure of the Earth, 8vo, 7s. 6d. cl.
Havergal's (F. R.) Poetical Works, cr. 8vo, 7s. 6d. cl.
Hearn's (W. E.) Plutology, or the Theory of the Efforts to satisfy Human Wants, 8vo, 16s. cl.
Hind's (W. M.) Flora of Suffolk, cr. 8vo, 12s. cl.
Hönig (A.): Die Ophiten, 1m. 50.
In Cap and Gown, Three Centuries of Cambridge Wit, edited by C. Whibley, cr. 8vo, 7s. 6d. cl.
Johnson's (W. W.) Ordinary and Partial Differential Equations, royal 8vo, 15s. cl.
Kant's (I.) Critical Philosophy, by E. Caird, 2 vols. 8vo, 32s.
Keith's Gospel according to St. John, Parts 1 and 2, 2s. each.
Ker's (Rev. W. Lee) Short Studies on Philippians, cr. 8vo, 5s.
Killen's (W. D.) The Ancient Church, its History, &c., 12s. cl.
Klemm's (L. R.) European Schools, cr. 8vo, 9s. cl.
Laing's (S.) Problems of the Future, and Essays, 8vo, 3s. 6d. cl.
Lewes's (V. B.) Service Chemistry, 8vo, 15s. cl.
Lobley's (J. L.) Mount Vesuvius, Descriptive, Historical, and Geological Account of the Volcano, 8vo, 12s. 6d. cl.
Lock's Arithmetic for Beginners, Key to, by the Rev. R. G. Watson, 12mo, 8s. 6d. cl.
Luther's Werke, Vols. 8 and 13, 36m. 50.
Maclean's (M.) Echoes from Japan, cr. 8vo, 2s. 6d. bds.
McKendrick's (J. G.) Special Physiology, 8vo, 24s. cl.
Miles's (A. H.) Aldine Speaker, 4to, 7s. 6d. cl.
Miller's (H.) Old Red Sandstone, cheap edition, cr. 8vo, 3s. 6d.
Milton's English Prose Writings, cr. 8vo, 2s. 6d. cl. (Carisbrooke Library.)
Munro's (J. E. C.) Constitution of Canada, 8vo, 10s. cl.
O'Conor's (W. A.) Essays in Literature and Ethics, edited by W. E. A. Axon, 8vo, 3s. 6d. cl.
Parker's (J.) The People's Family Prayer Book, 4to, 10s. 6d. cl.
Peabody's (C. H.) Thermodynamics of the Steam Engine and other Heat-Engines, royal 8vo, 21s. cl.
Pictorial Africa, its Heroes, Missionaries, and Martyrs, 5s. cl.

Pictorial Sketches from Bible Lands, illustrated, 4to, 2s. cl.
Psalms in Greek, edited by H. B. Swete, cr. 8vo, 2s. 6d. cl.
Rawlinson's (G.) History of Phœnicia, 8vo, 24s. cl.
Rendall's (G. H.) Cradle of the Aryans, 8vo, 3s. cl.
Ropes's (A. R.) Sketch of the History of Europe, 12mo, 2s. 6d.
Sanderson's (F. W.) Hydrostatics for Beginners, 12mo, 4s. 6d. cl.
Sawyer's (Sir J.) Notes on Medical Education, cr. 8vo, 3s. cl.
Shakespeare (William), Works of, edited by H. Staunton, Library Edition, 6 vols. 8vo, 31s. 6d. cl.
Smith's (Rev. J. G.) Aristotelianism, the Ethics of Aristotle, 12mo, 2s. 6d. cl.
Smith's (A. J.) Modern French Readings, with Helps for Composition, cr. 8vo, 3s. cl.
Speed's (J. G.) Education of Man, and other Essays, 2s. 6d. cl.
Spurrell's (W.) Practical Lessons in Welsh, 12mo, 2s. 6d. cl.
Thackeray's (Rev. S. W.) The Land and the Community, 3s. 6d.
Velazquez's (M.) Pronouncing Dictionary of Spanish and English Languages, royal 8vo, 24s. cl.
Webb's History of England for Schools and Colleges, 3s. 6d. cl.
Whitney's (W. D.) Century Dictionary, Part 1, folio, 10s. 6d. cl.

NOTE.—We are obliged to hold over until next month that part of the report of the International Congress which deals with Commercial and Technical Education.

EDUCATIONAL NOTES AND SUMMARY.

THE President of the French Republic has accorded the cross and "brevet" of the Chevalier of the Legion of Honour to Mr. J. G. Fitch, in recognition of the services which he has rendered during several years to the professors in French Normal Seminaries, who as *boursiers* have been sent to this country from time to time by the Department of Public Instruction, to visit English training colleges, and otherwise to acquire a knowledge of English methods of instruction.

Light is thrown on this matter by the evidence of Mr. Fitch before the Royal Commission on Education:—

"57,014. Has your attention been directed at all to an educational experiment which has just been introduced by the French Government in establishing bursaries tenable abroad to pupils of higher primary schools, and teachers in elementary training colleges?—Yes; I have had special reason to attend to it, because the authorities of the French Education Department did me the honour to ask for my co-operation in the matter, and they explained to me their intentions in regard to these *boursiers*.

"57,015. Will you kindly explain to the Commission what they are?—The plan was to provide a sum by means of which the intending professors in the principal normal colleges of France should be enabled to come to England for a year to study our language and our methods of instruction.

"57,016. Not merely to England, was it?—To England chiefly. I am only concerned with that. I was asked, among others, to help in carrying this plan out, and several of these young men were introduced to me. The heads of some of our principal training colleges were consulted to ask how far these young people could be allowed to attend the lectures and to share the work of the students; and accordingly one went to Glasgow, one went to Edinburgh, one or two have been to Battersea, one went to Exeter, and one went to Cheltenham. I have felt great interest in watching the careers of these young men, whom I have seen occasionally during their stay. They have acquired the language very rapidly; those who came to London wo have had opportunities of introducing to different lectures, libraries, and societies; and the result of it is that at the end of a year these young people have gone back to France with a far wider experience and knowledge of their profession. They have expressed and the French Government has also expressed to me a very strong sense of the value of the experiment in preparing these young men to become professors and heads of normal colleges.

"57,017. Do you think that the example is worthy of imitation in our own country?—Yes, I should like to see it imitated. Nothing impresses me more in the training colleges than the very limited intellectual experience that many of the governesses' college lecturers have had. I have often wished that their opportunities of knowing what is being done in good schools and colleges under other conditions were more numerous."

OF the Sloyd students at Nääs, this summer, the majority were English. Ninety-six students were present at the course that ended on September 10th, and of these thirty-four came from Sweden, four from Norway, one from Iceland, four from the United States, one was sent by the Government of Chili, one came from Holland, and fifty-one from the United Kingdom. There were eighty applications from England which could not be entertained for want of room; and the number of applications for next year that have already come to hand is even greater than this. The fifty-one English students were thus made up:—Nine were head teachers and eight assistant teachers in elementary schools, one was master of method in a training college, another was one of H.M.'s inspectors, two were teachers of the deaf and dumb, two were principals of training colleges, two principals of private schools, twenty-four assistants in high schools, and there were two whose connexion with education was less direct. Of the elementary teachers, nearly all came from the London Board schools or from Board schools in the neighbourhood; two came from Birmingham, one from Leeds, one from Torquay, but not one from Manchester. Of all our School Boards, the London School Board has for some years been most keenly impressed by the importance and necessity of manual training in schools. Last year Englishwomen at Nääs were to Englishmen as six to one. This was due to the fact that women, having so recently gained a larger share in the work of education, feel a fresher, readier interest in educational problems than men. But the disproportion gave rise in some quarters to the curious idea that Sloyd was something more fitted for women than men. It is therefore to be recorded with satisfaction that there was amongst the English students this summer a nearer approach to equality between the sexes, and that women were to men as three to two.

THE German correspondent of the *Daily Telegraph* gives some details as to the number of foreign students enrolled on the books of the *Technische Hochschule*, or "Technical University," of Berlin. Since 1884 the palatial *Technische Hochschule* of Charlottenburg, near Berlin—called the *Berliner Technische Hochschule*—has certainly given instruction to an increasing number of foreign students, but the influx has not been so very extraordinary. Since the winter term of 1885, when there were only two British subjects on the books, the numbers have been—winter of 1886, four; summer of 1887, five; winter of 1887, eight; summer of 1888, ten; winter of 1888, eleven; summer of 1889, thirteen. Russia heads the list, having contributed, in 1881, thirteen pupils, and in the last term, forty-two. Norway comes next, with twenty-five last term. From North America there were seven. Then came Austria, South America, Servia, Switzerland, Sweden, Italy, Roumania, Spain, Holland, Luxembourg, and Greece. The number of foreign students amounted in the last term to 129, some 15 per cent. of the total number on the books. This, compared with the thirty-three enrolled in 1881, shows a good increase. From the above official figures no deductions of importance can be drawn as to the estimation shown by British technical students for the very excellent *Technische Hochschule* of Berlin.

THE same correspondent, in criticising a book by a German schoolmaster, Herr H. Raydt, who has made a tour through England, says that in Germany the moral education of the children is left to the influence of homes, and the master has nothing whatever to do with the pupils except to stuff them with as much learning as necessary. That is, in his opinion, the fault of German education, both at school and at the University afterwards. The young are stuffed with what learning they acquire, but the master does not "educate" them—he does not train them to work out things for themselves: he does not try to draw from the youth under his charge the qualities and talents that are in him. The consequence is that the Germans, as a race, are not independent. They appear to be modest in their conduct, but this modesty is only the result of their inability to act independently, to take a single step *proprio motu*. This failing attends them all through life; and to this may be attributed their disinclination to join any enterprise which is not first recommended by the Government, and their inability to conduct any public act without a due force of police. What the schoolboy has been taught to be content with—intellectual stuffing—the student of the University demands. His "book" is his notebook, containing only what he has taken down in the lecture-room. In his opinion the most intelligent of British boys and young men are in every respect better-informed and more useful members of society than those of the same class to be met with over there. Of the general ruck both countries are much of a muchness—it is about six of one and half-a-dozen of the other.

WE have before us a Report on the Scientific Department of the People's Palace, East London, by A. P. Laurie, M.A., B.Sc. The managers of the People's Palace were exceedingly fortunate in securing the services of Mr. Laurie at the beginning of their work. He distinguished himself in the laboratories of Edinburgh and of Cambridge, and is a most enthusiastic chemist. He was absolutely free from the effects of the cramming systems associated with particular examinations, and was therefore free

to develop a really useful technical course of training for future chemists. The laboratories in the East have grown under his wise enthusiasm, and a better boys' laboratory for a small school than that which he arranged for forty-eight students can scarcely be devised. Added to that, there is an advanced laboratory, to accommodate eighteen students, which is to aid in carrying out research. Mr. Laurie did not develop his plans on the knowledge he had previously acquired, but set to work to study those industries of the neighbourhood involving chemical processes: such, for instance, as those of tartaric and citric acid works, gas, colour, acetic acid, oil and soap works, breweries, &c. Researches on some of these subjects have been carried out at the People's Palace at the expense of the enthusiastic professor, particularly in connexion with the preparation and properties of artists' colours and the nature of alloys. We regret to learn that Mr. Laurie is leaving the East End to prosecute scientific investigation at Cambridge. We hope that the technical instruction introduced by him will be conducted on his lines, and that the People's Palace will not be turned into a Kensington Cramming School.

Mrs. Jessie Waller, *née* Huxley, contributes to *The Nineteenth Century* for October a thoughtful article on the "Training of Children." The first part of the article deals with the nursery rather than the schoolroom; the second part applies to education, and from this part we make the following quotation:—

"At an age of rapid growth a girl's health is sometimes ruined for life by the system of brain-forcing to which she is subjected. In many cases she has to work eight hours a day, which is the average number of working hours of a grown man. Examinations follow one after another; there is no time to attend to the development of the body, at the most one hour in the twenty-four is given up to a mild walk; and the continuous sitting in a stuffy room, stooping over books, narrows the chest, and spoils the eyesight; at the age of eighteen a pale, anæmic young lady emerges from the schoolroom, doubtless stocked with knowledge, but also with headaches and backaches enough to spoil the rest of her life.

"When one considers the extraordinary rate at which a girl of fourteen will grow, and how much of her forces must be consumed in the mere act of growing, surely it seems more reasonable to lighten her work than to increase it. Such a girl should only be allowed to work in the mornings, when she is freshest, and the rest of the day should be devoted to the open air and development of her body by healthy outdoor games. Above all, even if she has work in the afternoon—and some time must, I suppose, be allowed for preparation—no mental work of any kind should be allowed after 5 p.m. After a long day at school, many a time does the tired child return with a quantity of exercises, &c., to be prepared for the morrow, all of which must be done in the evening, and it stands to reason that it must be highly prejudicial to the brain to be taxed at a time when it is fatigued, and the physical powers of the child are at a low ebb. . . . Truthfulness, courage, and unselfishness are blossoms of character growing but from small seeds; let them be nourished in the warmth and sunshine of love and sympathy, and watchfully protected from choking weeds, and at last will come the crowning of a fine character, without which all the book-learning in the world is but a parrot's jargon."

The first chapter of the Life of Lord John Russell, written by Mr. Spencer Walpole, and published in two vols. by Messrs. Longmans, gives an account of his childhood and early education. His references to public school education show that, while he fully appreciated their good features, he himself belonged to that small proportion of scholars for whom we claim special and exceptional regulations. These facts are shown by the following extracts:—

"A public school does form the character. It takes a boy from home, where he is a darling, where his folly is wit and his obstinacy spirit, to a place where he takes rank according to his real power and talents. . . . This is of much more importance than the acquisition of mere knowledge."

But, referring to his life at Westminster, we find the following:—

"The hard life of a fag—for in those days it was a hard life—and the unwholesome food disagreed with me so much that (in the summer of 1804) my stepmother, the Duchess of Bedford, insisted with my father that I should be taken away and sent to a private tutor. . . . For some months I received lessons at Woburn Abbey from Dr. Cartwright [at that time domestic chaplain to the Duke of Bedford], who was a man of much learning and great mechanical ingenuity. I acquired a taste for Latin poetry, which has never left me."

At the Manchester Chamber of Commerce a proposal to formulate a scheme of studies and examinations on commercial subjects was considered, and the President was authorized to confer with the authorities of the Victoria University and the Manchester Grammar School, with a view to the adoption of a scheme for the purpose of carrying out the proposal. It was announced that evening classes for students desiring to qualify themselves for commercial positions had been established by the Manchester School Board, and a resolution was passed highly approving of the project, and commending it to the business public of Manchester and the neighbourhood. The movement has proved a complete success, for within a few days of the opening the attendance was so large that no further admissions could be made. It is more than likely that, encouraged by this success, the Manchester Board will open similar classes in other parts of the city. If not, why not?

The prospectus of the sixty-seventh session of the Birkbeck Literary and Scientific Institution, Bream's Buildings, Chancery Lane, has just been issued. About 200 classes meet weekly in commercial and technical subjects, mathematics, natural, applied, and mental science, languages, history, literature, art, music, law, &c. Special classes are held for the preparation of candidates for University, Civil Service, and other examinations. The classes are open to both sexes. H.R.H. the Duchess of Albany will, in November next, distribute the prizes gained by the students during the past session. On Wednesday evenings the usual lectures will be delivered in the large theatre of the Institution. Amongst those who are already engaged may be mentioned Mr. George Grossmith, Mr. Samuel Brandram, M. Max O'Rell, Mr. Charles Dickens, Mr. J. T. Carrodus, Mr. Lawrence Gane, M.P., Mr. Edmund Gosse, and Mr. Bennet Burleigh.

Professor Silvanus P. Thompson writes to the *Times*:—"Your Brussels correspondent, who attributes the attendance of English students at the technical high schools (or polytechnicums) in Germany, and particularly at that in Berlin, to the non-existence of such institutions in this country, must be ignorant of the fact that for five years a really splendid establishment of this character has been actively at work in London. I refer to the Central Institution, founded by the City and Guilds of London, in Exhibition Road. The equipment of this establishment for mechanical engineering and for electrical engineering far exceeds that of the Technical High School in Berlin, though in some other departments it is necessarily not equal. The cost of the Central Institution, which is the nearest approach in this country to a true polytechnic, was, however, only £90,000, whilst that at Berlin cost over £600,000. I may add that that other establishment of the City and Guilds of London Institute, the Finsbury Technical College, from which I write, and which has been open somewhat longer, cost about £35,000 only; but yet it can, in the departments mentioned, show educational results that will not compare unfavourably with those of the Berlin Technical High School. Yet the entire building at Finsbury could be contained within the entrance-hall of the palatial establishment at Berlin."

The numbers at Bedford Grammar School having increased from 500 to 800 in the last few years, the Governors determined to erect new buildings on a new site. The plans have been prepared by Mr. E. C. Robins, F.S.A., and include a large hall 100 feet by 50 feet, forming with a cloister a façade on the north, while the south front and also the east and west wings are occupied by class-rooms. The first sod was turned by the Mayor of Bedford in August. Rapid progress is being made, and already the building appears above the ground.

The Lord Mayor presided over a public meeting held on October 4th at the Mansion House, in aid of the Homes for Orphan Girls at West Square (Southwark), Gravesend, Tunbridge Wells, and Newton Abbott. Miss Sharman, who established the homes, read the report, which stated that during the year the number of children, who were either destitute or orphans, had increased from 280 to 300, while there were always some of the old girls, who, failing in health, or having no relatives, came to the homes for assistance. The children were trained up as servants.

Mr. F. L. Goldsmid (says the *Bombay Gazette*) has matured his scheme for the education of Mahommedan boys in England, and will proceed to England next May with a number of Indian boys, described as "scions of the Mahommedan aristocracy." The schools chosen for the experiment are Harrow, Clifton, and Tonbridge, the headmasters of each of these schools having undertaken that the boys shall be educated without any attempt at proselytizing. The two former schools have already distin-

guished themselves for their religious toleration, and have each a house for Jewish boys. At Sherborne School there are at the present moment two young Mahommedan princes.

Besides the usual evening lectures at King's College this winter, there will be workshop evening classes for practical instruction in wood and iron work. The course includes carpentry, turning, smith work, for which two forges are provided, and casting in brass and iron in a well-furnished foundry. The classes are to be conducted by the superintendent, assisted by a number of skilled workmen.

"An Old Ebley Boy" writes to the *Daily News*:—"Sherborne is not the only school that has provided 'tiny patches of land' for schoolboys. The British Schools, Ebley, Stroud, Gloucestershire, has, or had, a number of small allotments (about twenty, I believe) of from two to two-and-a-half perches each, which were let out to the same number of boys rent free. I was a boy there from 1852 to 1859, and the last two years had the honour to hold one of these small estates. The schools were founded by the late Rev. Benjamin Parsons, new schoolrooms being opened in 1840, and I believe the allotments were provided at the same time or very shortly afterwards."

The first meeting in connexion with the establishment of a Literary Society for London Teachers was held on Saturday, the 12th inst., in the St. Clement Danes School, Strand, Mr. W. A. Smith occupying the chair. A letter was read from Her Majesty's Inspector, Mr. J. G. Fitch, expressing his pleasure at hearing that such a Society was in course of formation. Letters from several teachers were also read, giving as cause of absence the annual meeting that afternoon of the Metropolitan Board Teachers' Association. Mr. W. R. Richmond having explained the objects of the proposed Society, a general discussion took place. Mr. Rogers suggested that some prominent men in literature or politics be invited to give lectures during the winter session in connexion with the work of the Society. The meeting terminated with a vote of thanks to the chairman, and to the managers of the St. Clement Danes School for the use of the room. It was decided to hold a second meeting on Monday, the 28th inst., at 7 p.m., in St. John's Schools, Tottenham Court Road.

The late Alderman George, of Leeds, has bequeathed the sum of £10,000 to the Yorkshire College.

It is reported from Japan that Viscount Ennomoto, the new Minister of Education, is devoting special attention upon the introduction of technical education into the primary schools of the Empire, and that he has turned to Italy as a model. His scheme is to include technical education in the curriculum of the preparatory schools, and to give children technical training from the first.

London University degrees were thrown open to women ten years ago, and now there are seven lady Masters of Arts, 147 Bachelors of Arts, two Doctors of Science, twenty-one Bachelors of Science, and eight ladies holding medical and surgical degrees. The number who graduated last year alone was thirty-two. At Cambridge there were forty-two. The total for the twelve months at Dublin, Victoria, London, Oxford, and Cambridge was 109.

The professors appointed for the purpose met at the City School on October 19th to consider the applications of the candidates for the vacant headmastership of this institution. After carefully studying the testimonials of the gentlemen seeking the position, the professors selected from the candidates several who have been requested to attend personally at the school. From amongst these the professors will in all probability select three for nomination to the committee. The final choice will then be made. The *City Press* is informed that, for the vacant junior mastership, the committee have received no fewer than 214 applications, upwards of a hundred of which are from gentlemen who possess a University degree, and are otherwise specially qualified. With but few exceptions all the candidates are gentlemen at present filling responsible posts in connexion with other schools.

The Report on certain points connected with Scotch education, which Mr. H. Llewellyn Smith presented a short time ago to the Executive Committee of the National Association for the Promotion of Technical Education, contains several suggestions of value to English educationalists. Mr. Smith shows that the causes which have made the Scotch Technical Education Act of 1887 a dead letter up to the present do not operate to the same extent in England. It seems that, in the case of most of the larger Scotch towns and School Boards, the technical instruction contemplated by the Act can be obtained more expeditiously and economically by using the powers conferred by the earlier Act of 1878, and co-operating with existing institutions for the promotion of technical knowledge; on the other hand, in the smaller towns and rural districts, where such co-operation is impossible, the need for such knowledge is only slightly felt on account of the absence of manufactures. With regard to the training of teachers, testimony seems unanimous to the success of the Association of the Normal School with the University curriculum. The students are day-students, and may attend lectures at the University instead of some of the classes at the Normal School: "the broadening result of a wider intercourse with candidates for other professions is not gained at the expense of exactitude and proficiency in the special subjects which are taught at the Normal School," as the University students invariably head the list in the training college examinations. We can only hope that such a plan will soon be tried in our less-favoured country.

The Calendar of the University College of North Wales for the year 1889–90 records several fresh departures taken during the past year by this vigorous, young institution. We may mention the appointment of a lecturer on Welsh, and the impetus thus appropriately given to Celtic study at Bangor. Perhaps even more important is the erection and inauguration of a new hall of residence for women students, providing accommodation for thirty persons.

An event of considerable significance in relation to the "University for London" question has just "come off" at Birmingham, in the shape of a Conference of the Principals and other representatives of the leading University colleges of England and Wales, who met at the Mason Science College to discuss the bearing upon those colleges of the report of the recent Royal Commission, so often referred to in these columns. The proceedings were private; but according to the local press, which seems to have obtained some notes of what went on, various projects were considered, with a view, we suppose, to action, if the recommendations of the said Report be adopted by the existing University of London; and the general feeling appears to have been that under those circumstances the best remedy would be found in a federation of the colleges into a Provincial University under a single charter, rather than a multiplication of small local Universities. But with reference to the immediate crisis, a resolution was unanimously adopted protesting strongly against the remodelling of the present University (as recommended by the Commission), on the ground that such procedure would "invade the vested rights" of the provincial colleges, and would, "by placing them at a disadvantage as compared with the metropolitan colleges, operate seriously against their future progress and development." It was further resolved to appoint a committee to request the Lord President of the Council to receive a deputation on behalf of the colleges, and, if he agrees, to make arrangements for the interview. The University of London is thus placed in an interesting position: if it adopts the Report of the Commission, it is threatened with the loss of a large and vigorous family of provincial colleges; if it does not, then University and King's Colleges will pretty certainly go. But, as we gather from recent proceedings that the latter colleges will not be satisfied in either case, it is easy to see which is the less of the two evils.

MATHEMATICS.

10274. (Rev. Robert Harley, M.A., F.R.S.)—"The members of a board were each of them either bondholders or shareholders, but not both; and the bondholders, as it happened, were all on the board. What conclusion can be drawn?" (Venn, *Mind*, vol. I., p. 487.) Show (1) that the conclusion, "No shareholders are bondholders," can be drawn from part of the premise, and (2) give *all* the conclusion.

Solution by the Proposer.

This question was originally proposed in a London University Examination, eighteen years ago, by Dr. Venn, who intended it to be answered

by the aid of the symbolic method described by JEVONS in his *Lessons on Logic*. It affords a good illustration of that method. The proposer, in a paper on BOOLE's *Logical System*, mentions (*Mind*, vol. I., p. 487) that when it was first given in examination and lecture rooms, to some hundred and fifty students, as a problem in ordinary logic, it was answered by at most five or six of them; but that, when it was afterwards set as an example on BOOLE's method, to a small class who had attended a few lectures on symbolic logic, it was readily answered by half or more of their number. He adds in a footnote,—"The conclusion wanted is, 'No shareholders are bondholders.' Now nothing can look simpler than the following reasoning *when stated*:—'There can be no bondholders who are shareholders, for if there were they must be either on the board or off it. But they are not on it, by the first of the given statements; nor off it, by the second.' Yet, from want of any clue what to look for, almost every one, as above mentioned, failed to hit on so apparently obvious a solution." The little problem has been noted by JEVONS in his *Principles of Science* (pp. 90–1, second edition), by MACFARLANE in his *Algebra of Logic* (pp. 140–1), and by others. [The rest in Volume.]

10205. (F. A. TARLETON, LL.D.)—A billiard player plays full, with a strong top twist, against a ball touching a cushion, which makes a small angle with the line of direction of his blow; find an expression for the greatest distance of the striker's ball from the cushion, after hitting it, and show that approximately the ball runs along the cushion.

Solution by BENJAMIN WILLIAMSON, M.A.

Let A be the angle that the cushion makes with the line of direction of the motion of the striker's ball, V the velocity of its centre when it impinges against the other ball, and v the velocity of the same point after the collision; then $v = V\dfrac{\cos^2 A - e'}{1+\cos^2 A}$, where e' is the coefficient of restitution for the two balls. After this collision the striker's ball runs on and hits the cushion with a velocity v and rebounds, its velocities u_1 and v_1 parallel and perpendicular to the cushion being given by the equations $u_1 = v\cos A$, $v_1 = ev\sin A$, where e is the coefficient of restitution for the cushion.

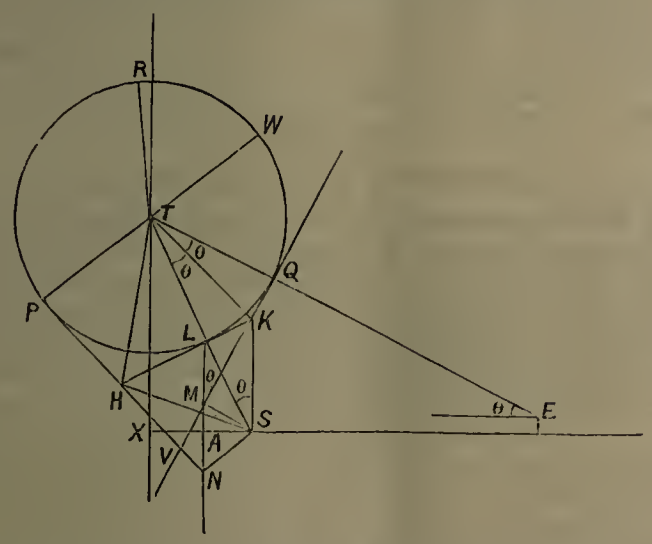
[The rest in Volume.]

10220. (Professor WOLSTENHOLME, M.A., Sc.D.)—A circle is described with its centre on the directrix of a given parabola and diameter equal to the focal distance of the centre; prove that three of the common tangents to this circle and the parabola will form an equilateral triangle; and the centres of the escribed circles of any such equilateral triangle lie on the cubic $y^2(3x+7a)+4a^2(3a-x) = 0$.

Solution by G. E. CRAWFORD, B.A.; Rev. T. GALLIERS, M.A.; *and others.*

The tangent at L to the circumcircle is clearly one common tangent. Let PN and VQ be two others and join as in Fig. Then

$$\angle WTQ = PVQ = HSK = HTK = \tfrac{1}{2}PTQ;$$



therefore WTQ $= \frac{1}{3}\pi$, and therefore PVQ $= \frac{1}{3}\pi$. Similarly, VQ and the other direct common tangent are inclined at angle $\frac{1}{3}\pi$.

[The rest in Volume.]

10270. (The EDITOR.)—If the mid-points of the arcs cut off by the sides of a convex quadrilateral in a circle be joined so as to form a second quadrilateral, and a third be similarly formed from the second, and so on, find the ultimate form towards which these quadrilaterals tend.

Solution by J. J. BARNIVILLE; Professor SCHOUTE; *and others.*

As the arithmetic mean of two quantities is greater than the less, and less than the greater of the two, the process is a nivellating one; therefore the limit of the quadrilateral is a square. Indeed, when the initial arcs are α, β, γ, δ, and ϵ represents successively $\alpha+\beta$, $\beta+\gamma$, $\gamma+\delta$, $\delta+\alpha$, the four arcs are, after the first, third, fifth, $2n-1$th divisions,

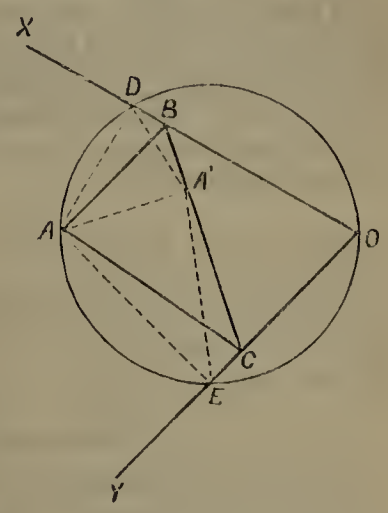
$$\tfrac{1}{2}\epsilon,\ \tfrac{1}{4}(\pi+\epsilon),\ \tfrac{1}{8}(3\pi+\epsilon),\ (1/2^n)\left\{(2^{n-1}-1)\pi+\epsilon\right\},$$

and the limit of $(1/2^n)\left\{(2^{n-1}-1)\pi+\epsilon\right\}$ for $n=\infty$ is $\frac{1}{2}\pi$, &c.

[The place of the limiting square cannot easily be assigned, we may, however, observe that there are two limiting squares, the vertices of which form the vertices of a regular octagon. The extension of the problem to inscribed polygons is evident.]

10188. (Professor NEUBERG.)—Un angle de grandeur constante tourne autour de son sommet A; ses côtés rencontrent deux axes fixes OX, OY en B, C. Trouver (1°) l'enveloppe de BC, et celles des hauteurs BB′, CC′; (2°) les lieux décrits par les pieds A′, B′, C′ des hauteurs et par l'orthocentre H.

Solution by E. M. LANGLEY, M.A.



Since triangles ABB′, ACC′ are of constant species, B′, C′ describe straight lines, and BB′, CC′ envelope parabolas.

Draw AD, AE perpendicular to OX OY. Then, because A, D, B, A′ are oncyclic, $\angle BA'D = BAD$.

Similarly $\angle CA'E = CAE$,

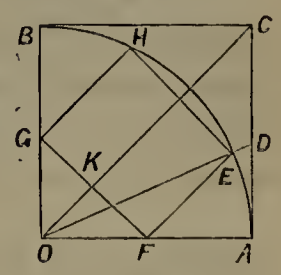
$\therefore\ \angle BA'D + CA'E + BAC + XOY$
$= DAE + XOY = 2$ rt. $\angle$'s,

$\therefore\ \angle DA'E = BAC + XOY$;

hence A′ describes a circle, and BC envelopes a central conic with A for one focus. [See Vuibert's *Questions de Mathématiques*, pp. 89–91.]

10208. (J. J. BARNIVILLE.)—Inscribe in a quadrant a square having two angles on the circumference.

Solution by Rev. T. GALLIERS, M.A.; D. T. GRIFFITHS; *and others.*



Let AOB be the quadrant; draw the square OACB; bisect AC in D; join OD, cutting the circumference in E; join OC and draw EF parallel to OC, meeting OA in F; then the square drawn on EF towards OC will be the square required. For, if $\angle FOE = \theta$ and $OE = a$, $\sin\theta = 1/5^{\frac{1}{2}}$, therefore $\cos\theta = 2/5^{\frac{1}{2}}$,

$$\sin FEO = 1/(10)^{\frac{1}{2}} \text{ and } FE = 2^{\frac{1}{2}}a/5^{\frac{1}{2}},$$

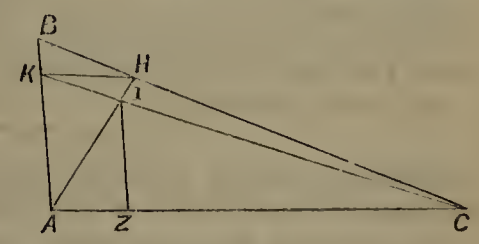
therefore $OF = a/5^{\frac{1}{2}}$.

If FK be perpendicular to OC,

$$FK = OF/2^{\frac{1}{2}} = a/(10)^{\frac{1}{2}} = \tfrac{1}{2}FE.$$

10290. (MAURICE D'OCAGNE.)—Soient ABC un triangle rectangle en A, AH la hauteur issue de A, HK la perpendiculaire abaissée de H sur AB. CK coupe AH en I. Démontrer que la perpendiculaire abaissée de I sur AC coupe ce côté au même point que la symédiane issue de B.

Solution by Rev. T. R. TERRY, M.A.; R. KNOWLES, B.A.; *and others.*



Let IZ be the perpendicular on AC, and E the middle point of AC. If ZBA $= \alpha$ and EBA $= \beta$, we have to show that $\alpha+\beta = B$.

Now $AH = a\sin B\cos B$,

$AK = a\sin^2 B\cos B$,

$\therefore\ IZ/ZC = \sin B\cos B$.

But $IZ/AZ = \tan B$,

therefore $AZ = a\cos^2 B\sin B\,/\,(1+\cos^2 B)$,

therefore $\tan\alpha = \sin B\cos B\,/\,(1+\cos^2 B)$.

And $\tan\beta = \frac{1}{2}\sin B\sec B$, therefore $\tan(\alpha+\beta) = \tan B$.

10245. (H. W. SEGAR.)—Prove that the distance between the orthocentre of a triangle and the centre of the circumscribed circle is, in terms of the sides of the triangle,

$$\left\{a^2(a^2-b^2)(a^2-c^2)+b^2(b^2-c^2)(b^2-a^2)+c^2(c^2-a^2)(c^2-b^2)\right\}/(4\Delta)^2.$$

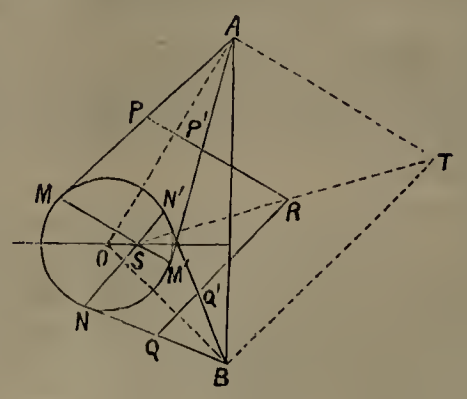
Solution by R. H. WHAPHAM, B.A.; G. G. STORR, M.A.; *and others.*

If O be the circumcentre and P the orthocentre, we have

$$OP^2 = R^2(1-8\cos A\cos B\cos C)$$
$$= R^2\left\{a^6+b^6+c^6-a^4(b^2+c^2)-b^4(c^2+a^2)-c^4(a^2+b^2)+3a^2b^2c^2\right\}/a^2b^2c^2$$
$$= \left\{a^2(a^2-b^2)(a^2-c^2)+\ldots\right\}/(4\Delta)^2.$$

10233. (Professor Moreau.)—On donne trois points fixes A, B, O. Le point O est le centre d'un cercle de rayon variable. Par les points A, B, on mène des tangentes AM, AM′, BN, BN′ au cercle variable; on joint les milieux P, P′ de AM, AM′, et les milieux Q, Q′ de BN, BN′. Lieu du point d'intersection des deux droites PP′ et QQ′.

Solution by Prof. P. H. Schoute; R. Knowles, B.A.; *and others.*



Le point d'intersection S de MM′ et NN′ étant le pôle de AB par rapport au cercle (O), le lieu de S est la perpendiculaire abaissée de O sur AB. Mais le point R en question est le milieu du segment ST, où T est le point de rencontre fixe des perpendiculaires AT et BT sur AO et BO. Donc R parcourt la droite, qui bissecte perpendiculairement la droite AB.

8951. (W. J. C. Sharp.)—If n be any whole number, which is not a multiple of 5, show that

(1) $x^{4n}+x^{3n}+x^{2n}+x^n+1$ is divisible by $x^4+x^3+x^2+x+1$,

(2) $x^{4n}+x^{3n}+x^{2n}+x^n+1$,, $x^4-x^3+x^2-x+1$, if n be even,

(3) $x^{4n}-x^{3n}+x^{2n}-x^n+1$,, $x^4-x^3+x^2-x+1$, if n be odd.

Solution by Professor Lampe.

Let n and p be relative prime numbers, then we have, identically,

$$(x^n)^p-1 \equiv (x^p)^n-1 \equiv x^{np}-1 \equiv (x^{n(p-1)}+x^{n(p-2)}+\ldots+x^n+1)(x^n-1)$$
$$\equiv (x^{p(n-1)}+x^{p(n-2)}+\ldots+x^p+1)(x^p-1),$$

or dividing by $x-1$,

$$(x^{n(p-1)}+x^{n(p-2)}+\ldots+x^n+1)(x^{n-1}+x^{n-2}+\ldots+x+1)$$
$$\equiv (x^{p(n-1)}+x^{p(n-2)}+\ldots+x^p+1)(x^{p-1}+x^{p-2}+\ldots+x+1).$$

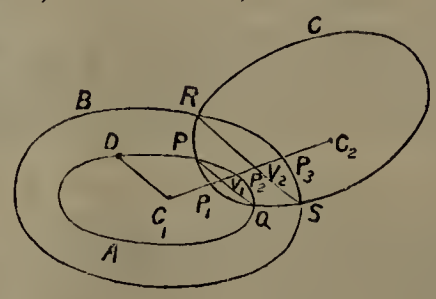
As no root of $\dfrac{x^n-1}{x-1}=0$ coincides with a root of $\dfrac{x^p-1}{x-1}=0$, p and n being relative prime numbers, all linear factors of $x^{p-1}+x^{p-2}+\ldots+x+1$ must divide $x^{n(p-1)}+x^{n(p-2)}+\ldots+x^n+1$, that is to say,

$$x^{n(p-1)}+x^{n(p-2)}+\ldots+x^n+1 \text{ is divisible by } x^{p-1}+x^{p-2}+\ldots+x+1.$$

Similarly for the other two cases.

10092. (H. W. Segar.)—Three ellipses A, B, C are similar, and similarly situated. A, B are also concentric. C cuts A in P, Q; and B in R, S. Show that PQ, RS intercept, on the line joining the centres of the conics, a constant length.

Solution by Rev. J. L. Kitchin, M.A.; H. W. Segar; *and others.*



Let C_1, C_2 be the centres of the conics. Let C_1, C_2 intersect the conics in points P_1, P_2, P_3, and the lines PQ, RS in V_1, V_2. Then PQ, RS are both conjugate to C_1, C_2. Let C_1D be the semi-conjugate diameter to C_1P_2 in the ellipse A. Then we have

$$RV_2^2 : C_2P_1^2-C_2V_2^2 = CD^2 : CP^2,$$
and $$PV_1^2 : C_2P_1^2-C_2V_1^2 = CD^2 : CP^2.$$

[The rest in Volume.]

10070. (Professor Schoute.)—Find the locus of the centre of an equilateral triangle circumscribed to a given ellipse.

Solution by W. S. Foster, M.A.; G. G. Storr, M.A.; *and others.*

Let (xy) be the centre of the equilateral triangle, p the length of the perpendiculars from the centre on the sides ϕ, $\phi+\frac{2}{3}\pi$, $\phi+\frac{4}{3}\pi$, the angles which these lines make with the axis of x, then if the triangle circumscribes the ellipse $b^2x^2+a^2y^2=a^2b^2$,

$$(x\cos\phi+y\sin\phi-p)^2 = a^2\cos^2\phi+b^2\sin^2\phi,$$
$$\{x\cos(\phi+\tfrac{2}{3}\pi)+y\sin(\phi+\tfrac{2}{3}\pi)-p\}^2 = a^2\cos^2(\phi+\tfrac{2}{3}\pi)+b^2\sin^2(\phi+\tfrac{2}{3}\pi),$$
$$\{x\cos(\phi+\tfrac{4}{3}\pi)+y\sin(\phi+\tfrac{4}{3}\pi)-p\}^2 = a^2\cos^2(\phi+\tfrac{4}{3}\pi)+b^2\sin^2(\phi+\tfrac{4}{3}\pi),$$

adding these, $$p^2 = \tfrac{1}{2}(a^2+b^2-x^2-y^2).$$

[The rest in Volume.]

10260. (Professor Lemaire.)—On donne un triangle ABC, inscrit dans un cercle de rayon B, et l'on joint deux à deux les milieux A′, B′, C′ des côtés BC, CA, AB. Si α, β, γ désignent les distances du centre O aux côtés du triangle ABC, et α', β', γ' les distances analogues relatives au triangle A′B′C′, on a $R^3 = \alpha^2\beta^2\gamma^2/\alpha'\beta'\gamma'$.

Solution by Rev. T. R. Terry, M.A.; J. C. Horobin, B.A.; *and others.*

If ON be the perpendicular on A′B′, then, since $OAN = \frac{1}{2}\pi - B$, we have $\alpha = OA' = R\cos A$, and $\gamma' = ON = OA'\sin OAN = R\cos A\cos B$, whence, &c.

10131 & 10167. (H. L. Orchard, M.A., B.Sc.)—Find the relation that must subsist among the coefficients of the cubic $x^3+ax^2+bx+c=0$ in order that it may be solvable by a simple quadratic method.

Solution by J. J. Barniville; A. Gordon; *and others.*

The equation $x^3+ax^2+bx+c=0$ can be depressed to a quadratic by factorising, if (i.) $a=c/b$, *i.e.*, $ab-c=0$; or, if (ii.) $c^{\frac{1}{3}}=b/a$, *i.e.*, $ac^3-b^3=0$. The condition is, therefore, $a^4bc-a^3c^2-ab^4+b^3c=0$, which, if $a=c=p$, $b=q$, becomes $(q-1)(p^4-q^3)=0$.

10063. (Professor Morel.)—Dans un triangle ABC dont les côtés sont en progression arithmétique, démontrer que le plus grand angle A est lié au plus petit angle C par la relation

$$4(1-\cos A)(1-\cos C) = \cos A+\cos C.$$

Solution by R. Knowles, B.A.; J. J. Barniville; *and others.*

Let $a=c+2d$, $b=c+d$; then

$$1-\cos A = (c+3d)/2c;\quad 1-\cos C = (c-d)/2(c+2d),$$
and $$\cos A+\cos C = (a+c)(b+a-c)(b+c-a)/2abc$$
$$= (c-d)(c+3d)/c(c+2d);$$ whence the result.

10169. (R. H. W. Whapham, B.A.)—If the area of the triangle whose base is the polar of its vertex with respect to the ellipse $b^2x^2+a^2y^2=a^2b^2$ is constant and equal to $k\,.\,ab$; prove that the locus of the vertex is $$(x^2/a^2+y^2/b^2-1)^3 = k^2(x^2/a^2+y^2/b^2)^2.$$

Solution by W. J. Greenstreet, M.A.; W. H. Rees; *and others.*

If O be the pole (l, m) and OP, OQ be the tangents, we know the

$$\Delta OPQ = (b^2l^2+a^2m^2-a^2b^2)^{\frac{3}{2}}/(b^2l^2+a^2m^2) = kab;$$

hence, for locus of l, m, we have

$$(b^2l^2+a^2m^2-a^2b^2)^3 = k^2a^2b^2(b^2l^2+a^2m^2)^2;$$

thus the locus of pole is as stated in the question.

10094. (Capitaine de Rocquigny.)—La somme des n^2 termes des n progressions arithmétiques 1, 3, 5 ..., 1, 5, 9 ..., 1, 7, 13 ..., &c., composées chacune de n termes, est exprimée par un nombre triangulaire.

Solution by R. Knowles, B.A.; Rev. J. L. Kitchin; *and others.*

There are n terms in each series, and thus n^2 terms in all; and the sums of the separate series, in order, are n^2, $n(2n-1)$, $n(3n-2)$, ... to n terms; therefore

$$\Sigma = n^2(1+2+\ldots\text{ to } n\text{ terms})-n(1+2+\ldots\text{ to } n-1\text{ terms})$$
$$= \tfrac{1}{2}n^2.n(n+1)-\tfrac{1}{2}n^2(n-1) = \tfrac{1}{2}n^2(n^2+1),$$

a triangular number.

QUESTIONS FOR SOLUTION.

10340. (Professor Sylvester.)—On a circle $2r$ points are set at equal distances from one another. How many distinct coloured patterns can be formed when one moiety of the points are coloured blue and the other moiety red? [Prof. Sylvester remarks that a problem in intercalations of which the above presents an image of the simplest case occurs in his treatment of two Binary Quantics according to Hilbert's method.]

—341. (Professor Wolstenholme, M.A., Sc.D.)—The curve

$$(y^2+4ax-4a^2)^2 = 64a(x+2a)(x^2+y^2),$$

is of the fourth degree and sixth class, and has three nodes ($x=-a$, $y=0$; $x=-6a$, $y^2+100a^2=0$); hence Plücker's equations give us six inflexions and four bitangents (no cusp); investigate the position and nature of these. [$x\pm iy=0$ gives $(x-2a)^4=0$, or meets the curve in four coincident points; such a point is equivalent to two inflexions and one bitangent; $a=0$ gives a similar point at infinity, and $x+2a=0$ has real double contact when $y^2=12a^2$.]

—342. (Professor Nash, M.A.)—A variable circle passes through a fixed point A on a conic, and meets the conic again in B, C, D; the Simson-line of A with respect to the triangle BCD passes through a point whose position is independent of the position and magnitude of the circle. This point lies on the diameter through the image of A with respect to the axis; in the rectangular hyperbola it coincides with the centre.

—343. (Professor Schoute.)—In a plane a triangle ABC and two points D, E are given. Through D and E we describe three conics; of these conics the first passes through A and touches BC in B, the second passes through B and touches CA in C, the third passes through C and touches AB in A. Show that these conics pass through a third point F. When the order of vertices A BC is changed in CBA, we obtain three new

conics through D and E that pass through a new third point F′. Show that F and F′ are isogonal conjugates with respect to ABC, when this relation holds between D and E. In the plane the triplets D, E, F (and also the triplets D, E, F′) form a cubic involution of the second rank, as the third point of either triplet is determined unequivocally when the other two are given. Only when D and E coincide, to every direction of the line DE of coincidence corresponds a point F (and a point F′), and in this manner to any point of coincidence corresponds a locus of points F (and a locus of points F′.) . Show that the locus of points F (F′), is the unicursal cubic with the double point in the point of coincidence, that touches the sides of ABC in the vertices in the manner of the three conics, that have led to the point F′ (F).

10344. (Professor Morel.)—Si a est un nombre impair premier avec 3 et 5, $(a^2-1)(a^4-16)\,[a^2-(2n+1)^2]^2$ est divisible par 23040.

—345. (Professor de Longchamps.)—Une ellipse étant rapportée à ses axes, démontrer que les coordonnées d'un point quelconque de la normale à l'ellipse, en un point dont les coordonnées sont $a\cos\phi$, $b\sin\phi$, peuvent être représentées (λ étant paramètre variable) par les formules

$$x=\frac{c^2\cos\phi}{a}\cdot\frac{\sin\lambda\sin\frac{1}{2}(\lambda+\phi)}{\cos\frac{1}{2}(\lambda-\phi)},\quad y=-\frac{c^2\sin\phi}{a}\cdot\frac{\cos\lambda\cos\frac{1}{2}(\lambda+\phi)}{\cos\frac{1}{2}(\lambda-\phi)}.$$

—346. (Professor Neuberg.)—Etant données deux ellipses concentriques et homothétiques, on mène en un point quelconque M de l'ellipse intérieure la normale qui rencontre les axes en P, Q; la tangente en M rencontre l'ellipse extérieure en R, S. Démontrer que les angles RPS, RQS sont constants.

—347. (Professor Gob.)—Soit Ω le point de Brocard du triangle ABC, tel que les angles ΩAB, ΩBC, ΩCA sont égaux. On mène par Ω les droites ΩM, ΩN, ΩP respectivement parallèles à BC, CA, AB et limitées en M, N, P à CA, AB, BC. Démontrer que Ω est un foyer de l'ellipse qui touche les côtés du triangle MNP en leurs milieux.

—348. (Professor Dérrez.)—On coupe un ellipsoïde par un plan P. Trouver le plus grand parallélipipède inscrit dans l'un des segments de l'ellipsoïde limité par P. Lorsque P est à une distance constante du centre, quelle est l'enveloppe de la face opposée du parallélipipède.

—349. (Professor Hain.)—Etant donné un triangle équilatéral ABC, si M, N, P sont les symétriques d'un point quelconque L par rapport aux trois côtés, démontrer que les droites AM, BN, CP se rencontrent en un même point.

—350. (Professor Sollertinski.)—Une circonférence Δ, passant par le centre O d'une autre circonférence Δ', coupe celle-ci en A, B. Une corde AM de Δ' rencontre Δ en M′. Démontrer que BM′ = MM′ De cette remarque, déduire une solution du problème suivant :—Deux points A, B étant donnés sur une circonférence Δ, trouver sur Δ un point M, tel que MA + MB soit égale à une longueur donnée $2h$.

—351. (Professor Syamadas Mukhopadhyay, B.A.) — An infinite number of lines are drawn in a plane at random except in so far that they make with a fixed straight line an angle which only varies from α to $\alpha+\psi$, ψ being less than π. Show (1) that they intersect within any closed figure of area S at $N^2(\psi-\sin\psi)$ S points, where N is the number of these lines intersecting a convex figure of unit perimeter when they are not restricted in direction, that is, when $\psi=\pi$; and hence (2) deduce a simple proof of Professor Crofton's celebrated theorem.

—352. (Professor Curtis.)—The conics

$$ax^2+2hxy+by^2+2gx+2fy+c=0,\quad a'x^2+2h'xy+\ldots+c'=0,$$

cut each other in four points; prove that ordinates of these points are given by the biquadratic

$$Py^4+Qy^3+Ry^2+Sy+T=0,\ \text{where}\ P=4\,(ah')(hb')-(ab')^2,$$

$$Q=4\left[(ag')(hb')+(ah')\left\{(gb')+2\,(hf')\right\}-(ab')(af')\right],$$

$$R=4\left[(ag')\left\{2\,(hf')+(gb')\right\}+(ah')\left\{(hc')+2\,(gf')\right\}-(af')^2-\tfrac{1}{2}(ab')(ac')\right],$$

$$S=4\left[(ah')(gc')+(ag')\left\{(hc')+2\,(gf')\right\}-(af')(ac')\right],$$

$$T=4\,(ag')(gc')-(ac')^2.$$

—353. (The Editor.)—Solve the equations

$$\frac{x+y}{a}=\frac{y+z}{b}=\frac{z+x}{c},\quad mxy+nyz+pzx=xyz.$$

—354. (G. F. Howse, M.A.)—Evaluate the determinant

$$\begin{vmatrix} c & a & a & a & a & \ldots \\ b & c & a & a & a & \ldots \\ b & b & c & a & a & \ldots \\ b & b & b & c & a & \ldots \\ \ldots & \ldots & \ldots & \ldots & \ldots & \ldots \\ \ldots & \ldots & \ldots & \ldots & \ldots & \ldots \end{vmatrix}$$

of the nth order, all the terms in the diagonal being c, those to the right being a, those to the left b.

—355. (Cl. Thiry.)—Dans un triangle ABC si AT est la tangente au cercle circonscrit, et si une sécante quelconque coupe AT, AB, AC en des points T′, B′, C′, démontrer que AB : AC′ − AC : AB′ = BC : AT′.

—356. (Benjamin Williamson, F.R.S.) — Given an elementary proof of Stokes' theorem, viz.—If a portion of a surface S be bounded by a closed curve s, and if u, v, w be continuous functions of x, y, z, then

$$\iint\left\{l\left(\frac{dw}{dy}-\frac{dv}{dz}\right)+m\left(\frac{du}{dz}-\frac{dw}{dx}\right)+n\left(\frac{dv}{dx}-\frac{du}{dy}\right)\right\}dS=\int(udx+vdy+wdz),$$

where l, m, n, are the direction cosines of the normal to the surface at the point xyz, and the double integral is taken over the surface, and the single integral along its boundary in the positive direction.

10357. (E. M. Langley, M.A.)—If the centre of a circle be the centroid of four points on its circumference, prove that (1) they are vertices of a rectangle; and hence (2) if

$$\sin\alpha+\sin\beta+\sin\gamma+\sin\delta=0=\cos\alpha+\cos\beta+\cos\gamma+\cos\delta,$$

then $\sin(2n+1)\alpha+\sin(2n+1)\beta+\sin(2n+1)\gamma+\sin(2n+1)\delta=0,$

and $\cos(2n+1)\alpha+\cos(2n+1)\beta+\cos(2n+1)\gamma+\cos(2n+1)\delta=0$;

also (3) enunciate and prove a corresponding theorem for three angles.

—358. (R. W. D. Christie.)—If ω_2 and ω_3 are irrational cube roots of unity, prove that, if $n+2$ is a prime number,

$$\omega_2^n+\omega_3^n+\frac{n+1}{2\,!}(\omega_2^{n-2}+\omega_3^{n-2})+\frac{n\,.\,n+1}{3\,!}(\omega_2^{n-4}+\omega_3^{n-4})$$
$$+\frac{n-1\,.\,n\,.\,n+1}{4\,!}(\omega_2^{n-6}+\omega_3^{n-6})+\&c.=0.$$

—359. (E. Vigarié.)—Des sommets A, B, C d'un triangle ABC, avec les côtés opposés aux milieux des côtés avec les médianes correspondantes, pour rayon, on décrit respectivement les cercles S_a, S_b, S_c; M_a, M_b, M_c. Soient A et A′ les intersections de M_a, avec le cercle circonscrit ξ; A′ et A_1 les intersections de S_b et S_c; A″ et A_2 les intersections de S_a et M_a et B′, C′; B_1, C_1; B″, C″: B_2, C_2 les points analogues aux précédents; démontrer que (1) les cercles S_a, S_b, S_c, M_a, M_b, M_c ont pour centre radical commun le point H_1, symétrique de l'orthocentre H, par rapport au cercle circonscrit; (2) A′B′C′ est le triangle orthocentrique de $A_1B_1C_1$ qui est lui-même le triangle anticomplémentaire de ABC; (3) les droites B′C′, C′A′, A′B′, sont les axes radicaux du cercle circonscrit et des cercles S_a, S_b, S_c; elles coupent respectivement B_1C_1, C_1A_1, A_1B_1 en trois points α, β, γ situés sur la droite δ de Longchamps; (4) les points α, β, γ sont, respectivement, les centres radicaux des groupes de circonférences; ξ, Δ, S_a, M_a; ξ, Δ, S_b, M_b; ξ, Δ, S_c, M_c, Δ désignant le cercle de Longchamps; (5) les six points A″, A_2, B″, B_2, C″, C_2, sont situés sur un même cercle Σ ayant, pour centre, le centre de gravité G du triangle, et dont le rayon ρ est donné par la formule $\rho_2=\frac{2}{9}(a_2+b_2+c_2)$; (6) le cercle Σ passe par l'intersection du cercle de Longchamps et du cercle anticomplémentaire du cercle circonscrit; (7) le cercle Σ est le cercle directeur de l'ellipse de Steiner.

—360. (D. Biddle.)—A square one-storeyed building, having an entrance door in the middle of one of its walls, is divided into nine square rooms, each of which communicates with those adjoining it by doors in the middle of the partitions. A person entering the building begins a tour of inspection, selecting the several doors at random; but each door, once passed, is locked, and becomes no longer open to selection. Prove that the odds are 3 to 1 against his completing the tour; also find the chance of his finding himself at the end in a particular room.

—361. (Maurice d'Ocagne.)—Soit M un point pris sur la base BC du triangle ABC. Si la perpendiculaire élevée en A à la droite AM coupe en B′ et en C′ les perpendiculaires élevées respectivement à AB et à AC, en B et en C, démontrer que (1) AB′ . MB/AC′ . MC = AB²/AC²; et (2) si AM est symédiane de ABC, le sommet A est le milieu de B′C′.

—362. (M. Coupeau.)—Dans un cercle donné, on considère les cordes des deux arcs interceptés respectivement par les côtés d'un angle droit quelconque et par leur prolongement. Démontrer que la droite joignant le milieu d'une des cordes au symétrique du milieu de l'autre corde par rapport à l'un des côtés de l'angle droit a une longueur constante.

—363. (E. Lemoine.)—Résoudre les équations

$$\frac{1}{by}+\frac{1}{cz}=\frac{a+x}{ax\,(a-x)},\quad \frac{1}{cz}+\frac{1}{ax}=\frac{b+y}{by\,(b-y)},\quad \frac{1}{ax}+\frac{1}{by}=\frac{c+z}{cz\,(c-z)}.$$

—364. (L. Bénézech.)—Si b est inférieur à $\sqrt{a}$, a et b étant des nombres entiers positifs, l'expression $a\,(1+a+2b)$ ne sera jamais un carré parfait.

—365. (A. Gay.)—On donne dans un plan, un point P, une droite XY et un cercle O. Construire un triangle satisfaisant aux conditions suivantes: AC − BC = l; A se trouve sur la droite XY avec laquelle AC fait un angle donné; BC est tangent en B au cercle O; enfin la circonférence tangente à BC et à AC en A passe par le point P.

—366. (H. L. Orchard, M.A., B.Sc.)—Find the value of e in order that $x^4+3x^3+3x^2+3x+e=0$ may have three of its roots equal.

—367. (Artemas Martin, LL.D.)—Circle A contains circle B; the radius of circle A is r, but the radius of B is unknown; find the probability that circle B contains the centre of A.

—368. (E. Césaro.)—Démontrer que (1) si les côtés d'un triangle sont en progression géométrique, il en est de même des rayons de courbure de la potentielle triangulaire aux extrémités du côté moyen et au barycentre; (2) le cercle osculant la potentielle au barycentre est égal au cercle circonscrit.

10369. (R. H. W. Whapham, B.A.) — Show, by an elementary method, that the last term of the equation whose roots are the squares of the differences of the roots of $x^n = 1$ is n^n.

—370. (W. J. C. Sharp, M.A.)—If α and β are any two numbers, show that the sum of the homogeneous products of α^r, $\alpha^{r-1}\beta$, $\alpha^{r-2}\beta^2 \ldots \beta^r$, s together, is the same as the sum of the homogeneous products of α^s, $\alpha^{s-1}\beta$, $\alpha^{s-2}\beta^2 \ldots \beta^s$, r together.

—371. (R. Knowles, B.A.)—The sides AB, CD of a quadrilateral inscribed in a conic, centre O, are parallel; the diagonals AC, BD intersect in G; a second conic, centre O′, is drawn through A, B, C, D; prove that the points O, O′, G are collinear.

—372. (J. J. Barniville.)—If the normal at any point of a conic divide the abscissa in the ratio $1 : [1-(1-\&c.)^{\frac{1}{2}}]^{\frac{1}{2}}$, the area of the curve is equal to that of a concentric circle through the foci.

—373. (W. J. Greenstreet, M.A.)—Through C the mid-point of the arc ACB of a circle, any chord CD cuts the straight line AB in E; find the locus of the centre of the circle through B, D, E.

—374. (R. Tucker, M.A.)—The "N. P." circle of a triangle is the auxiliary circle of the in-ellipse

$$(a^2 \cos A\alpha)^{\frac{1}{2}} + (b^2 \cos B\beta)^{\frac{1}{2}} + (c^2 \cos C\gamma)^{\frac{1}{2}} = 0,$$

of which the foci are the circum- and ortho-centres. If L, M, N are the points of contact with the sides, then AL, BM, CN meet in the Isotomic of the circumcentre.

—375. (Capitaine de Rocquigny).—Quel que soit n, l'un des deux nombres $3^{3n} + 2^{3n}$, $3^{3n} - 2^{3n}$ est divisible par 35.

NOTICES TO CORRESPONDENTS.

1. Professor Sylvester remarks that Mr. Biddle has misapprehended the meaning of Quest. 10219, and has assumed the "figures rigidly connected," therein spoken of, to be in contact, in which case they are equivalent to the single figure obtained by passing a tight band round them. The proper solution will be found in a paper which is shortly to appear in the *Acta Mathematica*, in which all the distinguishable cases (11 in number) of three disjoined figures are severally considered, and a method given for extending the solution to four figures or more. Of these 11 cases 2 were singled out for solution in part (2) of the Question.

2. Correspondents should be careful (*a*) to write each Question and each Solution on a *separate* paper (otherwise, when used for printing, the Editor has the labour of entirely *re-writing* such articles); (*b*) to make their Solutions as short as possible; (*c*) to send all Questions *early in the month*, but not to send Solutions till their Questions have been published; (*d*) to write their names at the *top* of *each* paper; (*e*) to *prepay* the postage in *full*; and (*f*) to send their *latest addresses* (Mr. Barniville is particularly requested to send his) with all other communications to

W. J. C. Miller, The Paragon, Richmond-on-Thames.

THE LONDON MATHEMATICAL SOCIETY.

The Annual Meeting will be held at 22 Albemarle Street, on Nov. 14th, at 8 p.m. The retiring members of Council are Dr. Routh, F.R.S., and Prof. Hart. Profs. Cayley, F.R.S., and W. Burnside, of the Royal Naval College, Greenwich, have been nominated to fill up the consequent vacancies. The following papers have been received, to be read at the meeting:—"Isosceelian Hexagrams," R. Tucker, M.A.; "On Euler's ϕ-function," H. F. Baker, B.A.

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The School Calendar

(SCHOOLMASTER'S CALENDAR.)

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COLLEGE OF PRECEPTORS.

EVENING MEETING, NOVEMBER 13TH, 1889.

The Chair having been taken by D. Nasmith, Esq., Q.C., G. HEPPEL, Esq., M.A., read the following Paper:—

EXAMINATIONS CONSIDERED WITH REGARD TO THEIR SPECIAL OBJECTS.

THE subject of Competitive Examinations has attracted great attention lately, and from the numerous papers, articles, and discussions that have been devoted to it, two conclusions seem to stand out clearly. First, that there is no reasonable prospect of these examinations being discontinued, and secondly, that the complaints about overpressure and detriment to education are not altogether without foundation. These injurious effects are, doubtless, frequently represented in an exaggerated form, but there is a general concensus of opinion that, to some extent at any rate, they do actually exist. It would appear, therefore, useful to investigate precisely where these evil consequences are generally to be found, what conditions tend to foster them, and how far examinations may be modified so as to reduce them to a minimum.

To pursue such an investigation thoroughly would require the co-operation of men possessing different special qualifications. We should require medical men to judge of the physical effects of the competition on the candidates, teachers to say what subjects and what extent of each could be fairly expected to be known by pupils of given ages and opportunities; business, professional, and scientific men to report upon the comparative values of different modes of training as a preparation for the practical work of life, and examiners to criticise proposed schemes of examination. Each individual member of one of these classes, and it may be of others also, can but deal with that part of the subject which comes within the range of his own special work. He will, however, naturally seek to supplement and correct his experience by studying any accessible works of authority on the general question.

It is not easy to find such an authority with reference to the examinations in which the majority of us are most nearly concerned. In a valuable and interesting paper on Competitive Examinations, read at the college by Mr. Carr, in March, 1887, there were many references to books and articles on the subject. But these bore upon the good or evil done by such examinations, and not upon their improvement or modification. There were also discussions as to the relative merits and demerits of preparation at the public schools, and preparation by men known by the nickname of "crammers." One book alone was mentioned from which any considerable guidance can be derived, that by Mr. Latham on the "Action of Examinations." Unfortunately, that work is so almost exclusively occupied with the subject of examinations at the Universities, and those for the Civil Services of India and of the higher branch at home, that the examinations that most strongly interest us, the Oxford and Cambridge Locals, the London Matriculation, and those for pupils' certificates at this College, are either unnoticed or barely alluded to. Notwithstanding this drawback, there is so clear an exposition of the principles on which examinations in general should be conducted, that a study of Mr. Latham's book is a great assistance towards the determination of the questions suggested at the commencement of this paper. Among these principles is one, illustrated and explained by frequent instances, which forms the central point of the considerations I am asking you to allow me to put before you this evening. Mr. Latham says:—

"Examinations are used for many purposes, and many of the difficulties and evils connected with their use arise from the attempt of those who frame the examinations either to effect too many things by one instrument—as, for instance, to pick out the most proficient, to reject the dunces, and to give an impetus to a certain kind of study, all by the same series of papers—or from their not having a clear view of what they are aiming at."

My own experience as a tutor, engaged now for many years in preparing pupils for examinations of very various kinds, has led me to the conclusion that the kind which most produces overpressure, and which is at the same time most detrimental to education, is one where strong inducements are held out to obtain a place at the head of the list, or very near to the head, in an examination where the papers set are of an elementary kind. Mr. Storr, in a letter to the *Times*, December 26th, 1888, speaks much in this spirit, but with great neatness and brevity, of the University Locals, when he says: "The radical defect of the local examinations is that they attempt to combine pass and class."

An examination paper of an elementary kind, or one suitable for a pass examination, is one where the main object is to ascertain whether the candidate has a sound knowledge of the elements of the subject, and no questions, or very few questions, are set to discriminate between different degrees of superior intelligence, or to call out advanced knowledge. In a paper of an advanced kind, suitable for an Honours examination, the case is reversed. The possession of a sound elementary knowledge is all but assumed, a few questions being perhaps directed to this point, while the great bulk of the paper is devoted to discriminating between different degrees of advanced knowledge. Now in the Locals, the Matriculation, and the Certificate examinations, the construction and the main object of the papers is of the elementary or pass kind, and yet all of them are employed as competitive examinations. The Certificates examination of this College is directly and openly competitive, inasmuch as the lists are in order of merit, and valuable prizes and honourable distinctions are awarded to those highest on the lists. The London Matriculation is half competitive and half pass, but the prizes given to the head candidates, for which a small number of select schools are annually struggling, have a powerful influence upon education generally. In the University Local Examinations, Oxford and Cambridge adopt different courses, and, strangely enough, in a manner directly in antagonism with their practice in degree examinations. Oxford, the great upholder of alphabetical order in the Honour Schools, puts the first and second classes in order of merit; Cambridge, the great upholder of lists in order of merit in the Tripos, puts all local candidates in alphabetical order. But the Cambridge as well as the Oxford is really a competitive examination: for the valuable prizes, honourable distinctions, and possible scholarships give both that character, and cause them to exercise on higher school education an influence equally strong with that of the London Matriculation. This use of pass examinations for competitive purposes is totally opposed to the practice of Oxford and Cambridge with respect to their own resident members. I believe there is no instance at either University of a pass list with the names in order of merit.

Any one advocating reform usually takes his instances in illustration of the most extreme kind. A temperance orator likes his examples of drinkers to be very hard drinkers indeed, and to cause as much misery as possible. It is but natural, therefore, to ask, Where do we find the examination which is the most perfectly pass in its character employed for objects the most perfectly

competitive? In answer to this, one would name the examination for the lower branch of the Civil Service.

Here the scheme of examination consists of ten subjects: Handwriting, orthography, arithmetic, copying MS., English composition, geography, indexing or docketing, digesting returns into summaries, English history, book-keeping. There is a very fierce struggle between a great many candidates for comparatively few appointments, the intensity of the competition being, however, somewhat diminished by the fact that a place at the bottom of the list of successful candidates is as valuable as a place at the top, the appointment being secured as certainly in the one case as in the other. The preparation for this competition is a great strain on the energies of both pupil and teacher. I doubt whether there are many here who would care to undertake this kind of teaching; and the labour of preparation, for the most part, falls into the hands of men who exclusively devote themselves to this toilsome work.

In the thirty-third Report of the Civil Service Commissioners, issued this year, there are some interesting and valuable remarks and suggestions concerning the action and effects of their examinations. Speaking of the lower branch examinations they say, in justification of the statement that it has no considerable influence on general education:

"With reference to the bearing of these examinations on education, the main point to be observed is that a large proportion of the candidates for the above-named appointments leave school at an early age in order to engage in some employment which will give them a livelihood, so that if they wish to compete for a government appointment, they must continue their education as they best can in the intervals of their work. Examination in their case, therefore, does not interfere with any established school curriculum. We have to deal principally with what may be called 'evening class' education, where the curriculum, so far from being fixed by long usage or endowment, is perfectly unfettered, and can readily follow the lead given by the examinations."

The two following extracts from the Report more nearly concern the subject we are considering:—

"As regards the competition itself, the effect of examining a great number of highly trained candidates in subjects requiring a somewhat restricted range of intelligence is deserving of notice. The candidates are obliged to devote much time to putting a high degree of polish upon a rather low useful order of accomplishments. The consequence is that, as their programme in the examination often reaches a high degree of excellence, while the appointments for which they compete are few in number, it becomes a matter of extreme difficulty to distinguish with exact precision the relative merits of the last of the successful and the first of the unsuccessful candidates. For example, in the last female sorters' competition for thirty appointments, there was a difference of only thirty marks between the first candidate and the thirty-first, or actually one mark per place."

"We desire, however, to state, as the result of our experience, that, provided it were compatible with official requirements, it would unquestionably be of advantage to the general education of the candidates, and would lessen the difficulty of examining, if, in accordance with the suggestions of the Royal Commissioners with regard to the Lower Division, candidates were allowed to take one or more optional subjects in addition to those prescribed in the existing scheme."

In this extreme instance of a pass examination used competitively, it is to be noticed that the position is a forced one. There must be competition, and the standard of the various subjects must not be raised. The only possibility, therefore, of enabling the examiners to come to their decision with more satisfaction to themselves, and more justice to the candidates, seems to be that of adding to the number of subjects of examination. The Commissioners have on more than one occasion urged the advantage of such an alteration, but the Government have hitherto declined to sanction it. In a letter somewhere between 1870 and 1876 it is stated that—

"My Lords (of the Treasury) think that the proposal to raise the standard of Scheme II. is adverse to economy, and tends to introduce into the public service persons whose remuneration is measured by their own attainments and qualifications, rather than by what is demanded of them in the situations which they hold."

It will be very interesting to note whether, if the Government ultimately yield to the recommendation of the Commissioners, the difficulties they at present experience will be diminished. A comparison with the working of other examinations, similar as to the confusion of pass and competition, but different as to number and variety of subjects, appears to lead to the conclusion that this would be the case, and that we may consider it as a law that in an examination of this kind the difficulty of ascertaining relative position is less when the number of subjects is greater.

Keeping this law in view, I propose to attempt to investigate the working of one of these public examinations referred to, with respect to this differentiation of candidates; and here there is great need that I should ask your indulgence and forbearance. It would be in every respect more desirable that I should go into the question of the Locals or the Matriculation, rather than appear to assume the unbecoming position of critic of the examinations of this College. Unfortunately this is impossible. The authorities of the London University shroud all the working of their Matriculation examination behind a thick veil. The Universities of Oxford and Cambridge let you see a little of the machinery, but not enough to form any precise idea of its action. This College, on the contrary, adopts a policy of frankness, gives all information that can possibly be of service, and withholds only a few details of minor importance which it could do no good, and might do harm, to publish. In taking advantage of this frankness I know that I am treading on thin ice. I have reason to believe that I shall find many who will not agree with me. I remember that there is a special Examination Committee of our Council who give careful attention to all the details of the subject, Yet, nevertheless, I feel a confidence that honest criticism, even if faulty, will not be resented, and that if I do not meet with your approval, I shall at least escape your censure.

The competitive action of the Certificates examination displays itself in three distinct ways—

I. In the order of merit used throughout the list.
II. In the publication of the names of the first and second candidates in each subject or group of subjects.
III. In the award of prizes to the candidates who take the first places in the aggregate list.

I here put these in order of what seems to me their comparative importance. The order of merit throughout is merely the calm record of a fact, and it rests with the students or their friends to attach such importance as they think fit to a somewhat higher or a somewhat lower place. But the singling out the names of the first and second candidates, and the award of prizes, is a distinct expression of the intention of the College that importance should be given to the distinctions thus gained, and in the last case this intention is further emphasised by the proceedings at the distribution of prizes and certificates.

A first-class honour list contains the names of those who gain not less than 1,200 marks. The candidates must pass in eight subjects, and may take up thirteen. Special certificates are given to those who secure 75 per cent. marks in any one subject. The full marks for any subject are 200, with two exceptions, Latin being 300 and Mensuration 150. It would therefore be theoretically possible for a candidate to gain 2,700 marks, but it would be a practical impossibility. From certain indications, a careful consideration of the lists for the last three examinations leads to the estimate that the average highest marks actually attained were from 2,000 to 2,100; and I am furthermore allowed to take it officially that this estimate is correct. Choosing the higher limit, so as to ensure the fairness of my arguments, let us notice what is the probable percentage of difference that determines a difference of place rather than a bracket. And here, at the outset, let me guard against a possible misapprehension. If a question were stated—"The maximum being 100 and the minimum 50, what is the greatest possible number of places so that there shall be a difference between each of at least 2 per cent.?"—one might be tempted, without thinking, to answer that the maximum has to be diminished 50 per cent.; and, at 2 per cent. per place, that gives 25 intervals, and therefore 26 places. This will clearly not do, for then $60\frac{3}{4}$ and 59 would have to be bracketed together, and these differ by more than $2\frac{3}{4}$ per cent. The true answer to the question would be 35. Considering the case of 2,100 at the top, and 1,200 at the bottom, the greatest number of places with a 2 per cent. rule would be 28, and with a 1 per cent. rule would be 56. The number of places, bracketed names being considered in the same place, was 42 in June, 1889; 57 in January, 1889; and 51 in June, 1888. It may be taken for granted, therefore, that something like 1 per cent. is considered a sufficient difference to exclude a bracket. It is not necessary to devote much time to the first division pass list, for the reason I have already given. Here the lists for boys and girls may be considered separate. Still, it may be as well to notice that, as the number of places in the girls' list in this division was 67 in January, 1889, a rule of about $\frac{3}{5}$ per cent. would be required to descend from 1,200 marks to 800.

Now, Mr. Latham states, as the result of University experience, that the places in mathematical lists may be more minutely distinguished than those in other subjects, and here he advises a

3 per cent. rule. In classics, 6 per cent. should be necessary to exclude a bracket. He says that formerly in the mathematical tripos a 2 per cent. rule held good, but that at the time of his writing, in 1877, the custom was 3 per cent., the former rate having been found insufficient. It is clear, therefore, that the College, in its system of awarding scholarships, prizes, and distinctions on the aggregate, is proceeding on different lines from those sanctioned by the experience and practice of the Universities.

There must be now an apparent want of orderly arrangement in my treatment of the subject. It is necessary to dwell for a moment on the publication of first and second names in each subject, and then to go back to the aggregate list, as the former competition is considerably influenced by the latter, and this influence has most important consequences, some of them rather startling to any one who notices them for the first time.

There is little to say against the first and second place competition. I have not the materials to examine it thoroughly, as there is no official record of the numbers entering for each subject. Careful investigation and comparison of what is published enables one, however, to come to very probable conclusions, and these all point towards a belief that these positions are generally fairly earned, and represent solid facts. Taken by themselves, these competitions appear to supply a wholesome stimulus to exertion, and not to produce bad effects. But I shall suggest some considerations tending to show that their character and action is much modified by the aggregate competition.

The College, with the frankness that I have before mentioned, not only gives, as it must, the number of special certificates on each subject, but tells us that to gain such a special certificate 75 per cent. of full marks must be gained.

I have here a table of the number of special certificates granted at the last three examinations, in which it should be noticed that a much larger number of pupils enter in December of any year than in June.

	June, 1889.	December, 1888.	June, 1888.
Number entered.....	385	578	378
Scripture.....	23	21	26
English	25	1	18
Geography	1	0	5
History	2	13	1
Political Economy.....	4	7	1
Arithmetic	9	52	30
Algebra	2	20	7
Euclid	5	16	31
Mensuration	1	9	0
Bookkeeping	12	3	21
Trigonometry.....	6	1	9
Mechanics	0	8	0
Physics	8	6	2
Chemistry	12	18	9
Natural History.....	10	1	4
Latin	6	4	7
Greek	1	0	1
French.....	25	36	12
German	10	16	6
Italian.....	1	0	0
Spanish	0	0	1
Drawing	23	55	28
Music	7	27	18

There are many peculiarities about the figures in this table that are curious, and many that are not very satisfactory. From extreme personal incapacity I feel such wondering and almost reverential admiration for any one who can either teach or learn geography, that I am not greatly surprised to find that the last two occasions supplied together only one candidate who gained three-quarter marks. But it is certainly an astonishing circumstance that in June only two candidates gained this far from extravagant success in Algebra, and only five in Euclid. There is no official public record of the number taking up these subjects, but we may fairly presume that there were many entries. In History the numbers are 2 in June, 1889; 13 in December, 1898; and 1 in June, 1888. When unsatisfactory zeros occur there is nevertheless the same publication of first and second candidates, not in this case holders of special certificates.

It is, however, by comparison of one year with another that the strangest peculiarities of the table are to be found. Last June there were 2 Algebra and 25 English specials; in the December before, 20 Algebra and 1 English. One hears from schoolboys that in their playground games there are changing fashions, that at one time rounders, at another prisoner's base, may be the favourite. Perhaps something of the same sort influences the studies, and there is a run upon English or Mathematics or Languages at particular periods. Remembering the difference of the June and December entries, French, German, Chemistry, Drawing and Music appear to be fairly steady, but the other subjects show more or less startling variations.

A careful examination of the papers set would probably lead different persons to different conclusions as to their influence in producing these variations. For my own part, I cannot see that there is any difference in difficulty corresponding to the difference in the number of special certificates. The Algebra paper last June is what one would fancy a candidate would call a "jolly" paper; there are no catch or out-of-the-way questions, and all might be rapidly done by a fairly prepared student. The Euclid papers in June, 1889, and in June, 1888, were set and looked over by the same experienced examiner, and though it is just possible the former might put to some disadvantage a candidate who had read some other geometry than that of Euclid, still the number of such candidates would be small. And yet the special certificates are five in one case, and thirty in the other. It would seem as if there must be in the examination papers either some occult harmony or some concealed discordance with the prevailing school teaching.

It is much more easy to account for the frequently unsatisfactory number of those gaining special certificates. Pupils and their teachers know very well that the much desired prizes are only to be won by taking up a large number of subjects, and doing well in many of them. It cannot be decided beforehand with any certainty who will do well, but at any rate the large number of subjects can be prepared, and one condition of success certainly secured. Accordingly, this large number are taken up by boys and girls who become during the preparation distracted by the variety of things they have to attend to, and fail to come out with distinction in any. It would thus seem that the present arrangements of the examination tend to cultivate an imperfect knowledge of many different things. Just at this point, also, overpressure is likely to manifest itself. All these various things have to be studied more or less satisfactorily. To give up any of them would, it is true, not be an obstacle to passing well, or even gaining honours in the First Class, but it would be absolutely fatal to any hope of a prize. And so with unflinching perseverance, and heavy work against the grain, many a candidate goes on struggling, and very often that brave struggle serves to but make defeat more certain. The prize goes to one fortunate in previous training, of calm temperament, less anxious, and with more constitutional strength.

If, however, the number of subjects were lessened by new regulations, we should, in avoiding the Scylla of imperfect knowledge, fall into the Charybdis of difficulty of marking. It has been shown that, even with the thirteen subjects allowed, the degrees of demarcation are still as minute as they well can be, and the contraction of the scheme would make it necessary to make them yet more minute.

Returning now to the prizes in the aggregate list, and remembering that these represent the sum total of successes in the several papers, there is much ground for supposing that luck plays no slight part in determining the result. This luck, if it does exist, acts somewhat differently in different cases. With regard to one case Mr. Latham says:—

"If we want to find out how far a person knows History or Geography, we can only judge by the answers given to questions on a few points; hence we have to form our estimate of the value of the cargo by the quality of a few samples, the cargo not necessarily being equally good throughout."

With regard to another case the same authority says:—

"The class of questions which begin with 'Give a short account of,' 'Discuss the question,' or 'Examine the principle,' cannot be marked on generally accepted rules; one examiner may have one view, and one another, as to the proper starting-point for the answer, and the range it ought to cover."

To these may be added another important factor, which may be denoted by the general term of style. In Analysis of Sentences, there are many different forms of exhibiting the analysis. In Euclid, different examiners require different degrees of minuteness in giving the steps of a proof, and are more or less lenient in allowing truths to be assumed. In translating

from Latin or French into English, there must always be something like a compromise between the idioms of the two languages. One examiner will lay most stress on faithful rendering of the Latin thought, while another will attach more importance to elegant instead of schoolboy English. Perhaps I may be allowed to illustrate this point by an example. A good many years ago I examined a grammar school, the headmaster of which was a classic in first class honours, and a most able teacher. On looking over the Latin papers, I found a style of translation which may be best explained by taking two words from Virgil I. 531. Here "Ferro populare" was rendered "To ravage with iron," and this literal adherence to Latin thought was maintained throughout, with corresponding disregard of English usages in speech. I cannot help believing that such a style of translation, faithfully followed out, would gain marks with one examiner, and lose them with another. In examining a school, this peculiarity, if it be a peculiarity, makes no difference. The boys are all taught according to one view, and the examiner falls in with the line of teaching. But with many schools, and many lines of teaching, all coming together in one public examination, this "style" factor, as well as the "sample and cargo" and the "elastic questions" factors, helps to make up the heterogeneous product "luck."

It is of little use to criticise or point out blemishes without suggesting remedies. From such a necessarily superficial and imperfect review as has been attempted in the present paper it would seem to follow that the best plan would be to do away with the competitive element in the Locals, the Matriculation, and the Certificates examinations, to arrange the candidates in alphabetical order in a few classes, and to award prizes, if any were given, by means of special examinations adapted to the purpose. In such an arrangement as this there at once appears a difficulty. There would be some injustice in classing together several students who had acquitted themselves with varying degrees of credit. It used to be an old saying at the Universities that no one ever met an Oxford Second Class man who did not tell you that it was only by some strange accident that he was not in the first class, or a Cambridge Third Class Tripos who did not claim to have been within an ace of the second. This and some other imperfections in such a plan make it desirable rather to plead that, as far as this College is concerned, there is some ground for urging that a Committee (possibly the existing Examination Committee) should be instructed to investigate the action of the examinations so far as they are competitive. They would do so with the advantage of access to many detailed statistics that are very properly not published, and might either recommend alterations, or show that the results that look alarming to outsiders are capable of easy explanation.

One point more and this paper will be concluded. The fact that competition has come by degrees to be a main feature of these examinations, and this with but slight occasional protest, shows that there must be some good, if not sufficient, reason for that competition. Very probably the reason is to be found in an imperfect analogy. Boys at school are found to work better and to learn more when the stimulus of prizes is afforded them, and the same results are expected to follow from prizes at these examinations. But there are points wherein the two cases greatly differ. Boys at school are examined in what they have been actually taught. Candidates in public examinations are examined in what they are supposed to have been taught. Moreover, the element of luck, which is so undesirable in the public contests, is not so undesirable at school. The school competition is between friends and comrades, and a little luck makes it not a bit less attractive. The school struggles for prizes are in some sort friendly games, and one may hear the winner say to the boy whom he has just beaten, "All my luck, old fellow. That Horace paper suited me down to the ground. If we had had one like the paper two years ago, you would have beaten me all to fits." No such good-fellowship can be looked for from a collection of competitors unknown to one another, and with no links of sympathy. The anxiety and eagerness that is felt by these competitors is also often increased by the feeling that it is not that each is working for himself, but that each is working for his school, and thus an *esprit de corps* is evolved which often intensifies the overpressure due in the main to the hard requirements of the thirteen subjects.

Mr. Sonnenschein asked whether the lecturer could tell them what it was that was intended to be ascertained by the examinations he had criticised.

The Lecturer said that this was rather a matter for the examining body to decide. What he had endeavoured to point out was, that examinations of an elementary character were not adapted for purposes of competition.

Mr. Orchard said he would be inclined to advocate a classification of results on the principle of a 2 per cent. difference between the groups. The fluctuation pointed out by the lecturer seemed to show that some further limitation of the discretion of examiners, in regard to their questions and system of marking, was required. He was in favour of a reduction in the number of subjects that a candidate should be allowed to take up; and he would suggest that, in drawing up an examination paper, the pass questions should be grouped by themselves, while the competitive questions should occupy a separate part of the paper; and also that candidates should be informed as to the number of marks assigned to each question.

Mr. Wilson sympathised with the question put by Mr. Sonnenschein as to the object of examinations, which he regarded as the first and most important point to be considered. Recent controversy on the subject had hitherto been very much in the air, having been carried on chiefly by literary men, who possessed very little real knowledge of the work of teaching in schools. Competition was a law of life in these days; and, if an evil at all, it was a necessary one. If examinations were to be the ground-work of good education in the candidates who prepared themselves for them, their object and aim should be directive; and an examining body like the College of Preceptors ought to be able to devise a better scheme than the individual schoolmaster. An examination of some sort, he contended, was absolutely indispensable to good teaching. As a means of selection for public appointments, it might be denied that it was the most appropriate, but any other system would probably be open to equally unfavourable criticism. It was admitted that those who framed the competitive scheme for the Indian Civil Service were among the ablest men of their time. Under this scheme the failures were considered as well as the successful candidates, those subjects being selected for examination on which every gentleman ought to be informed, and a knowledge of which would be of advantage to the possessor under any circumstances. Subsequent changes in the examinations for the army had departed from this principle; but he was glad to observe that the military authorities had more recently seen fit to revert to the old type. As to the percentage of difference between candidates at the College examinations, as compared with that adopted at other examinations, he conceived that this was governed, for the most part, by the large number of competitors, which necessitated smaller shades of difference. He considered that to allow candidates to take up as many as thirteen subjects was to put a premium upon superficiality. He advocated the valuation of subjects according to their disciplinary value, though there would necessarily be found much difference of opinion among teachers as to the scale to be adopted.

Mr. Brown said that the real question at issue was the advantages and disadvantages of the competitive system in such examinations as those of the College of Preceptors. On the one hand, he would say that it had the effect of causing boys to remain longer at school, in order that they might attain a higher rung of the educational ladder; while it also served as an encouragement to the pupil to exert his faculties, to the teacher to do his best for the pupil, and to the parent to obtain for his child a certificate with a recognised commercial value. On the other hand, there were drawbacks to these advantages in the temptation on the part of the teacher to devote his attention to the clever boys, to the neglect of those of inferior ability, and thus tended to a lowering of the teacher's ideal, which should be the raising of the tone of the whole school. In his own experience of the College of Preceptors' examinations, he had been strongly impressed by the remarkably close correspondence of the results with the performance of the candidates in their class-work; and, in view of this comparison, he did not see how the results of the competitive system could be characterised as false. He held that the issue of lists in alphabetical order would be discouraging to the clever pupil, who was thus placed on an apparent equality with those known to be inferior to him in capacity. He could not agree with the last speaker, who urged that examinations should be directive in their objects. He considered that this would be to put too much power into the hands of the examiner, whose proper function, he thought, was to find out what boys knew, and not what they did not know. If examiners took a particular line, teachers were compelled to follow it, and thus education was forced into a narrow groove. He advocated the use of blank maps in geography examinations, and the use of dictionaries in working unseen papers in foreign languages, thus affording a far better test of the capacity of the candidates to deal with a foreign author than the present system, which served only to test their power of reproducing what had been forced into them by continual repetition. He also advocated the adoption of oral examinations, as being best adapted for discriminating between "cram" and real knowledge.

Mr. Sonnenschein denied *in toto* the statement of a previous speaker that the law of life was competition. This was, he thought, a pernicious doctrine to bring before the young, and the contrary should rather be inculcated by the instructor of youth. In the whole course of his experience of thirty-three years of teaching, he had never found better results than in a school where the competitive principle was absolutely eschewed. It had been hinted that the names attached to the protest against examinations were of little authority in the domain of education; but he

ventured to say, that for every great name that might be brought forward in support of the system, he would adduce a greater in opposition. Examinations could test indeed the possession of knowledge, but could not test the method adopted by the teacher, nor ascertain whether the pupils had been taught intelligently. He held that it did not matter what was taught, but how the teaching was done. He contended, with Frederick Harrison, that it was enough to show the radical defects of the system, without being called upon to find a remedy.

Mr. Hamilton said that the plan suggested by a previous speaker of dividing an examination paper into pass questions and competitive (or honour) questions, and of assigning a certain number of marks for each question, was, in fact, that adopted by the Oxford and Cambridge Board.

The Chairman, in moving a vote of thanks to the lecturer, observed that he had clearly defined what the special objects of examinations were, and what those objects might be. It was not the aim of instruction to pass the pupils through a mill, but to draw out their capabilities and give them an all-round training.

Mr. Heppel, having replied to the remarks of the various speakers, a vote of thanks to the lecturer concluded the proceedings.

THE INTERNATIONAL CONGRESS AT PARIS.

(*Continued from page* 419, *and concluded.*)

We have yet to describe in detail the work of the Section having charge of Technical and Commercial Education. This section of the Congress had to consider—"In what form and to what extent can technical instruction (agricultural, commercial, industrial) be given in primary schools (elementary and superior), and in normal schools?"

The communications laid before the committee of organization had been classified under two headings—definitions and propositions; and the first task of the Section was to define what must be understood by the words "technical instruction." Many attempted the task, only to be convinced of the truth of the aphorism that "definition is dangerous."

The discussion, although interesting, and sometimes animated, failed to settle the question, and ultimately the attempt was given up; yet it was made clear that the question at bottom was but one of words, as every one knows what agriculture, industry, and commerce are; the Congress thought that it was better to dispense with the word "technical," and the question to be considered was then reduced to the following:—"In what form and to what extent can (1st) agricultural, (2nd) commercial, and (3rd) industrial instruction be given, in the different classes of primary schools?"

It was decided to discuss in turn each class of instruction, first in its application to elementary primary schools, then to superior, and finally to normal schools.

Instruction in Agriculture.

Agricultural instruction did not give rise to much discussion. The Section was soon unanimously of opinion that we ought not to be expected, in primary instruction of any degree, to make children into agriculturalists, in the true acceptation of the word. Yet it was thought possible to give to pupils of six to thirteen years a taste for things agricultural, and a spirit of observation, and to put them in a condition to understand what has been written for them by those who have sought to diffuse scientific knowledge among the people. It was equally agreed that at the superior primary school, agricultural instruction might be carried further,—still, however, preserving the scientific character,—and that a special course of agriculture should be held there, theoretical explanations being supplemented by manual work and by practical exercises, as much in the garden as in the field. Skill in the handling of tools, being easily acquired subsequently, either by daily practice or from instruction in special schools, ought not to be a special care of the primary schools. In a word, it was agreed that all the primary schools would be able to do in this matter would be to lay the foundation for the knowledge of agriculture, much as it lays the foundation for their special knowledge. At the same time teachers at the normal schools should be put in a condition to give elementary agricultural instruction later on, either to an elementary or to a superior school, by good scientific lectures.

The following conclusions were voted by the great majority of the members present, and were embodied in the report presented at the general meeting by M. Martel, an Inspector of the Academy, appointed for the general inspection of technical schools:—

1. Agricultural instruction may often be assisted in the primary schools by lessons, readings, and especially by the school museum, and occasionally by observation in the garden and school walks. The experiments possible are of a very simple character and such as may be made in the growing of vegetables.

2. In the rural superior elementary school, special courses of agriculture may be given, and the experiments in the field must be particularly adapted to local needs and circumstances.

4. In the normal school, the teachers under training should be enabled to give agricultural instruction on the points set forth in the two preceding paragraphs.

Commercial Instruction.

The question of commercial instruction was also easily settled. One hour was sufficient to come to a vote, and even this hour was employed less in discussion than in listening to interesting communications which the foreign delegates wished to make on the organization of commercial instruction in their several countries.

The Section was unanimous in banishing commercial instruction, properly so called, from the elementary primary school and from the normal school, the programme of this instruction being above the reach of children of twelve or thirteen years, and of little use to masters and mistresses, who already are hampered by many subjects. It appeared very clearly that in the minds of the members of the Section, although commercial instruction might not figure in his programme, the teacher ought not to be prohibited from giving his pupils explanations of the most usual transactions, such as selling and buying, on the consequences of a signature affixed to a document, on the necessity of prudence, truth, and accuracy in speech, and the obligation honesty imposes on us to keep all engagements into which we may have entered. It was pointed out that there are many customs of right conduct and honest living which the teacher will continue to explain to his pupils as he really does now, without their being considered matters of special commercial education.

Without explicitly introducing commercial education properly speaking into normal schools, these schools should continue to give to the rising generation of teachers simple ideas of the usual business duties, of book-keeping and accounts. Although neither primary elementary schools nor normal schools are places for commercial education, it seemed to the majority that this education ought to have a place in the programme of superior primary schools. But the Congress insisted on a distinction. Two lists of subjects form the programme of commercial education. Some which we may place in the first list, such as handwriting, geography, modern languages, accounts, ought to be considered as of general usefulness. Knowledge of these is profitable to every man, even if later on he does not intend to devote himself to commerce. The other list includes the study of the qualities, uses, and prices of merchandise; elementary study of means of transport; knowledge of law and of commercial legislation; the customs of the bureau of commerce. A knowledge of these is only necessary to young men destined to become clerks in business houses. The subjects of the first list will form the programme of a limited commercial education, and would be sufficiently interesting to be introduced into superior primary schools generally; while the subjects of the other list should be taught only in large towns, where there are important houses of business.

These ideas were embodied in the following resolutions:—

1. Commercial education ought not to be introduced into the primary elementary school.

2. This education could be usefully given in the primary superior schools, both those for boys and those for girls. It will be more complete and more fully developed in the schools of great towns, more limited and simple in those of other places.

3. At the normal schools it will be limited to giving young teachers some idea of accounts and book-keeping.

Education in Manufactures.

If the Congress was soon agreed on the question of the introduction of commercial education in primary schools, we cannot say the same for the proposal for education in manufactures. A very long and passionate discussion was caused by this question. Many members, who spoke with earnestness and effect, confused two questions. On the one hand, there is elementary manual work considered as a means of education, or as an adjunct to general education, having for its object to give the child powers of observation, accuracy of manipulation, and sureness of hand, such as is associated with instruction in drawing, and is taught without any idea of immediate application in a definite trade;

on the other hand, there is instruction in manufactures and handicrafts which, it is evident, also involves manual training, but manual training more systematic, advanced, and specialised, and designed to prepare the child for the trade or profession for which he is intended. Of these two questions, the first was considered fully four years ago at the Congress of Havre, and the conclusions then adopted in its favour were accepted by the committee of organization. The second question, therefore, that of professional manual training, occupied the time of the Section. Because the distinction of elementary manual training as a part of general education and the learning of trades and professions was not understood, the discussion grew animated, angry, and prolonged. Many interesting communications on the subject of the introduction of manual training into primary elementary schools, and of the results obtained in different districts, were badly received, because they had no bearing on the second question. The proposition ultimately carried by a large majority was as follows :—

"Professional industrial instruction is inconsistent with the aims and programmes of both the primary and the normal schools."

The Congress was originally asked to say in what form and to what extent professional instruction bearing directly upon agriculture, industry, and commerce, can be introduced—first, in elementary primary schools ; second, in superior primary schools ; third, in normal schools. The answer was complete for agricultural and commercial instruction ; but it was not so as regards industrial instruction.

The proposition, as originally put, included the three kinds of schools ; but so many pointed out that the primary superior schools are reproached with not giving a sufficiently practical education, and that public opinion was constantly urging the Government to effect, in a professional sense, a reformation of these schools, that the proposer could not get a decided majority to declare, as a matter of principle, that professional industrial instruction was inconsistent with the aim and the programme of superior primary schools. No solution on this point was arrived at.

In the general assembly, in which the votes of the whole Congress was taken, the resolutions on agricultural and commercial education were adopted without debate, but the third resolution rekindled a fierce discussion. On the proposition being introduced, "That industrial instruction is inconsistent with the aims and programmes of primary schools and normal schools," an amendment was proposed to introduce the word *elementary*. M. Houzeau de Lahore, the Belgian delegate, pointed out that in Belgium industrial instruction is separate and distinct, and is not under the same ministerial department as primary instruction. M. Gavard observed that in many countries there were no superior primary schools, so that in these countries the proposed adjective would have no meaning. These and others opposed the amendment, and it was ultimately lost, the original resolution being carried by a large majority.

At the final meeting for dissolving the Congress, the President, M. Gréard, and the Minister, M. Fallière, reviewed the whole of the three questions.

M. Gréard, addressing the Minister of Public Instruction, said :—

"M. le Ministre—In considering the question of agricultural, commercial, and industrial education in primary, elementary, and higher schools, and also in normal schools, the Congress sought at first to define professional and technical teaching. The attempt had to be given up. It could hardly be expected that a definition could be found in an assembly of two thousand persons. In the French Academy the Commission charged with the compilation of the dictionary is composed of three members, and these three do not always agree at the first attempt. Besides, every one has his own idea of what is meant by professional teaching, when once it is a question of the place that is to be given to it in primary education. It is evidently neither apprenticeship, which has its own processes and establishments, nor technical instruction, which necessarily brings with it the idea of a direct and special accommodation to arts and trades, to industry and commerce. In primary instruction, which has for object the general education of the faculties of the child, professional instruction can only be a distant preparation for the exercise of the professions, a foretaste, a means of showing the child the application of the general ideas which he receives, the profit and the honour attached to it. It was with this idea that the resolutions of the Congress were taken. It does not believe that professional instruction properly so-called—I put aside manual training, which is only the practice of eye and hand—should be introduced in primary elementary schools in which general education claims and absorbs the whole of the time. It believes that the beginning of agricultural instruction may be given in primray schools, elementary and higher : in the former in the shape of subjects for exercises and appropriate reading lessons ; in the latter, in the shape of a simple experimental course ; but in all cases to such an extent as is compatible with the ages and conditions of work of the pupils, and consistent with the interests of the district. It is of opinion that commercial instruction cannot find a place in the primary elementary schools, but that it may be usefully developed in the higher elementary schools—always, however, taking into account the diversity of local needs. Finally, it considers that, in the normal school, teachers under training (*élèves-maître*) should be initiated both in agricultural and commercial instruction, so far as to be able to teach them in the establishments to which they are attached. The conclusions having reference to the question of industrial teaching are less complete. But one principle was brought out in the discussion, viz. : that, except in what we call in France the higher primary school, industrial teaching is no business of either the primary or the normal schools. The question of the training of teachers was not a new one, and I dare not say that it has been finally settled. The difficulties of organization that it raises exist now as formerly. But the discussion has brought out principles which will perhaps permit of these difficulties being solved in the near future. The Congress is agreed on the necessity of a practising school (*l'école d'application*) ; it is agreed on the advantages there would be in making it a part of the normal school ; it is also agreed on the choice of masters—masters and professors of the normal school—to whom it would be advisable to entrust the management ; all that it demands of either is that he should have at least five years' experience and a well-recognised aptitude for teaching ; finally, it is agreed on the importance to be given to the results of professional practice and tests of skill in teaching in addition to other examinations, for classifying the teachers leaving the normal schools. Yet their conclusions have not been adopted without debate. It has even happened that resolutions adopted by the Section, after earnest debate, have been altogether modified after fresh discussion at the general meeting. But such reversal of opinion only served to give more precision to the question under discussion. Whether the practising school be more or less independent of the normal school, whether the instruction in it be throughout on one uniform plan, or whether the organization should vary and be adapted to the type of the majority of the schools of the district, what is important (and this is what results from the discussion, is the unanimous feeling that the *rôle* of normal schools should be, not to prepare for an examination, but to form *teachers*—that is to say, young men capable of marshaling their knowledge, of adapting a lesson to the class which is to receive it, of giving different lessons on the same subject according to the age, the knowledge, and the aptitude of their young auditors ; capable also, and this above all perhaps, of observing the character of the child, of teaching him self-reliance and self-control—in a word, of exercising over his intelligence and character a good and useful influence. And such is really the object of the apprenticeship in the practising school. Happy shall we be when we can always give to this branch of professional education all the attention it requires ! In opening the question, 'On the part that should be taken by women in primary instruction,' you yourself recalled the fact that in America all positions in connexion with education are open to them, while in certain countries of Europe they are excluded from all. Between these two extremes France takes a wise mean. The French law grants, in fact, the privilege of occupying certain posts to women exclusively : for example, the direction of maternal schools, which I have seen within the last twenty-five years being conducted entirely by men ; the law is disposed also to allow the same privileges to women in respect to mixed schools ; it does not refuse, in fact, to allow men and women to share the higher offices, such as that of inspector. As a faithful reporter, however, I am bound to admit that the Congress has been less liberal than the law. It only admitted after a long discussion the participation of women in the direction of mixed schools. It is of opinion that in the exercise of the duties of inspection, women would only encounter cares and fatigues from which it would be better, both in their own interests and in those of the public, that they should be relieved. I do not know if these reasons have quite convinced all those interested in the question. I heard some mistresses, from noble

and delicate motives, express themselves against this ambition to share the higher work. For my own part, if I were to express an opinion, I should feel inclined to side with the minority, and since I have been induced to express my opinion let me explain it. The only point I should feel uneasy about, in regard to female inspectors side by side with male inspectors, would be the duality of powers, and consequent conflicts in the management of schools,—conflicts all the more to be regretted at a time when authority has need of being exercised continuously and harmoniously. As for the aptitude of women to exercise controlling functions, I have more confidence than they have themselves in their acute sagacity, in their firm and gentle reason, in their habits of self-abnegation. Education needs above all the sacrifice of *self*, and where can one find this sacrifice more complete than in woman? All female teaching is founded on this principle, or, if you like, on this sentiment. And I do not wish to exclusively honour French schools in this respect. The devoted woman is found in every country."

Mr. Stanley, Member of the School Board for London, in response to M. Gréard, spoke on behalf of the foreign delegates, and said that he could not visit the Educational Exhibition of the Ministry, or that in the Pavilion of the city of Paris, which is so generous and liberal in the education of its citizens, without being struck by the high aim of those who preside over this great movement. They have used their utmost endeavours to unite to one another, from the beginning to the end, the different parts of national education. Thus the gentleman who was charged with the direction of the schools in the department of the Seine, for primary education, is now rector of the University of Paris, where he presides with no less distinction over the destinies of secondary and higher education. The lesson to be learnt from this union is of the highest importance, for there is no necessity more vital than the union and association of all branches of education. As regards primary education in particular, Mr. Stanley said that without losing sight of the practical spirit, we should be conscious of this great object. "In order that the waters of science may spread extensively, they must rise at a high level." Such is the idea one ought to have of the true knowledge which enlightens and enlarges the intellect. Molière, whom the members of the Congress had an opportunity of applauding at the Théâtre Français, in his masterpiece of the "Femmes Savantes," ridiculed the *femmes savantes* because of their lack of learning. Give women deep and sound knowledge, and they will no longer be Trissotins or Vadiases. There is, too, a greater quality than that of cleverness: it is devotion; and devotion, all the more meritorious because it is obscure, is part of the work of the school-teacher. At the School Board for London, continued the speaker, it sometimes happens that the discussions are rather lively. Never, on leaving these meetings, have I ventured to visit a school without feeling refreshed by the work which is being done while we are discussing. Humble work certainly, but far-reaching, since its aim is nothing less than to form the mind of the citizen who must govern the country. The school-teacher will never know what glory is; but if the world does not know him, he has always the consciousness of duty done.

Miss Beale, Principal of the Ladies' College at Cheltenham, confirmed the words of her fellow-countryman. We have felt a great happiness, said Miss Beale, in associating ourselves with the noble scholastic work of the great French people. Every nation which adds something to human thought acts nobly, and there is no nation which does not rejoice at such a victory; it is a victory without tears. May we be permitted—we who are the representatives of schools—to diminish the prejudices, to clear away the misunderstandings, to cultivate all that is good, to develop generous sentiments among all nations, and, in making them understand each other better, to love each other better!

The Minister of Public Instruction then replied. As at the commencement he had come to them with words of welcome, so now he had come with words of farewell. The Congress could not close with a meeting of deeper feeling. The year 1889, in addition to all its other privileges, would count in French annals as having given birth to a sort of international brotherhood, and he expressed himself as deeply touched by it. He tendered his grateful thanks to the foreign delegates, and to organisers of the Congress; but said it was only the perseverance—he had almost said the genius—of the men who were always at their side, that could produce such a great movement as had just laid claim to the gratitude of the nation. As Mr. Stanley had said, it might formerly well have been asked whether the different branches of education were not strangers to one another, each pursuing its own separate and independent course. At present the educational system is a trinity the unity of which is recognised. And it is to the honour of the Republic that it has caused primary education to enter into this vivifying and fruitful union. Speaking of the results of the Congress, he said many—natives as well as foreigners—had brought a stone to the edifice which would form a sort of sacred storehouse, from which every one could draw according to his wants. Frenchmen would profit by it to a great extent. The Minister would study the minutes of the meetings so as to gather from what Rabelais would call the marrow of the substance. There is, indeed, always something to do in matters of instruction and education. The legislators make laws; but it is the schoolmasters who apply them. It is they who can show the people that the government of the Republic has done a work of peace as well as one of emancipation.

THE NATIONAL UNION AND DR. FITCH.

A MOST unreasonable manifesto in the nature of a personal attack on Dr. Fitch has emanated from the N.U.T. From some cause or other the Union is more than usually angry with Dr. Fitch at the present moment, and for this reason apparently collects in the manifesto certain things that he has said and done of which the Union disapproves. First, his part in the overpressure controversy is described from the point of view of the Union, and to this are added extracts from his evidence before the Commission on Education published two years ago. That this evidence is grossly misrepresented will be shown by the following extracts.

The manifesto states—

I. "To the Commission, the representatives of 14,000 teachers deplored that the present system banished intelligent methods of teaching and encouraged mechanical ones. To the Commission Dr. Fitch said, *All the best teachers know better*."

The answer which contains the words italicised, and the question to which it was the response, are as follows:—

No. 57745. *Question.*—Do you think that, on the whole, the effect of the present system of examination and inspection, upon the method of instruction, is not unsatisfactory?

Answer.—I am aware that it is often said that our method of examination determines the method of teaching. I confess that I do not understand it. The methods of teaching are left absolutely to the teachers, and I am sure that mechanical and unintelligent methods of teaching are not the best ways to enable the children to pass our examinations. I think that teachers who fancy that, are making a grave mistake. *All the best teachers know better.*

II. "Our time-honoured agitation he described to the Royal Commission, and through them to the parents of our children, AS IGNOBLE; further suggesting that our motives were *mercenary*."

If the "*our*" here refers to the N.U.T., it must be stated that there is no reference whatever in the whole of Dr. Fitch's evidence to the Union or the action of the Union.

A question was put as follows:—

Q.—You have said in your examination in chief, and also in reply to Mr. Heller, that in your opinion there has been really very little overpressure incidental to the system. How do you account, then, for the agitation that arose on the question of overpressure two or three years ago?

Dr. Fitch said that he scarcely ever knew of any of the parents of the scholars taking part in the agitation, and pointed out that school managers took a very small share in it indeed. He went on:—

With regard to the teachers, no doubt a great many of them did take up the view that the children were being overpressed, but there was one reason, it seems to me, to account in part, at any rate, for the special share which they took in that controversy two or three years ago. When the change in the Code was made, and the grant no longer depended upon the individual pass, it became the interest of teachers (I mean those of them who only thought about the effect on the grant) to present as few scholars, and therefore to have as many excuses as they could, recognized by the Department.

In response to the question—

"Then you think that, on the whole, the agitation was an interested one?"

he added:—

"No, I should not like to say that; but that there were a good many personal and sectional interests involved, which accentuated for the moment the popular feeling, is a fact we cannot altogether disregard. It was a very ephemeral and ignoble agitation, in my opinion, and did great public mischief."

III. The manifesto continues :—

"Our local Associations, which have done so much for education, and which we hope have practically upset the present system, for which of late years Dr. Fitch has been the official apologist, he more than hints exist for personal purposes, and he plainly states that '*they do not exist for the one purpose of enabling teachers to do their work better.*' "

The evidence on which this allegation rests is as follows :—

No. 57864. *Q.*—Have you found, in coming into contact with these untrained teachers, in the case of the London School Board, that the want of training made itself at all apparent?

A.—Yes, it is very evident, not merely in the very limited range of their knowledge, but in the still more limited character of their aims. I am often pained to see how little enthusiasm or effort after self-improvement there is amongst these young assistants in our London Board Schools; how very few of them gather together, and form little societies for reading together history, philosophy, or science, or enabling themselves to do their work better. I used to hope a good deal from the influences of teachers' associations; and there was a time when teachers' associations organised far more frequent meetings for the discussion of purely professional topics than they do now. But, on the whole, I cannot say that the existing arrangements, for what one may call the corporate professional life of the assistant teachers and untrained teachers, particularly in London, are satisfactory; I wish they were more so.

He was asked if he had any theory for accounting for a fact so remarkable, and we would call special attention to both the question and answers following :—

"I would rather not give my reasons, which can only be conjectural. I only know the fact and deplore it. I do not mean to say that Associations do not exist, but they exist mainly for other purposes—probably very legitimate purposes—but not for the one purpose of enabling teachers to do their work better."

Q.—They exist now to insist on teachers' rights?

A.—I have nothing to say on that point, except that it is probably a very legitimate aim. But it is not the aim in which I am specially interested, namely :—improving the qualifications of teachers, and helping them to co-operate more effectively with the Department and its officers in performing a great public work.

IV. The manifesto complains that—

"To the Commission he had no hesitation in saying of some wise educational words of his colleague, Mr. Mathew Arnold, 'That is the language of a poet. . . . I scarcely believe that Mr. Arnold intended his words to be taken seriously.' "

How different the tendency of these words when read with the context!

No. 57872. *Q.*—May I ask how far you agree, in your experience of English schools, and from what you have learned of foreign schools, with Mr. Arnold's statement that the German child is more human than the English child? In fact, that children in English schools are not human?

A.—*That is the language of a poet*, who is speaking rhetorically and figuratively. If it means that the children in English schools do not live a free, vigorous, happy, intelligent life, I do not agree with it. My experience of English children is that they are very human indeed.

No. 57876. *Q.*—And in the schools are they truly dull and mechanical, and are all human attributes suppressed for the time being—these who are so active out of school?

A.—No, that is not within my experience, certainly, *and I scarcely believe that Mr. Arnold intended these words to be taken seriously, as part of a report* instituting a comparison between English children and those in Germany, Switzerland, and Belgium.

No. 57877. *Q.*—He says that the teaching and training of English schools does little to touch the nature of the children for good—or to mould them?

A.—I am unable to understand that. We are conscious of the limitation of the powers of a school teacher's usefulness, but I have the very highest possible esteem of the value of the work that is done in our elementary schools now, its influence on the behaviour, character, and the intelligence of the children. I hope that that belief is quite consistent with an earnest desire to see the schools very much improved.

No. 57878. *Q.*—And the children, as a whole, in our elementary schools are bright and happy children?

A.—Certainly, I should say so.

And we may point out that the answer (57877) is inconsistent with the imputation that Dr. Fitch—

V. "*Seizes every opportunity of misrepresenting the teachers of England and their work.*"

The paragraph which probably, if the truth were known, involves the real reason for the issue of this very inaccurate manifesto, is the following :—

VI. "The Executive of the Union have reason to believe that in some cases Dr. Fitch has used his position of Inspector of Training Colleges to prejudice the minds of the authorities of such colleges, and the students in them, against the organization and work of this Union."

As to what this means, there is no evidence in the manifesto; but we are not entirely without evidence as to the meaning of this paragraph, and the answer to it.

The following protest is now in course of signature among the Principals of Training Colleges, and has already received the adhesion of nearly all of them :—

"In reference to the following passage in a published letter of the National Union of Teachers, we, the Principals of Training Colleges for Schoolmistresses, desire to contradict the assertion as far as our own experience extends. It is the custom of Dr. Fitch to hold conferences with the Committee and staff of each college, and to address a few words of advice to the students respecting their studies and future work. We have never known him to make the slightest allusion, direct or indirect, to the National Union of Teachers on any of these occasions.

"Moreover, those of us who have thought it right to decline the proposal of the Executive to send a delegate to address our students have done so entirely on our own judgment, and not in consequence of any request or hint from Dr. Fitch."

This extravagant and unjustifiable outburst of anger on the part of the N.U.T., against one of our ablest, most conscientious, indefatigable, and fearless of educationalists, is much to be regretted. The work of education in these days is so vast and so important, that those who are called to carry it out should not present the spectacle of a house divided against itself.

THE TEACHING OF GEOGRAPHY.

A COURSE of four lectures on the Teaching of Geography, by Mr. H. J. Mackinder, M.A., Reader in Geography in the University of Oxford, was delivered at the College of Preceptors, on Friday evenings, the 8th, 15th, 22nd, and 29th November.

The following is a *résumé* of the subjects treated in these lectures :—

LECTURE I.—The lecturer stated that in the first lecture he would make certain general observations, and that he would devote the other three to examples. At the root of the whole discussion was the question of the aim or aims which they had in view in teaching geography. In all teaching there were two great aims, intellectual discipline and information. He contended that it was because they had aimed rather at information than at discipline that the teaching of geography in the past had been so ineffective. The disciplinary value of geography, when properly taught, was very great. Only by aiming primarily at discipline, incidentally at information, would teachers of geography merit success. Much had been said of late of the necessity of beginning the study of geography with the home. That was the inductive method, and to a great extent was right. Yet at the present time there was danger in the great stress which was being laid on what the Germans called Home-knowledge, a subject nearly equivalent to that which Huxley had termed Physiography. On all sides they heard that the geography lesson was now one of the most attractive. He feared that in many cases it had been made interesting at the expense of geography, that the teaching of real geography was being shirked, and that in its place, and under its name, a far easier task was being undertaken—the imparting of the elements of general physical science. He laid great store on physiography, but did not wish to see it squeeze geography wholly out. It was a separate subject, preliminary to much of geography, but not identical with it. They would do wrong, however, to become slaves to the inductive idea. The "multiplication-table" of geography must be learnt very early, and not postponed until after the study of physiography. Only so can the broad outlines of land and water, the great facts of geography, become woven into the very texture of the mind like the multiplication-table, or the spelling of the mother-tongue. The lecturer then went on to refer to the use and abuse of names, and of map-drawing. He insisted that map-drawing should be very frequent, but that they should beware of the mere slavish copying of the hackneyed Atlas series. That tended to rigidity, and prevented the learner from realising the nature of maps. For instance, Italy might be drawn one day by itself, the next as a part of Western Europe, on a third as part of the shores of the Mediterranean. The necessity of reducing as much as possible of the more advanced teaching to the working out of definite problems was adverted to, and in this connexion the ordinary classification of the text-books was condemned. Such a country as France ought not to be treated of in one or two lessons, and then dropped as soon as the study of the next country was taken up. The

desirability of appealing to the senses in as many ways as possible was urged. For this purpose many appliances should be combined—maps, sections, models, views, lantern slides, blackboard, and experiments. Finally, knowledge on the part of the teacher was treated as a *sine quâ non*.

Lecture II.—In this lecture two examples were dealt with, both of them drawn entirely from physical geography. The first was a description of the Gulf stream, so given as to teach incidentally the form of the North Atlantic. The chief capes, inlets, and islands were shown to influence the course of the currents, and in so doing to be important factors in determining the climate of England. The second example was drawn from the Alps, and showed that the valleys were longitudinal and transverse, how the contrast between the two kinds might be detected on the map, and how that it was based on the structure of the rocks and the mode of their denudation. This example was intended to illustrate the employment of physiographical knowledge in geography.

Lecture III.—Two examples were treated. In this case, however, they were physical and political. The Old World was shown to be nearly cut in two by deep inthrusts of the oceans, and to be crossed diagonally by a great belt of desert. Hence the population is concentrated chiefly in two great districts severed by the deserts. These districts owe their character on the one hand to the Gulf stream system, on the other to the Monsoons. There is difficulty in communication from one to the other, because the Isthmus of Suez breaks the water-belt which crosses the Old World. Many historical results were shown to follow from this. The region in the centre of the island of Great Britain was then dealt with. It severed the fertile and populous districts of mediæval Scotland from the similar but larger districts of middle and south England. When coal-mining and its attendant industries were developed, it became wealthy and populous, and allowed the fusion of England and Scotland.

Lecture IV.—In this, the last lecture, three examples were given, each with a different object. The first dealt with the site of London. It was a study in minute topography. The great natural roads of Britain were shown to converge on the general position of London. The more minute features determined that precisely on the present spot should be located the road-centre which had to be somewhere in the neighbourhood. London was shown to be a bridge-place, a branching place of roads, a place of transhipment, both from water to land, and from salt-water to fresh; hence commercially and strategically important, hence convenient as an administrative centre.

The history of France was then gone into, so far as was necessary to show that the Alps and the Pyrenees are physical boundaries which have asserted themselves, despite the distribution of races.

The last example was taken from the history of discovery. The North-West Passage was treated of, in order to exhibit the development of geographical ideas, and so give clearness to what is otherwise a mass of details. Incidentally, it was shown that local names can speak with historical meaning.

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

During the second half of November the Pass Lists of the B.A., B.Sc., and M.B. Examinations have appeared.

At the B.A. Examination there were 435 candidates, against 382 last year. The passes number 238 (54·7 per cent.), against 181 (47·4 per cent.) last year. The number of women present is said to have been 66, of whom 36 (or 54·5 per cent.) have passed; last year the numbers were 49 and 28, or 57 per cent. The Royal Holloway College now appears in a Degree List for the first time, with three passes.

At the B.Sc. Examination there were 117 candidates, against 91 last year; the passes are 60 (51·3 per cent.), against 48 (less than 53 per cent.). Of women there were 11 present, of whom 8 have passed.

Both of the preceding examinations show a considerable increase in the number of candidates; but at the M.B. there has been a considerable falling off (69, against 102 last year). This is mainly due, no doubt, to the institution of a second examination within the year; but, adding in the 24 who appeared in May, there is still a deficit of 9. The passes are 50 (72·5 per cent.), against 71 (69·6 per cent.) last year. There were 3 women present, of whom 2 pass in the second division.

A propos of a paragraph in this journal last month (p. 480, col. 2), it is interesting to note that in the B.A. Pass List 11 candidates put University College, London, and 2 put King's College after their names, while about 70 enter from provincial colleges, not including several candidates from the older English and Scotch Universities.

The Brown Trust Free Lectures are to be this year delivered at the University at 5 o'clock in the afternoons of November 29th, and of December 2nd, 4th, 6th, and 9th. The subject selected by the Professor-Superintendent of the Brown Institution (Mr. Victor Horsley, M.B., F.R.S.) is—"Fractures of the Skull, and Compression of the Brain."

It is rumoured that the Senate has considered and adopted a plan for remodelling the University, upon which a committee has been at work ever since the Report of the "University for London Commission" was published: the plan is said to follow the main lines of that Report. It is to be presumed that the London colleges and examining bodies will now be taken into confidence, and have an opportunity of pronouncing an opinion thereon.

Cambridge.

The Council of the Senate have appointed the Rev. H. E. Maddock, M.A., of Clare College, a Governor of the Hymers College, Hull, for a period of seven years.

Professor Darwin has been appointed Chairman of the Examiners in Part II. of the Mathematical Tripos.

Dr. D. MacAlister, of St. John's College, has been elected the Representative of the University on the General Medical Council for five years from November 13th, 1889.

The Council of the Senate have appointed Mr. A. C. Humphreys Owen, M.A., of Trinity College, a member of the Council of the North Wales University College, Bangor, and Mr. T. G. Osborn, M.A., of Trinity Hall, a Governor of the said College, each for a term of five years.

The Report of the Financial Board, which has lately been issued, is decidedly cheerful reading. The income tax on the Colleges is again, it appears, to be fixed at one-and-threepence in the pound, while the total taxable income of the Colleges has risen since last year from £211,798. 17*s*. 2*d*. to £217,812. 16*s*. 3*d*. Of this increase Magdalene gets £5, Peterhouse £107, Corpus £174, Pembroke £247, Sidney £303, Queens' £421, Trinity Hall £565, Jesus £706, St. John's £1101, Trinity (who might perhaps spare it) £1235, and King's (who certainly want it badly) no less than £1374. On the other hand, St. Catharine's loses £22, Downing £234, Caius £967, and Christ's as much as £1121.

Dr. Sidgwick's generosity to the University is, or should be, by this time well known to every Cambridge man; and the catholicity of his interest is especially remarkable. His last benefaction is an offer of £1,500 for the new Physiology Buildings, which it is consequently proposed to erect at once. The rest of the cost, estimated at £3,500, will be borne by the University.

The Vice-Chancellor has appointed W. Loring, B.A., King's College, to the Scholarship (for one year) offered to the University by the Managing Committee of the British School of Archæology at Athens.

Mr. H. Courthope-Bowen's lectures on Psychology applied to the art of teaching are, we hear, being fairly well attended. The number of men students (including an M.A. or two) varies from 11 to 18; that of the women students from 34 to 38 or 40.

Dr. Charles Waldstein has resigned the directorship of the Fitzwilliam Museum.

The Board of Biology and Geology have recommended the appointment of an additional University Lecturer in Botany at the modest stipend of £100, to undertake elementary and advanced instruction in cryptogamic botany.

Mr. W. C. D. Whetham, of Trinity, has been elected to the Coutts Trotter Studentship for the encouragement of original research in Natural Science.

Oxford.

Mr. H. F. Pelham, M.A., of Exeter, has been elected Camden Professor of Ancient History.

The following elections have taken place:—

To the Junior Kennicott Scholarship—J. F. Stenning, Wadham College.

To the Pusey and Ellerton Scholarships—G. B. Gray, non-collegiate student; G. H. Box, St. John's College.

The University has at length established a Readership in Slavonic Languages. As a matter of course the first Reader elected is Mr. W. R. Morfill, of Oriel, one of the most eminent Slavonic scholars in England, if not in Western Europe. Mr. Morfill has long been resident in the University, and is learned in many languages besides Slavonic, and amongst others the English language.

Dr. Hatch, Reader of Ecclesiastical History, and Secretary to the Board of Faculties, died, after a brief illness, in the middle of last month. Oxford will feel deeply the loss of so genuine a student and so true a lover of knowledge for its own sake.

Other Universities, Colleges, and Schools.

The St. Andrews University has been a great sufferer in recent years by the decline of the value of land: for many of its investments are in the form of farms, which are not so well rented as in former years. We are glad to learn that a slice of luck has fallen to its share. Intelligence has been received in St. Andrews that the sum of £100,000 has been bequeathed to the University under deed of the late Mr. David Berry, one of the oldest and one of the most prosperous Australian colonists, who died last September. Mr. Berry was a native of Cupar, Fife, and went out to Australia in 1836. The University will not participate in the munificent legacy till 1894.

The Court of Common Council has at length selected a successor to

Dr. Abbott, as Headmaster of the City of London School. Its choice has fallen on Mr. A. Pollard, M.A. Oxon., Vice-Master of Manchester Grammar School, and formerly Headmaster of the Oxford High School for Boys.

Dr. Robert W. Reid has been appointed by the Crown to the Chair of Anatomy at Aberdeen.

Mr. E. W. Reid, B.A., M.B., of Cambridge, and St. Mary's Hospital, has been elected Professor of Physiology at University College, Dundee.

Mr. J. Tucker, of Trinity College, Oxford, has been appointed Lecturer in Foreign Languages at the University of Durham.

Mr. A. W. Barker, M.A. Oxon., Classical and English Master of Inverness College, has been elected Headmaster of Hele's School, Plympton, Devon.

The Council of the Yorkshire College have elected Mr. John Goodman to succeed Professor Barr in the Chair of Civil and Mechanical Engineering. Mr. Goodman is at present chief assistant at the Broadway Chemical Laboratory, Westminster.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A Meeting of the Council was held on Saturday, the 16th ult. Present—Mr. J. Stewart, Vice-President, in the Chair; Miss Bailey, Mr. Baumann, Mr. Bidlake, Rev. A. W. Boulden, Mr. Brown, Miss Buss, Rev. Dr. Conder, Miss Hughes, Dr. Dillon, Mr. Eve, Rev. Dr. Frost, Rev. Dr. Hiron, Rev. W. T. Jones, Mr. Maxwell, Rev. Dr. Morris, Rev. G. P. Pearce, Mr. Pinches, Mr. Reynolds; Mr. Robinson, Rev. Dr. Robson, Rev. W. J. Savell, Rev. Dr. Scott, Mr. Southee, Mr. Stièvenard, and Rev. J. Twentyman.

The minutes of the last meeting were read and confirmed.

The Secretary reported an increase in the number of candidates entered for the Christmas Certificate Examination, as compared with the last Examination at the same period of the year.

He reported that a course of four lectures on the Teaching of Geography, by Mr. H. J. Mackinder, M.A., had been delivered at the College on the 8th, 15th, 22nd, and 29th of November, and had been very numerously attended.

Wednesday, the 22nd of January, was fixed as the date of the next General Meeting of the Members of the College.

It was resolved that arrangements should be made for a Conversazione, to be given by the President and Council of the College during the approaching Christmas vacation.

The report of the Literary Committee was submitted. The report recommended the purchase of a number of books of reference for the College Library, chiefly in the departments of History and of the Theory and Practice of Education. It also recommended that arrangements should be made for allowing books, which were not specifically books of reference, to be taken out for inspection by the members, under suitable regulations, as soon as a new catalogue could be prepared and printed. Further, that new books presented to the library by publishers and others should be kept on view in the Members' Common Room for at least three months after they had been brought before the Council.—The report was adopted.

The report of the Examination Committee was adopted.

The following persons were elected Members of the College:—

Mr. C. E. Elworthy, A.C.P., Hillside, Latimer Road, Godalming.
Mr. C. H. Geer, St. John's School, St. Leonard's-on-Sea.
Mr. J. Lonsdale, Church Street, Shipley.
Mr. J. S. Page, Grove Bank, Wallasey, Cheshire.
Miss L. Redford, 30 Newington Butts, S.E.
Mr. W. E. Thornley, Collegiate School, Lytham, Lancs.
Miss J. F. Williams, B.A., Dripsey, Co. Cork.

The following books have been presented to the Library since the last meeting of the Council:—

Ginn & Co.—Richardson's Aeschines against Ctesiphon; Smith's Modern French Readings; Sumichrast's Dumas' "Les Trois Mousquetaires"; Williams & Lascelles' Chemistry.

Longmans.—Wright's Elementary Physics.

Macmillans.—Hall & Stevens' Euclid, Book I., and Books I. to IV.; Sanderson's Hydrostatics for Beginners.

By the Author.—Heppel's "Curiosities of Early English Mathematical Teaching."

EDUCATIONAL NOTES AND SUMMARY.

The first portion of the Edward Thring Memorial has been inaugurated, the western addition to the school chapel having been opened by the Bishop of Peterborough. The new portion, of which Mr. A. E. Street is the architect, will contain the seated marble statue of the late headmaster, by Mr. Thos. Brock, A.R.A., and is built to seat ninety persons.

The report of the Oxford Delegacy of Non-Collegiate Students for 1888–9, now presented to Convocation, shows an increase in the number of undergraduates in that body as compared with the preceding year (200, against 187). Moreover, the total number of names on the books is the largest which has yet been reached. In all other respects the report is of a satisfactory character. The delegates draw attention to their readiness to admit without examination students in any special branch of study who do not desire to pass through the ordinary "Arts" course, and can show evidence of fitness for their special subjects. Six such students have been admitted during the past year. The delegates close their report by pointing out that the non-collegiate body has now completed twenty-one years of existence, during which time 1,912 persons have become non-collegiate students, of whom 354 and 169 have proceeded to the degrees of B.A. and M.A. respectively. A very large number have availed themselves of the non-collegiate system as a preliminary to college life, no fewer than 927 having migrated to colleges during that period.

Professor Meiklejohn has been lecturing at Perth on literature *versus* books, and, after an able and humorous dissertation, concluded by assuring his hearers that they had thousands of teachers, but what they needed to be taught most was to feel. Let them resolve to read as little as they possibly could, and to re-read what was the best, what was worth storing in our memory, what was worth learning by heart. Let them shun the stupefying influence of the modern demand for aimless, promiscuous, debilitating, and vapid reading. Let them look for that which forms, sustains, and perennially delights. Clear feeling, deep enjoyment, were what they wanted. With these they had literature; without these they had only a semblance of speech. Let them in literature shun mere acquaintances—let them form friendships. No man could expect to have a hundred friends, and so no man, especially in these crowded times, could know thoroughly and well more than five or six good books.

The Morley Memorial College for Working Men and Women, adjoining the Victoria Hall, has begun a very vigorous life. Over 450 students have joined within three weeks of the opening day. In fact, they come in with somewhat embarrassing rapidity, and volunteers (both ladies and gentlemen) are urgently wanted, both to teach classes and act as librarians. Six librarians are wanted to take one evening a week each, from 8 to 10. The library has received a valuable present from Mr. Passmore Edwards, who has given 1000 books. Others have given smaller parcels, so that the book-cases which have been provided are quite inadequate, and more are needed.

The Toynbee Hall people are projecting an extension of the Students' Residences which have been so successful at Wadham House. The idea is to provide something like a college life for bachelors, schoolmasters, clerks, and artisans, who want opportunities for quiet study, and something brighter than the dismal life of lodgings. Each student has his own room, and all share a common room. The rent and service are charged at about 7s. per week. The provisioning and most other details of internal management are controlled by the residents themselves. With the classes and library at Toynbee Hall close at hand, here is a capital chance for men who want to study and enjoy a quiet social life. More can be heard of the scheme by applying at Toynbee Hall, Commercial Street, E.

The City of London Middle-Class School has a journal of its own, and the opening article of the current number is by the Headmaster, who gives an outline of the new scheme of the Charity Commissioners for its management. It shows how certain independent elements are to be combined so as to form a new foundation. Alleyn's College (so far as it concerns the parishes of St. Luke and St. Botolph Bishopsgate), the Corporation for Middle-Class Education in the Metropolis, the Bishopsgate Ward School, and the St. Ethelburga's Society, are made into one foundation under the title of the Central Foundation Schools of London. These will include the present Cowper Street School; a corresponding School for Girls in Spital Square, which is being built; and a Higher Commercial School not yet in existence, but likely to arise in the near future. In the matter of the endowment which the scheme will bring to the school, there has been some exaggeration. It is not £50,000; it is not £25,000. The scheme mentions £1,500 a year, but there are three sets-off against this sum, which reduce it to £200 or £300 per annum. About £500 per annum at present subscribed will probably disappear. £500 is required to provide fees for scholars from two favoured parishes, and £300 to provide scholarships to higher schools.

The meetings of the Parents' National Educational Union, to

which we referred in our last number, have been duly held in London during the past month. The response to the appeal to parents to co-operate in providing a better and sounder *home* education for their children was fairly satisfactory. But the London crusade had been so badly organised that very little real progress was made. Nothing can be done until the Central Council have met and decided on a prospectus of the objects and plans of the Union. The "draft" prospectus circulated has not their sanction, though doubtless a general approval of some of its views has been given by individuals. This proved, and rightly, a very serious stumbling-block. When it has been removed, as we are informed it will be shortly, we shall look forward to hearing more of a movement which should certainly win the support of all thoughtful parents. It should be essentially a union of parents, and its work should be done mainly by them, and not by a single individual, however zealous and kindly. Moreover, it is impossible to conceive that the members of the Council will allow their names to be used unless they are given full power of direction and control.

At the quarterly meeting of the General Committee of the Educational Institute of Scotland, the following overture from the Edinburgh Association was brought up by the Secretary, and remitted to the Special Committee of the Institute:—"The Edinburgh Local Associational of the Educational Institute of Scotland overtures the General Meeting to instruct its General Committee to consider what means may be adopted, in the interests alike of teachers and the public, for the enrolment and registration of all persons engaged in tuition in the public schools of the country, as a legally authorised and corporate body of educationists, and to authorise that Committee for this purpose to enter into communication with such other bodies—*e.g.*, the College of Preceptors, the Teachers' Guild, the Association of Secondary Schoolmasters, the National Union of Teachers of England, the National Teachers of Ireland, &c.—as are interested in securing the organization of teachers, for the purpose of mutually endeavouring to form the instructors of youth into a scholastic profession, holding a recognised position similar to that conferred by law or usage on clergy, lawyers, medical practitioners, &c., for watching over and vindicating their rights and privileges, safeguarding to the public the respectability, and enforcing among themselves the responsibility, of those engaged in the training of the young."

Glasgow also seems to be ready to stir in the same direction. At the annual general meeting of the Local Branch of the Guild in that town, Mr. Milligan, in delivering his inaugural address for the coming session, congratulated the Branch on the position it had attained, the membership being upwards of 200, and included a large proportion of the most prominent, able, and intelligent teachers and educationists in the West of Scotland. Referring to the nature and scope of the educational work already done by the Guild, he said it was of a character to do credit to anybody for breadth of field, for practical utility, and for masterliness of treatment. As topics of general interest which have recently engaged the attention of the Guild, he proceeded to discuss the questions of the organization of secondary education by the State and the training and registration of teachers. With regard to the training of teachers, Mr. Milligan expressed his surprise that the great centres of learning in England—viz., the Universities of Oxford and Cambridge—are apathetic on this point, or have even assumed a hostile attitude. Surely preliminary training is as necessary for the work of educating the young as for entering upon any other reputable occupation, such as that of clergyman, doctor, or lawyer. To secure a thorough training for all teachers, compulsory registration should be introduced into this country as it has been into Germany, where no one can teach more than five children who has not by examination won a diploma certifying the possession of the necessary qualifications. The registration of teachers is one of the most important steps that can be taken in raising the position of the teaching profession to its proper level, and Mr. Milligan encouraged the Branch to do all in its power to secure this great end, and to persevere in its efforts to broaden and elevate the education of the young.

Early last month the newly appointed occupant of the Greek Chair at Glasgow University, Professor Murray, delivered his introductory address in the Bute Hall of the College, before a very large attendance of students and the general public. Taking for his subject, "The Place of Greek in Education," Professor Murray said the old classical system of education was attacked by two diverse enemies—one what they might call the cultivated standpoint, and the other the mercantile standpoint. Those who led the battle from the cultivated or scientific standpoint would say, "Why should a boy spend all his time on one comparatively small branch of knowledge?" while the other enemy which classics had would think as follows:—"Greek and Latin are dead languages. No one travelling abroad wants to speak them; no house of business will engage a clerk because he can write Greek; no great inventions, no railway or electric light ever came from a knowledge of Greek; no great fortune was ever made by a knowledge of Greek." These two criticisms were of exactly opposite kinds. The former—the strength of which seemed to him irresistible, and he would not if he could, battle with it—sought for a fuller and better education; the latter was the secret enemy of any education at all. He would point out, however, that as all departments of knowledge were equally honourable in themselves, and all equally deserved to be studied, so, on the other hand, they could not possibly be all studied by the same people. Some few subjects ought to be studied by everybody. He did not think that Greek was one of them. Greek was a language of unusual difficulty, and a man could undoubtedly reach very high points of culture without any knowledge of Greek; but for the student of history, of political philosophy, of ethics, of logic, of archæology, and also for the student of most forms of art, the floods of light that ancient Greece could shed upon these subjects were something incalculable and beyond price. Heaven forbid that he should unduly magnify his office or cry up his wares in the spirit of a charlatan, but he believed that there was but one nation, uniquely gifted and uniquely interested, to be found in all the annals of mankind; and if they were to choose some one period of history, some one department of the great world of knowledge to educate their youth with, he believed that, for those minds which were naturally attracted to it, the study of Greece was an education as full and as stimulating as lay within man's reach at the present time.

The Maria Grey College in Fitzroy Street counts this winter fifty-three students, and its school and Kindergarten about 150 pupils. Among the lecturers are Canon Daniel and Mr. James Sully. Of the twenty-three students who left the college in June and July last, twenty-two are at work as teachers; and seventeen full certificates were obtained by twenty candidates presented in the Cambridge Teacher's Examination in June, with several distinctions. The six Kindergarten students all passed the Froebel Society's Higher Examination in parts 1 and 2 respectively. The sixteen candidates for the Higher Local (Cambridge) Examination did very well in various groups. The Cambridge Training College for Women is also doing well, and this term numbers thirty-one students in residence.

The American correspondent of the *Freeman* (Baptist), who has visited Vassar College, writes:—"The first college for women is holding its own nobly; its numbers and endowments and educational facilities are all growing apace. With a noble building, a picture gallery and art school, a fine laboratory, a new gymnasium, the largest swimming-bath in the State, and hundreds of acres of meadow, wood, and glen, Vassar is as good a place to study in as can well be imagined."

It is the intention of the Teachers' Guild to discuss, among other things, the question of modern languages in English schools at their annual conference at Cheltenham, in March or April next. In order to make the gathering as representative as possible, and to secure the attendance of the many members of the craft who do not happen to be members of the Guild, arrangements are being made to continue the conference for one day longer than the time allotted by the Guild. Persons who are willing to read papers on modern-language teaching, to offer suggestions, or join the Provisional Committee which is now being formed in support of this scheme, are invited to send their names and addresses to W. Stuart MacGowan, Esq., The College, Cheltenham.

The Secretary of State for India in Council has given notice that the competition for the Indian Civil Service in 1892 and subsequent years, will be open to all persons, otherwise qualified under the regulations, whose age is above twenty-one years and below twenty-three years on the 1st of April in the year in which the competition takes place. Under the existing regulations the limits of age are seventeen and nineteen, so that the change will exercise a marked influence on English higher

education and on Indian Administration. The existing system was introduced under Lord Salisbury's *régime* at the India Office, about a dozen years ago, with the intention of catching a larger number of Public School men for service in India than offered themselves under the system of competition then in force. Instead, however, of drawing candidates direct from the public schools, the scheme of the Secretary of State for India had a directly opposite effect. Parents who intended their sons to compete either put them into training early with specialists, or if they happened to have sent them to a public school they removed them earlier than before. The new scheme is a reversion to the old form of competition as it was originally framed by the present Lord Derby, then Lord Stanley, Lord Macaulay, and the late Sir Charles Trevelyan. Its merit is that it throws open these lucrative posts to men at the end of their University career.

Lord Hartington, in formally opening the new College Hall at Cavendish College, Cambridge, as the representative of his father, the Duke of Devonshire, made an excellent speech on "University questions," although he modestly said "that there were few present less qualified than himself" to do so. The new Hall has been erected through the liberality of the Duke of Devonshire and of Mr. George E. Foster, a Cambridge banker, who contributed ten thousand pounds in equal moieties. Speaking of the part Cavendish College was designed to fill in the University, Lord Hartington said: "University life in its fullest and most complete form had hitherto been only accessible to those who were able to incur considerable expense by residence in the colleges, or those who had attained sufficient age to become members of the University as expert collegiate students. But there were now large classes of men intending to enter business or industrial and commercial associations, who were not able either to afford the expense of collegiate life as it had hitherto existed, or the time necessary before they could be admitted into the University as expert collegiate students, and he believed the intention of the founders of Cavendish College was to give access to the benefits and advantages of a college life to a large class of students who had hitherto, by the circumstances of their position and by their future plans of life, been excluded from these advantages. This, he believed, was the first college which had attempted to give University instruction to young men entering at the age of sixteen or seventeen, to enable them to take their degree at the age of nineteen or twenty, and this was by no means an unimportant consideration when they looked at the large number of persons who intend making industrial and commercial pursuits the avocations of their lives, and could not afford to give years in the ordinary way to school or college life which must delay the commencement of their apprenticeship to their own business.

Referring to middle-class schools in relation to Cavendish College, his lordship used language of much significance. This, he believed, also had been the first attempt to connect the Universities directly with the middle-class schools. Those middle-class schools had hitherto been comparatively neglected by the Legislature and the public. They had not received the encouragement, support, and assistance which had fallen to the share of the elementary or higher schools. Well, the object of the founders of Cavendish College had been, as he conceived, to provide for these young men who were going to enter into the practical business of life, in the first place, an education which should form a foundation for those studies which might hereafter be necessary to their success in life, and in the second place, and still more, to give them access to studies which, though not directly connected with those which would tend to their success in business, would make that success, if hereafter it were attained, not a thing of mere acquisition and possession of a certain amount of wealth, but would afford them access to a higher and better life, better means of culture, better means of enjoying the position they had honourably earned and the entrance into a higher and nobler and more useful national life. He could conceive of nothing more difficult, nothing more uncertain, than the first departure upon an educational question—especially when it consisted in an attempt to reconcile institutions so ancient and so venerable as this University to the entirely new conditions of modern life and modern civilization.

The opening of Mansfield College, Oxford, was the occasion for a remarkable manifestation of interest on every hand. Large numbers of representative persons naturally assembled from all parts of the United Kingdom; but more significant, perhaps, was the presence of eight heads of Oxford colleges, and the expressed sympathy of many leaders of the Established Church. The Master of Balliol, the President of Corpus Christi, and the Rector of Lincoln were especially cordial in their congratulations to Dr. Fairbairn and his colleagues. Probably the most sanguine of the promoters of the movement for the transference of Springhill College to Oxford four years ago, did not expect that Dr. Fairbairn would so rapidly reach a position of commanding influence in University circles. His encyclopædic knowledge was indeed obvious, but his power to be the leader and friend of young men was comparatively latent; now, no meetings are more popular among the thoughtful undergraduates of all forms of belief than the Sunday evening addresses on apologetic subjects, and hardly any residence in Oxford is a more influential centre of social influence than that of the Principal of Mansfield. The success already achieved bids well for the future: in the elaborate and eloquent retrospect of the history of the University with which Dr. Fairbairn inaugurated the proceedings, he sketched the ideal University, and showed the need for such a college as Mansfield for the teaching of theology as an expanding science, and he indicated the great work which Mansfield is calculated to accomplish. We have no doubt that the advantages offered will be accepted by men of varying creeds (for no limitations are placed on the attendance at the lectures), and that the Mansfield pulpit will rival St. Mary's. It only remains to add that the buildings are universally admitted to be in admirable taste, while the total cost (about £46,000) has already been subscribed.

THE NEW KINDERGARTEN AT CROYDON.

On November 6th a meeting was held at Croydon to inaugurate a new Kindergarten, under the auspices of Miss Shirreff, President of the Froebel Society, and of Madame Michaelis, whose excellent work (especially at Croydon) is well-known to every one. In the course of the meeting a paper by Miss Shirreff was read, in which she vigorously pleaded for more public attention to sound methods of education. She began by appealing to parents, and especially to mothers, to co-operate in the education of their little ones. "The eager apostles of a theory may speak with all earnestness; the zealous teachers may toil; but from the home come the fostering or the hostile influences that will make the result fruitful, or well-nigh barren." After dealing at some length with the causes which led Froebel to invent and organize his system, Miss Shirreff proceeded to give a sketch of kindergarten work and play, and dwelt strongly on the fact that all alike cultivate the childish faculties of body and mind. "Froebel held that, so far as we forget that man has to *do* as well as to *know*, we can only have a one-sided education. Pestalozzi had felt this defect, and had added workshops to his schools. But Froebel felt that *the work itself* could and should be made the means of mental discipline as well as an increase of skill. He maintained that what the mind had distinctly conceived as regards external objects and combinations, the hand should be able to reproduce in concrete construction and drawing. He rejected the comparative passivity of children at school who receive impressions from books and produce nothing. Action, which is so large a part of life, should be developed in all directions in childhood, under the direction of observation, imagination, and reflection." The *continuity* of education was next insisted upon as a cardinal point in the kindergarten, and the transition classes were described under this aspect. "In these classes there is no change of principle, only an advance—wider work in proportion to more developed faculties—still drawing out the pupil's own power, stirring his own curiosity to know—so strong an instinct that it requires more than all the unintelligent teaching of schools to stifle it." Continuing the same line of argument Miss Shirreff said: "For every ten persons who care for a philosophical system of education, a thousand care for better prepared apprentices for technical work. Men cry out, as did Lord Armstrong last year, against the educators who have not devised some method by which the observing reasoning and constructive faculties may be developed, so that lads may be fit, when they leave school, for the higher work of college or workshop which may be required of them." But such a method has been devised, and has been proved to be practically efficient; and it bears the name of Kindergarten.

The moral and religious influences of the kindergarten, lastly, were strongly dwelt on; and Miss Shirreff concluded her able address, as she began it, with an appeal to mothers. "I would fain hope," she said, "that all mothers who have listened to me may have felt how distinctly, how imperatively the kindergarten is a thing to be studied by them; how indispensable is their aid for making real education of what, without them, will only be the half-finished training of a few hours of the day; and how necessary it is, if they are to co-operate in and continue the education of their little ones, they must understand the principles on which it is based. The kindergarten alone will do much for children; but we cannot alter the laws of God, and He has placed the mother as the true guardian, the earthly providence, of her offspring. Ultimately what *she* does, or leaves undone, will make or mar their lives."

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THE EDUCATIONAL TIMES.

LONDON, DECEMBER 1, 1889.

THE Universities of Oxford and Cambridge have a past so interwoven with the national history, a present so influential, and a future so full of promise, not merely to the people of these islands, but also to those of the Greater England beyond the seas, that it can neither be a matter of surprise nor regret that the legislation designed to give these ancient seats of learning greater teaching efficiency and wider usefulness, should be exposed to a searching criticism. Enjoying an aggregate income of £750,000, it is only right that the question should be raised, from time to time, Are these richly endowed Universities adequately discharging their duties as centres of national education? It is difficult at the present moment to see how, if such a question were now asked, the answer could be other than a negative. Not only outside the Universities, but within their walls, is there much dissatisfaction at the present condition of things. The remonstrances that come from Oxford, as the results of recent legislation develop, are more frequent and energetic than those from Cambridge, although in both the work of the University Commission is regarded with anything but general approval.

It is less than a dozen years ago since the last Commission made great—some would say revolutionary—changes in the constitution of Oxford, with a view to restoring the University, as distinct from its constituent colleges, to something of its original vitality. The short transition period that has since elapsed has been long enough to disclose many grave complexities and difficulties in working side by side the new and old systems.

The first article in the current number of the *Edinburgh Review* sets out the shortcomings and failures of the University system which the Commissioners have created in Oxford with great plainness. The charges the writer formulates against Oxford and its professors are in effect these four:—(i.) That the number of students does not increase proportionately to the increase of population; (ii.) That owing to the existence of married Fellows and Tutors, the college system has broken down, or is breaking down; (iii.) That the maintenance of the headships of colleges consumes large endowments uselessly; (iv.) That the professors do little for the advancement of their own special studies, and still less in teaching the undergraduates.

As to the first of these charges, few will contest its accuracy. Oxford, for some reason or other, does not attract as large a number of students as Cambridge, although its situation is far more favourable, and its endowments larger. The Reviewer, however, hardly makes good his charges so far as the colleges and headships are concerned. Indeed, he is hardly consistent in his statements about the colleges;

for he admits the superior efficiency of the college teaching, and the larger attendances that it attracts as compared with that given by the professors. Then the endowment of new colleges, and the great expansion of the buildings of old colleges, during the past thirty years, is hardly reconcilable with the statement that they are effete institutions. As to the headships, it surely must be the fault of the electors if these valuable prizes are not made to subserve very important purposes in the University economy. They ought to be the rewards of long and faithful service to the University, the prizes which tempt able men to enter and remain in the career of University teachers. If they did not exist, it would be necessary to invent some other means of retaining a portion of the higher talent of the University in its own service.

It is, however, against the professoriate, as the title of his article indicates, that the Reviewer makes his most vigorous attack. Dealing with the work of the Commissioners in this connexion, he says: "Lord Selborne and his colleagues seem to have combined a strong sense of the indispensable character of the professoriate with a deep distrust of the individual professor. Thus, while they multiplied Chairs, taxed colleges for the support of a University Purposes Fund for the payment of Readers—a class of sub-professors—and almost squandered money on professorial 'plant,' they at the same time surrounded the individual professor with an elaborate machinery of rules designed to make indolence impossible, and efficiency certain. The professor might be distinguished, honoured, well paid; but he must not be left the liberty of a college lecturer in the administration of his office. The number of his lectures, and their distribution at so many per week, were carefully laid down; nor was this all; he was compelled to give informal instruction to those who desired it, and thus was degraded into a mechanical and compulsory thing, without that kindly non-official relation which naturally grows up between a great teacher and his more ardent pupils." We confess a return made at the instance of Mr. Thorold Rogers in 1886, and presented to Parliament in the summer of that year, more than justifies these minute and seemingly degrading definitions of duty. It appears from this interesting paper that some richly endowed professors do not lecture at all, whilst others lecture to empty benches. Three professors, the Regius Professor of Greek, the Camden Professor of Ancient History, and the Corpus Professor of Comparative Philology, confess, with more or less frankness, that they do nothing. Their incomes are, respectively, £500, £600, and £300. Then there are other returns nearly as bad. The Professor of Sanskrit, with an annual income of £1000, has an average attendance of three or four students. The Merton Professor of English Language, with an income of £900, keeps no account of attendances, but returns, "Say five." The return of the Regius Professor of Modern History is, "No record; say five."

The proverbial uncertainty of the law is well sustained by the ambiguous answers of the legal professors to remarkably plain questions. The Regius Professor of Civil Law answers "No record," and draws an income of £434. 18*s*. The Vinerian Professor of English Law, with an income of £900 a year, replies, "No account kept; about twenty." The Corpus Professor of Jurisprudence makes answer, "No record kept; the class is a small one." He receives £500 a year.

Whilst we cannot feel any surprise that the Commissioners felt justified in making their meaning clear, that a University, which furnishes regular stipends to professors, should require from them some corresponding duties, we do think it a strange omission that they did not consider the uselessness of lectures without students to hear them. It is idle to expect, University life being what it is, and University lecturers being what they are, that men will voluntarily attend lectures the bearing of which on their work in the University is not direct and immediate. One significant fact emerges from this return, viz., that the best attended lectures at Oxford are those in the Theological faculty. The reason of this is clear. The bishops require testimonials of attendance at two courses of these lectures as a preliminary to admission to Holy Orders.

Unless, indeed, some sort of compulsion is exercised to fill the lecture halls, it is hopeless to expect that the University professoriate will be anything but a costly failure. Well-paid professors, whose lectures no one is bound to attend, and few care to attend, and whose researches excite no interest amongst undergraduates, can hardly stand, in the face of hostile colleges which are heavily taxed, to produce such meagre educational results—and in the face of outside criticism, which is angry, and rightly angry, at such a scandalous waste of endowments. "A student of modern European literature," says the *Edinburgh Review* critic, "would find in Oxford to-day no assistance in his studies from the professoriate." It must, we fear, be confessed that the professorial system has hitherto failed, both in Oxford and Cambridge, to supply efficient teaching, and, unless some very radical reforms are made, there is no probability that it will do in the future what it has not done in the past. The retention of the collegiate system in its present supremacy is hardly compatible with a flourishing professoriate. "The colleges," says the *Edinburgh Reviewer*, "have long survived their *raison d'être*, and they are now the crux of University government. . . . They resist the efforts of domestic reformers and repeated Commissions; and at this moment, after all the efforts of the century to advance the University at their expense, and to restore the earliest mediæval type of student, they remain apparently unshaken in their position." This indestructible life of the colleges may be a good reason for starting differently in the work of reform, but it can be no reason for setting up in rivalry to them a professoriate which is only a drain on their resources for no adequate results.

The harmonious working of the University and College systems in a renovated and reorganised University ought not, we should think, to be beyond the powers of another University Commission to accomplish; and, if so, in the interests of the higher education of the country, the appointment of such a Commission ought not to be long deferred.

Caning on the hand, as Mr. Justice Wills remarked in the course of the argument of Counsel in the recent case of Gardiner *v.* Bygrave, was the common form of punishment in schools thirty years ago. So much so, indeed, that any one who in good faith questioned the propriety of this mode of correcting the faults of youth would be set down as an amiable *dilettante*, whose mind had taken on an unhealthy habit of *à priori* quibbling. To bring a schoolmaster, as was done in the case just mentioned, before a magistrate for no other or better reason than that he had punished, with four strokes

of a cane on the hand, a pupil whose offence admittedly called for punishment, would, thirty years ago, have been regarded as conduct scarcely consistent with sanity. The sway of the cane was at that time unchallenged. For nearly all offences, trivial or grave, of the intellectual or moral order, caning on the hand, in due proportion to the magnitude of the fault, was considered the appropriate chastisement. Nor was its application within the province only of the headmaster. All his coadjutors, down to the most junior master, and in some public schools even the prefects, possessed the power of using the cane to uphold discipline or enforce industry. The cane has, however, ceased to be an indispensable emblem of authority in our present-day schools. The disciplinary resources of the schoolmaster have so multiplied with the advance of knowledge, that he has come to look upon the one all-round method of his predecessor as unnecessarily coarse, painful, and degrading. Corporal punishment has not only been dispensed with in many of our schools, but where it has been retained it is for cases in which all other resources have proved ineffective. It is deeply humiliating to the modern schoolmaster when he finds that, for example's sake, he is driven to this last resource. How different was the attitude of mind of the famous old pedagogues of the past towards this primitive form of punishment! Busby of Westminster boasted that sixteen of the bench of bishops had been birched with his "little rod," and, had he been speaking of the greater lights of literature in his day, he no doubt would have used this same pedagogic formula of Dryden, Prior, and Locke. To have been "birched" by a schoolmaster was the ancient mode of saying that a pupil was educated under his *régime*. This form of expression raised no thoughts of excessive unruliness on the part of the scholar, nor undue severity on the part of the teacher. In those days spoiling the child was regarded as the sure and certain consequence of sparing the rod, and so even an abuse of this instrument was condoned as an error on the right side.

For centuries such was the prevailing sentiment, and no one seems to have questioned—certainly not in a court of law—the right of a schoolmaster to inflict punishment with a cane, whether on the hand or other regions of the body, for faults of sufficient gravity. It has been reserved for our own day, when the custom of caning is in the last stages of decay, to have its legality called in question and established.

Mr. Bushby, the metropolitan magistrate, has brought about the decision by two of Her Majesty's Judges, sitting as a Divisional Court, that caning on the hand is not illegal. The learned magistrate convicted the headmaster of Church Street Board School, Hoxton, on a summons taken out for "unlawfully assaulting and beating" a boy, one of his pupils, by caning him on the hand. He, however, allowed an appeal to a superior Court, and so stated the case for the consideration of that Court that the sole question raised was the legality of caning on the hand. The magistrate admitted that the pupil had committed a fault meriting corporal punishment, and was further of opinion that, if caning on the hand was a proper method of punishment to adopt in the circumstances of the case, the punishment—four strokes on the hand with a cane—was inflicted unobjectionably; but thinking that caning on the hand, however inflicted, was "necessarily attended with risk of serious injury to the hand," and that there were other methods of corporal punishment "quite as available and efficacious," and not necessarily attended with any risks, the learned magistrate came to the conclusion that caning on the hand was in the circumstances of the case improper, and ought not to have been inflicted.

Thus the point for the Court to decide was whether, according to the law of England, it was criminal for a master to cane a pupil by striking him on the hand. The magistrate stated the boy deserved punishment, and he did not question the right to punish corporally, with a view to intellectual stimulation; but he convicted for the reason stated. This conviction the Judges held to be wrong, and therefore that that it must be quashed, with costs against the respondent.

We trust that the decision will not in any way tend to the revival of caning. The teachers of elementary schools have, no doubt, much greater difficulty in finding substitutes for corporal punishment than the teachers of secondary schools; and their pupils, in many instances, the waifs and strays of great cities, are the least docile and most neglected of humankind. Such pupils cannot always, even by the most skilful treatment, be made amenable to the milder forms of discipline, and it must be an advantage to teachers to know what the law allows them to do under such circumstances.

Possibly it may be found necessary to establish schools for boys who require harsher and sterner discipline than is needed for the majority of the pupils in a well-regulated school. Whether it would be well for the boys themselves to be grouped with those of their own tone of morals only, is another matter.

The development of football into quite a national amusement has been a notable fact of late years in the athletic world; and, naturally enough, Oxford and Cambridge have taken their full share in the movement. We cannot, however, view with entire satisfaction the substitution, during the colder part of the year, of this game for the older and, to our mind, finer exercise of rowing. Football is far better for boys than for men—for school than for college. At the best it is rough; and the roughness of men is worse than the roughness of boys. There has been a formidable number of football accidents—some of them severe—both at Oxford and at Cambridge this term. And one writer goes so far as to complain that neither from a moral nor from a physical point of view has the change at Oxford been an unmixed advantage. As to the moral point we can offer no opinion; but the difference in value of the exercise we think must be apparent to every one. But there is another change which seems to us of still more questionable value: and this is the growth of professionalism in football. The professional in cricket, from the nature of the game, and the kind of practice required for it, may be fairly said to be a necessity. But we have never been able to see his value in rowing; and we regret extremely that still another pastime should be turned into a money-getting pursuit. The money-element in games seems to us to spoil all their spontaneity and generous spirit, and to turn a free and manly desire to excel into a calculating trade. The spirit of which we complain has already invaded our schools—where, heaven help us! there is pot-hunting and scholarship-hunting enough already.

There is, however, we hear, still another game fighting its way to the front at the Universities—at any rate at Oxford. But this does not seem likely by its nature to win over the

adherence of many undergraduates in the long run. We refer to golf, which has made great strides in popularity all over the country during the last three or four years. Golf is essentially a game for middle-aged and old men—and a capital game it is *for them*. Ladies also, we are told, are finding it not unsuitable. But we cannot imagine that any vigorous young man of nineteen or twenty can, for long, be contented with so intermittent and so limited a tax upon his energies.

REVIEWS, NOTICES, &c.

Chaucer's Canterbury Tales, annotated and accented, with illustrations of English Life in Chaucer's Time. By John Saunders. (J. M. Dent & Co.)

The above title does not describe very clearly the real nature of this excellent little book (which contains 487 crown 8vo pages and costs 6s.), so we shall quote what Mr. Saunders says in his Introduction:—"We have proposed to ourselves to make the whole course of the *story* clear by resolving inconvenient or difficult passages of the poetry into prose; but, at the same time, to allow the reader to be constantly refreshing himself from the 'well of English *undefiled*,' by leaving all the remainder, including the finest portions of the poetry, in its own nervous and beautiful language." The spelling of the quotations (generally taken from Morris's edition, in the main the text of Harleian MS. 7334) has been partially modernised; difficult words are carefully accentuated; and a glossary is given at the foot of the page. In this way the fourteen chief Tales are dealt with; and selections are given from four others. The introductory chapters occupy rather more than a third of the book, and treat of the character-sketches of the Prologue, giving us much interesting information, both historical and antiquarian—chivalry and the religious orders being particularly well and fully treated. When we add that the volume is illustrated throughout with woodcuts of the various characters from the famous Ellesmere MS., our readers will have a clear idea of the plan and contents of a book which Mr. Saunders hopes will prove the means to lure his readers on to a deeper and truer study of Chaucer himself.

As to the skill with which all this has been done, speaking of the work as a whole we have nothing but praise to give. Mr. Saunders has made excellent use of the numerous publications of the Chaucer Society. He writes pleasantly, and tells the stories brightly and clearly; but, above all, he has a keen appreciation of Chaucer's poetry, and considerable insight into its humour, its vigour, and its beauty. His readers are sure to turn to the original tales after going through Mr. Saunders' versions, and will be able to enjoy them in their true Chaucerian form with much greater ease and better understanding. Our only regret is that Mr. Saunders should have attempted to modernise his selections at all, or should not have devoted more care to the task; for, truth to tell, he at times makes sad havoc of the final "e," and so spoils not a few lines. Plural adjectives, and the simple and gerundial infinitives, suffer most in this respect; while occasionally the "e" of the simple infinitive is quite needlessly changed into "en." The making of a really sound text and the modernising of it require a somewhat sounder knowledge of Chaucerian grammar than Mr. Saunders apparently possesses. In another edition, which we hope will soon be needed, this matter, together with a few slips such as "longeth" for "longen" (p. 8), might readily be set right. And Mr. Saunders might make use of the same opportunity to cut out Tyrrwhitt's preposterous derivation of *yeoman* from *yeongeman*, which gives quite the wrong idea. The yeoman is not a young man, but the man of the village or hamlet.

But we must not end with a word of dispraise. Of the matters to which we have referred, the general reader will be wholly, and perhaps blissfully, unconscious. For the rest we can assure him, or her, that Mr. Saunders' book is both full of instruction and very decidedly enjoyable. We do not know of any better book—nor indeed any book nearly so good—with which to begin the study of Chaucer; and the "concluding remarks" send the student on his way in quite the right spirit.

German School Books:—(1) Concise German Grammar: (i.) Elementary Course; (ii.) Intermediate Course; (iii.) Advanced Course. By Dr. F. Lange. (Whittaker & Co.) (2) Parallel Grammar Series: German Syntax. By Dr. Kuno Meyer. (Sonnenschein & Co.) (3) A First German Reader and Writer. By E. A. Sonnenschein, M.A. (Sonnenschein & Co.) (4) German Grammatical Reader. By A. R. Lechner and J. Schrammen. (Rivingtons.)

Dr. Lange's "Concise German Grammar," in three progressive courses, now lies complete before us. The first two parts, viz., the "Elementary Grammar" and the "Intermediate Grammar," we have noticed in this Journal, if we rightly remember, at the time of their publication in 1888. We will, therefore, confine our remarks to the last and concluding part, consisting of the "Advanced Course," in which some of our former hints have been acted upon by the author. On the whole there is a slight improvement perceptible in the author's style of working, but here and there we still meet with some traces of haste and carelessness. Thus Dr. Lange speaks (p. 2) of "Hartmann von der Aue," instead of "Hartmann von Aue." On page 3 we read, "With Lessing, Wieland, Schiller, and Goethe [by the bye, where are Herder and Klopstock?] German literature entered on its second classical era," and these words are immediately followed by the paragraph, "It is spoken in Germany, in Switzerland," &c. What is spoken in Germany and Switzerland? German literature? Of course, on looking back to page 2, we surmise that the author refers to "New High German," but the connecting link between the two respective paragraphs is sadly wanting. The "declension of German nouns"—this stumbling-block of all German grammarians—is treated in all the three "Courses" according to an uniform system, which proceeding has its advantage; but we cannot approve of Dr. Lange's classification of neuter substantives. He assigns a special column to the weak declension of neuters, although it contains a single noun only, whilst he classifies the substantives taking *er* in the plural under the heading of "anomalous declension." In the chapter on the possessive pronouns, Dr. Lange gives the example, in illustration of a corresponding rule, *Der Garten ist meiner*, &c., and adds "that the inflection *may* be dropped altogether, as *Der Garten ist mein*." As far as we know, the latter is the rule, since the possessive pronouns used predicatively remain unchanged, and only in poetry and in popular language they are occasionally inflected in the feminine gender. For the same reason we cannot acknowledge as *mustergiltig* either of the examples given by Dr. Lange, *Der Garten ist der meinige, Das Haus ist das seinige*, &c. We pass over several minor inaccuracies which the author is sure to find out in revising his manual with due care for a new edition, and we will only mention that we consider the special chapter on the "Rendering of the German Prepositions" a very useful feature; on the other hand, the chapter on "Prosody" is spoilt by the selection of some verses which are prosaic, unmelodious, and partly unintelligible, such as the lines on page 273, taken from a poem—entirely unknown to us—called *Friedensfeier*. In this extract we meet with the following line:—

"Den Einzelnen trifft hart, was dem Gesammtwohl nützt,"

which laudable sentiment would be suitable for a leading article on political economy, but is utterly out of place in a poetical effusion, more especially in the above form.

Dr. Kuno Meyer, the learned Lecturer in German at the Liverpool College, has issued a "German Syntax," as a sequel to his "Accidence" in the "Parallel Grammar Series." The definitions are clear, and show that the author himself has distinct notions of the subjects he explains; but we think that he would have been more successful in producing a generally acceptable German Syntax, if he had not been handicapped by the stringent arrangement of the Series, which, as a whole, is very judicious, but which can hardly be applied in all its details to all languages. Among the various points we should like to recommend to the author's consideration, are the following:—On page 72 we find the rule, "When the subjects are personal pronouns, the verb is always plural; *e.g., Weder du noch ich können es wissen*," &c. This assertion is against the accepted rule; the correct form being, *Weder du noch ich kann es wissen*, although some authors would occasionally use the plural in similar clauses. In the clause, *Dein Nachbar hat ein schöneres Haus als du hast* (p. 91), the last verb is superfluous. "The English idiom 'two or three,'" the author tells us (p. 123), "is rendered by *einige, mehrere*, or *ein paar*;" but we should have thought that the exact and correct translation is *zwei bis redi*. These are, however, comparative trifles, which it will be easy enough to correct in a future re-issue of the book.

Professor E. A. Sonnenschein has compiled a small volume as a companion to Dr. Meyer's "German Grammar," under the title

of "A First German Reader and Writer." To judge from the contents of the nicely printed publication, it is designed for very young children, say from the age of six to eight years. There are English children in this country who begin German at that early age, but then they learn it from their nurses or nursery governesses, the latter of whom, if they employ any books at all, use, as a rule, the *Kinderbücher* current in Germany; so that we are afraid that Professor Sonnenschein's little volume will not have much chance of finding its way into Anglo-German nurseries. The majority of the extracts are rather trite, but under the circumstances this could not be helped, perhaps. We think that the editor ought to have appended the names of the authors from whose works the extracts are taken. Thus we should have liked to know who perpetrated the literary abnormity of appending to Rückert's melodious stanza beginning, "*Als ich Abschied nahm*" (taken from his poem, "*Aus der Jugendzeit*"), the unrhythmical and nonsensical lines—

"*Als ich wiederkam,*
Hatte der Sperling,
Der Dickkopf,
Der Dickkopf,
Alles verzehrt."

The idea of compiling a purely "Grammatical Reader" may be a good one, but its success chiefly depends, as is the case with all good ideas, upon the manner in which it is carried out. We regret to say that the great labour which Messrs. Lechner and Schrammen have evidently bestowed on their work has been thrown away. The book is a most tedious compilation, and is not likely to be relished by either masters or pupils. The information given in the Notes and the Vocabulary is, besides, not in all instances reliable, and we also discovered some historical and biographical inaccuracies in the Text.

A Students' Manual of Ethical Philosophy. Adapted from the German of G. Von Gizycki, Professor of Philosophy in the University of Berlin. By Stanton Coit, Ph.D. (*Swan Sonnenschein & Co.*)—No clue is given as to how much of this book is the work of Prof. Von Gizycki, and how much that of Dr. Coit. We may take it, however, that Dr. Coit accepts the whole book. Since the latter is the leader of the Ethical Society, which has its meeting-place in Finsbury Square, it would appear that this is a text-book, pretty closely developing the views of that Society. Ethics is naturally one of the latest of the branches of knowledge studied with that closeness of detail and adherence to method which is now demanded from any science. It is exceedingly complex in the factors involved, and peculiarly intricate from the difficulty of treating the thinking subject as an object of thought. Then, again, ethics so easily takes the willing thinker into metaphysics. It is also in the minds of many thinkers inextricably associated with theological problems. Prof. Henry Sidgwick, for instance, in the current number of *Mind*, suggests that to introduce the idea of the moral government of the universe is the most practical solution of the cases where self-interest clashes with duty. In connexion with this point, Prof. Sidgwick would say that if in physics we assume the existence of a universal law of gravitation, it is surely as justifiable to assume a moral law which ultimately identifies self-interest and altruism. Otherwise there seems to be an necessant antagonism between egoism and utilitarianism. Prof. Von Gizycki and Dr. Coit, if we read the book aright, consider self-interest and duty need no bridging over. They consider the two demonstrably one and the same, or else claim that *rationally* every one must prefer the general to the individual good. So with all the problems of conduct, the book before us differentiates the science of ethics from metaphysics and theology. Granted the feelings to dictate the end of conduct, and reason as the guide, this new Anglo-German alliance would determine the whole duty of man on the earth. The principal practical matters of conduct are dealt with very suggestively. Indeed, much of the practical ethics is excellent. Interesting illustrations are given which bring home the various points with a thoroughness all too rare in ethical treatises. The two great principles of Kant—though without his name—are insisted upon: "So act as to treat humanity always as an end and never as a means only," and "So act that your individual actions might be willed universally." Moreover, there is an earnestness, a fervour, which unmistakably show that the authors are not writing their book as a pastime or as a merely interesting study. They are permeated with the desire to state principles which are workable in everyday life. They desire to be teachers of conduct, as well as analysers of its content, and if principles were not to be transmuted into practice, we can see that they would not care to philosophise. Their last word is, "Give thy life a moral purpose." This is given as the commandment of the conscience. But it is accompanied with the remark that "neither God nor nature has commanded him or set him a goal." This dogmatic negative statement is not an isolated one. Two chapters are given up to the discussion of the existence of God and Immortality. To these two problems a distinct negative is given. In an ethical treatise we noticed some months ago, written by Father Rickaby (whose considerable admixture of theology was striking), we read: "Ethics begin with human nature, pointing out that there are certain human acts that do become a man, and others that do not. To see this, it is not necessary to look up above man. Thus we shall prove lying, suicide, and murder to be wrong, and good-fellowship a duty, without needing to mention the Divine Being, though by considering Him the proof gains in cogency." Unless Dr. Stanton Coit considers (an almost impossible supposition) that man's moral purpose gains in cogency by the hypothesis that there is no God and no Immortality, we fail to see the reason for these chapters. At the same time, we should be almost ready to dispense with the finding of a reason, when we read the almost passionate eloquence with which the beauty of human love and human goodness is dwelt upon, were it not that from the admirable general tone of the previous chapters we had hoped to see the practical questions of ethics dispassionately discussed without reference to a dogmatic positive theology or a dogmatic negation of theology.

Irregular Verbs of Attic Prose. By Addison Hogue (*Ginn*).—The main purpose of this volume is to give, in an alphabetical list, the forms of irregular verbs occurring in the best Attic prose (forms occurring first in Aristotle are excluded as un-Attic), with a sketch of their principal meanings and constructions, including those of their chief compounds. The meaning is brought out very fully by means of examples, which are in all cases translated, and is traced into the chief derivatives in English. This idea of giving a handy selection from Veitch and Liddell and Scott combined is a very good one, and it has been carried out with great pains, which have not failed to secure a high degree of accuracy. But the book is disfigured by a considerable amount of what is little better than padding. The explanation of derivatives is overdone: γράφω is made to occupy three pages and a half, two of which are taken up with remarks on such terms as "geography," and "monogram." Very miscellaneous information is brought together in these illustrations and examples. Under ἐκδίδωμι we have the remark, "To have unmarried daughters, θυγατέρες ἀνέκδοτοι, growing old in their father's home, was as great an affliction then as some people find it now." A little below is given, as an example, "ἐν τῷ Βρεταννικῷ Μουσείῳ ἀνεκαλύφθησαν ἀνέκδοτοι ἐπιστολαὶ τοῦ Βολταίρου [Voltaire] πρὸς τὸν Ἄγγλον ποιητὴν George Keats" (*sic*), which facilitates the introduction of a note on the pronunciation of β in modern Greek. All this matter is digested in an Index, one of five, which is a veritable curiosity. Abraham Lincoln appears in it, not as the author of any views on Greek verbs, but because under καθέζομαι are brought in ἕδος, ἕδρα, and πρόεδρος, which last is illustrated by Ἀβραὰμ Λίγκολν, ὁ πρόεδρος τῶν Ἡνωμένων Πολιτειῶν, which gives further occasion to introduce at once a note on ἑνόω, and another reference in the Index under United States. The illustration of "anagram" by the instance *Horatio Nelson, honor est a Nilo*, leads to no less than three entries in this Index, besides another in the index of derivatives. It might be set as a fair problem in a "general intelligence" paper to conjecture any probable occasion for the appearance in this Index of the Great Eastern (twice), Sir John Franklin, Tom, Dick, and Harry, *Belle Vue*, and Homeric Laughter. There are twenty references under Cyrus, simply because the name occurs in as many examples, scattered up and down the book. In Part I. a sketch is given of the regular verbs, in which αἰσθάνομαι and the like first figure as liquid verbs, and are then said to belong to the "nasal class" (no explanation is given, and they receive no further notice), a process which, as the author observes, "thins out the liquid verbs a good deal." Further on the rule is given, "If the stem of the present and imperfect has αι or ει before the liquid, the ι is dropped in forming the other tenses." In spite of these faults, the book has a large amount of valuable matter in it, and to a teacher or private student is likely to prove useful. We hope that Professor Hogue may have occasion to improve it by a severe revision.

Plutarch's Life of Timoleon. By the Rev. Hubert A. Holden, M.A., LL.D. (*Cambridge University Press.*)—The romance

attached to the life of Timoleon—no ideally perfect hero, as Dr. Holden remarks in his Preface, not a great genius, either as soldier or a statesman, but the champion of constitutional government against violence and oppression—is sufficiently attractive in itself to ensure the favourable reception of this latest addition to the *Lives* which Dr. Holden has already edited. The work will be popular, too, on its own merits. We have a masterly Introduction, dealing with the primary sources of information for the Life of Timoleon accessible to Plutarch, viz., Ephorus, Theopompus, Timæus, and Athanis; then with the secondary sources, Cornelius Nepos, Polyaenus, and Diodorus; finally, arranging the biography in nine divisions, and ascribing the divisions to their respective sources, Dr. Holden sums up as follows:—"It is tolerably clear that with Plutarch, Timæus is the *fons primarius;* that the *vita* of Cornelius Nepos is a short abstract of the same author, and that, where he differs from Plutarch, Nepos is alone responsible for the error." A map of Sicily, a chronological table of events in that island from the beginning of Greek colonisation to the death of Timoleon, and a map of Syracuse, find a place between the Introduction and the text. The notes, it is needless to say, exhibit sound scholarship, and afford the student just that aid which he requires, and enables him to perfectly grasp the style of Plutarch, of which the "Life of Timoleon" is an easy and lucid example. A critical Appendix, several indices, and a praiseworthy Lexical Index to the *Life*, bring us to the end of a work which will increase the high reputation of the author.

Higher Grade English. (*T. Nelson & Sons.*)—The author has endeavoured to provide, in this volume, the whole of the work in English required for the Senior Local Examinations of the English and Scottish Universities, for the Higher Grade and Honours Leaving Certificate Examinations of the Scottish Education Department, for the Examinations of the College of Preceptors in England, and for the Training College Examinations both in England and Scotland. Of course a small book of little more than 100 pages does not attempt to deal with English Literature; that is fully treated in a set of three volumes belonging to the same series of "Royal English Class Books." Nevertheless an immense amount of information is compressed into a very small space. In fact, the volume consists of a *précis* or abstract of the most recent and most celebrated works on English. The noticeable feature of the book is its excellent arrangement in well-defined and headed paragraphs—a system which much simplifies comprehension and enormously facilitates reference. The whole subject is divided into two parts—I. Historical; II. Practical. The Historical half is subdivided into three sections—I. The Language; II. The Vocabulary; III. The Grammar. "Practical English" treats of Derivation, Analysis, Composition and Style, Figures of Speech, Prosody, and Forms of Literature. Maps of the English Migrations and Settlements, a Table of the Families of Speech, and a Chart (in the form of a great river receiving many tributaries) of the Progress and Growth of the Language assist the memory and comprehension of the text. Altogether the book is a useful example of condensed information and excellent arrangement.

The Public Schools Year-Book, 1889. (*Swan Sonnenschein & Co.*)—For the first appearance of this annual, the execution and arrangement is praiseworthy. The object of the editors—representatives respectively of Eton, Harrow, and Winchester—has been to provide a comprehensive and concise record of all matters of interest to parents, schoolmasters, and boys. The number of schools included is thirty, and although the absence of certain names from this list may possibly have occasioned disappointment, yet we see no reason to complain of the choice which the editors have made. Part I. of the "Year-Book" is educational. The schools are arranged in alphabetical order. The following details are, as a rule, given:—Motto, foundation, &c.; lists of governors and masters; school terms and holidays; education, classical and modern sides; army classes, private tuition, &c.; list of forms, number of boys in school; hours and arrangement of school-day; analysis of time-table; mode of admission; entrance examination; limits of age; superannuation, &c.; entrance scholarships: number, subjects, age; charges for education and board; entrance fees, &c.; house masters; dress and other details; scholarships tenable in the school and at the Universities; prizes, medals, &c., for 1889; list of honours and scholarships won during the year; grammars, &c., in use. Then there is an appendix on public schools bibliography, a list of entrance scholars for 1889; a list of general preparatory schools; the regulations for Woolwich and Sandhurst, and entrance scholarship papers as set at Harrow and Winchester. Part II. deals with athletics:—cricket—school eleven, remarks and averages, school matches, house ties; football—school team, remarks, school matches, house ties; rowing; swimming; racquets, fives; lawn tennis; hockey; athletic sports; table of public school athletics; rifle corps, Wimbledon, 1889; school matches, &c.; gymnastics, boxing, fencing; miscellaneous—school societies, clubs; old boys' clubs, annual dinners; newspapers, &c.

Charades and Plays for Schoolrooms and Drawing-rooms. By Grace Toplis, L.C.P. (*George Gill & Sons.*)—The publication of these bright little plays, so thoroughly suitable for school performances, will be recognized as a boon at this season of the year by many teachers and many scholars. The author says in her Preface:—

"There is so much difficulty in getting plays suitable for young people to act, that I have been obliged from time to time to write these, for want of better, for girls of the North London Collegiate School. The costumes and stage furniture accordingly present no difficulty to amateurs, and the plays are adapted for actors of all ages.

"If any one thinks the element of comedy is too prominent, my defence must be that the spirit of fun is one of the best remedies for the pessimism of the nineteenth century, and that the sense of humour is of such inestimable value in keeping us young and fresh in spite of the narrowing tendencies of daily routine, that it needs to be cultivated as much as any of the other senses. Nonsense has its uses as well as its abuses; and, as a teacher, I plead for the recognition of this fact in school life generally, reminding my fellow-workers that 'a merry heart goes all the way.'"

Every word of this we endorse; there is little more to be wished for by those who can carry *a merry heart all the way*, and the author who encourages healthy merriment, as Miss Toplis does in these stories, needs no defence or apology. The first extravaganza is *Out of His Century*. It is easy to transplant a scene of centuries ago into the present. We have but to imagine a mirror on the nearest fixed star, and then to see in it the reflection of what is occurring on the earth. The velocity of light is such that, leaving the earth at the moment when Raleigh spread the renowned cloak in the puddle, it would just now be returning, and if we could but look into the mirror that scene would be the image we should see. But Miss Toplis's imagination works both ways. She brings before Elizabeth a Crusader and a Jack-Tar (another crew's-aider), one "antiquated," the other "ante-dated." This achievement reminds us of one of the late Professor Guthrie's humorous mathematical formulæ. From the proposition that "the past is to the present as the present is to the future," he obtained the formula "Past by future = square of the present," and from this he drew a number of deductions. *Out of his Century* might be evolved from the same formula. No. 2, *Twelfth Night*, is a play in one act, in which William Tell, Margery Daw, the Blue Belle of Scotland, Johnny Bull, and others attend a drawing-room party. No. 3, *Before Nine*, in two acts, is already a favourite in Sunday School and village entertainments. No. 4, *Caught;* No. 5, *The Absent Professor;* and No. 6, *Aunt Tabitha's Will*, are all full of fun.

OUR LIBRARY TABLE.

The Student's Cicero. By the Rev. W. Y. Fausset, M.A. (*Swan Sonnenschein & Co.*)—This is a translation of the section devoted to Cicero in Dr. Munk's "Geschichte der Römischen Literatur." The first chapter deals with the early life of the great master of Latin prose, and his public career to the end of his consulship, B.C. 63. The second chapter is well written, and is especially interesting. It tells of the failure of Cicero's political efforts, his exile and return, the civil war, and the last struggle of the optimate cause against Antonius, closing with the death of Cicero, B.C. 43. The principal topic touched on in the remaining three chapters is the ancient opinions of Cicero and his oratory. The object of the author in bringing these opinions into prominence has been to show that there was no anticipation of the views held by Mommsen concerning Cicero when he calls him "a babbler, abounding in words, poor beyond conception in ideas, nothing but an advocate, and not a good one." We can recommend this biographical sketch to the student: he will find it interesting, and a useful collection of important matter.

Famous Elizabethan Plays. By H. Macaulay Fitzgibbon, M.A. (*W. H. Allen & Co.*)—All the passages and expressions which are manifestly objectionable, in point of morality, in the six plays which are contained in this work are expunged or altered judiciously. Each play is preceded by a few remarks concerning the author, and a "reading table" of the characters in each scene. The latter points out what characters may be grouped together, so as to be undertaken by a single reader, and what may be omitted without injury to the connexion of the story. Obscurities and archaisms are explained in short footnotes. The titles of the plays are sufficient to show that Mr. Fitzgibbon has made his choice with care. Each is typical of the author's works. They are Dekker's "The Shoemaker's Holiday"; "The Knight of the Burning

Pestle" of Beaumont and Fletcher; Ben Jonson's "Epicœne, or the Silent Woman"; Massinger's "A New Way to Pay Old Debts"; Ford's "Perkin Warbeck"; and "The Two Noble Kinsmen," the joint work of Fletcher and Shakespeare.

A New Geography on the Comparative Method. By J. M. D. Meiklejohn, M.A. (Simpkin, Marshall, & Co.; Hamilton, Adams, & Co.)—The Comparative Method has been employed throughout this work, the unknown being constantly referred to and compared with that which is known. Every fact given is connected with some other fact to facilitate memory. Geography is thus made interesting, and yet at the same time is easily learned. The arrangement of the printing deserves special commendation. Important facts have been put in large type; the notes in smaller type give sets of interesting facts that can be easily remembered. The frequent maps and diagrams will give the matter which they explain a permanent lodging in the memory of students. One point about the maps is worthy of mention—the outline is sketched in a few clear and firm strokes, and few names appear.

(1) *Topics of Geography. By W. F. Nichols, A.M.* (2) *The Teacher's Manual of Geography. By Jacques W. Redway. (D. C. Heath & Co.)*—These are companion books, and may well be used together by teachers. The Manual contains "Hints to Teachers" in Part I., and in Part II. "Modern Facts and Ancient Fancies." The aim of the author of the "Topics" has been to show what to teach and what to omit, by supplying the teacher with all the salient points in connexion with each country. Mr. Nichols has dealt with statistics to a very small extent; areas are all taught by comparison, but in this respect English teachers and students will have to supplement the text. They will have no clear idea of the extent of Great Britain by being informed that "the United Kingdom of Great Britain and Ireland is less than one-half the size of Texas; Wales is about the size of Massachusetts." Both books are well printed, with clear diagrams. They are of the same size and price, and of a similar style of binding.

(1) *Shakespeare's Twelfth Night. By H. Howard Crawley. (Rivingtons.)* (2) *Shakespeare's Richard II. (Moffatt & Paige.)* (3) *Milton's L'Allegro, Il Penseroso, Arcades, Lycidas, Sonnets, &c. By W. Bell, M.A. (Macmillan & Co.)*—The "Twelfth Night" forms one of the "Falcon" editions, already well known as a series of plays of Shakespeare, in which the principle of "criticism" is adopted. There are introductory remarks, a particularly pure text, notes of the excellence for which these editions are renowned, and a glossary. Mr. Crawley's work quite holds its own with the other volumes of the series. The edition of "Richard II." contains a vast deal of interesting and useful matter. Date and composition of the play; sources of the plot; historical personages of the drama; historical inaccuracies; sketch of the plot; sketches of the principal characters; literary notes, being extracts from Hazlitt, Hudson, Coleridge, Servinus, and Dowden; notable passages; proverbial expressions and familiar quotations; notes on the language of the play; etymological notes; proper names; anachronisms, and typical questions, are some of the topics dealt with, besides the ordinary notes on the text. The Milton contains all the poet wrote between 1630 and 1660 except "Comus." The notes are far out of proportion to the text.

Cottage Lectures on Health. By Agnes C. Maitland. (James Nisbet & Co.)—The eight or nine lectures in this work have been delivered to mothers' meetings, doubtlessly to the pleasure and interest of the audience. Food, digestion, the blood, are among the subjects dealt with.

Flower-Land: an Introduction to Botany. By Robert Fisher, M.A. (Bemrose & Sons.)—The first part of this book appeared last year under the same title. As Part I. it is now revised, and illustrations have been added; Part II. is now issued for the first time. The second part is of far larger dimensions than the first, and deals with more advanced portions of the subject—morphology, anatomy, and physiology, for instance. The book is well printed, and the illustrations are clear and artistic. The method of treatment of the subject is exceedingly simple, and the happily-chosen title, and the floral representations on the cover, combine to form a very attractive volume.

Does Prohibition Prohibit? By H. I. Osborn. (United Kingdom Temperance Alliance.)—This pamphlet reaches us at a most opportune moment, when many people are anxious to give Prohibition a fair trial in this country. It is encouraging to learn, after an exhaustive inquiry into the working of the law in the United States and Canada, that wherever it is fairly administered, Prohibition *does* prohibit, though it does not stop drinking.

Working Men and Free Libraries. By S. Hale. (Reeves.)—After pointing out that a free library is one of the happiest instances of the good effect of co-operation, the author states the principal causes why so few working men enter a free library, and appeals to them to seek in books (especially histories of all kinds) a better mode of working and living.

Commercial Terms. By G. Korts. (Hachette & Cie.)—An English-French vocabulary of about 4000 words, comprising the terms and expressions more generally used in the language of business and in correspondence. Will be appreciated as a book of reference by all students of French commercial correspondence.

Second Paragon Reader. (John Heywood.)—In no respect is this Reader an acquisition to the teacher. The subjects and figures of the plates that appear on almost every page are too old-fashioned to interest children, and on page 44 we actually have a train running on the wrong line of rails.

Home Lesson Book. No. VI. (Blackie & Son.)—Messrs. Blackie & Son have given us an excellent home lesson book to correspond with the Century Reader VI. Meanings and derivations of difficult words occupy the first part of the book, then we have poetry for repetition, a list of difficult words, and lastly grammar — the revision of complex sentences, and word-formation.

The Century Arithmetics. Standards I.—IV. (Blackie & Son.)—The price of the "Century Arithmetics" ranges from one penny in Standard I. to threepence in Standard IV. They are exactly adapted to Code requirements, and contain a large number and variety of carefully graded sums given under each rule. The printing is neatly done, and the arrangement clear. We heartily recommend them.

(1) *Introductory Lessons on Quantitative Analysis. By John Mills and Barker North.* (2) *Elements of Physiology. By J. H. E. Brock.* (3) *Solutions to the Questions Set at the May Examinations of the Science and Art Department, 1881 to 1886, in Machine Construction. By Henry Adams. (Chapman & Hall.)*—The "Introductory Lessons on Quantitative Analysis" and the "Elements of Physiology" are adapted to the requirements of students preparing for the examinations of the Science and Art Department. The former is also suitable for students entering for the B.Sc. or M.B. practical examinations of the University of London. They are handy little volumes, but the diagrams in the physiology are very roughly produced, a skeleton (on page 25) being especially repulsive. The book of answers to the questions on machine construction forms one of a series, other volumes of which we have already noticed.

Bible Atlas. By T. Ruddiman Johnston, F.R.G.S. (Johnston & Co.)—The sixteen maps in this Atlas supply a Bible student with all the geographical information he is likely to require. The subdued colours of the maps make one feel that one is dealing with the countries of the East.

New Model Court-Hand French and German Copy Books. (Relfe Brothers.)—The writing in these copy books is in the new vertical hand. The copies have been selected from French and German proverbs and familiar phrases.

Excelsior Combination Atlases. (G. W. Bacon & Co.)—One of the parts of this Atlas is adapted for pupil-teachers, first year, and the Fourth Standard; the other to pupil-teachers, second year, and the Fifth Standard. The idea of giving first the ordinary coloured and then the diagrammatic maps is excellent. The latter have as special features their coast-lines and rivers printed in blue, their mountains and names printed in black, all oceans, seas, and lakes in blue, thus causing the land to stand out distinctly. They are remarkably bold and clear in every feature.

GIFT BOOKS OF THE SEASON.

By Pike and Dyke: a Tale of the Rise of the Dutch Republic. By G. A. Henty. (Blackie & Son.)—We agree with the remark of the author in his prefatory letter, addressed "My dear Lads." "In all the pages of history there is no record of a struggle so unequal, so obstinately maintained, and so long contested, as that by which the men of Holland and Zealand won their right to worship God in their own way, and also—although this was quite a secondary consideration with them—shook off the yoke of Spain and achieved their independence." This is the keynote to the tale, for the historical fact of which Mr. Henty has relied solely on Motley's "Rise of the Dutch Republic." Edward Martin, an English boy, is the hero of the tale, and his adventures and brave deeds are traced in connexion with the historic conflict. Edward joins the household of the "ablest man of his time"—William the Silent—and is employed in many dangerous and important missions. During the discharge of these duties he assists at the sieges of Haarlem, Leyden, and Antwerp. At the last-mentioned place he is saved from the "the Council of Blood" by the Countess of Harp and her daughter, Gertrude von Harp. He is subsequently employed in Holland by Queen Elizabeth, and later on he is knighted and settles down in peace and comfort as the husband of Gertrude von Harp. There are illustrations and excellent maps. We heartily recommend "By Pike and Dyke" as a delightful and instructive tale.

Sam Silvan's Sacrifice. By Jesse Colman. (Blackie & Son.)—This is the story of two fatherless brothers—the elder a lad of good and steady disposition; the younger nervous, weaker than his brother, and more selfish. The death of their grandparents, by whom they are being brought up, leads to their meeting with a series of homes, mostly bad. In the end, the elder brother Sam is killed by a mad bull while endeavouring to protect his brother, who realises when it is too late the full measure of his indebtedness. A book which our boys will appreciate.

The Seven Golden Keys. By Jas. E. Arnold. (Blackie & Son.)—A little girl is met by a fairy, who, in order to teach her seven lessons—to speak the truth, to be kind, not to trust to appearances, to hold fast to all that is good, to be patient, to avoid carelessness, and to attend to little things—sends her on a series of quests in search of seven golden keys. Each key is to unlock a casket in which the reward of each of these virtues is hidden. She meets with many trials, difficulties, hardships, and temptations, sometimes failing, but generally persevering, and succeeds finally in the search. The lessons inculcated are good, but the manner in which the story is told might be more attractive. As it is meant for young children, each part is too much prolonged to sustain interest. Another defect is, that there is no element of probability in the story. It could not have been a dream, as the ideas would not come into a child's mind.

The Achievements of Youth. By the Rev. Robert Steel, D.D. (*Nelson & Sons.*)—We are informed on the delicately decorated cover that this is a book for boys, but a perusal of the contents leads us to think that few boys will sit down and become enraptured with it. As a book of reference on the biographies of great men, it may be of some use to our boys; but we question whether many will take it up to while away a leisure hour. It contains accounts of the youth of nearly 300 famous men, arranged under the following headings:—poets, prose-writers, linguists, scientists, painters, musical composers, military commanders, statesmen, divines.

The Hermit Hunter of the Wilds. By Gordon Stables, C.M., M.D., R.N. (*Blackie & Son.*)—Tommy Talisker, a dreamy boy, who likes to picture himself as the Hermit Hunter of the Wilds, receives an original kind of training from a sailor-naturalist uncle (Mr. Spencer), and at length goes to sea with the hope of one day finding the lost son of his uncle's close friend, Captain Herbert. He succeeds in tracing him through the forests of Ecuador, where the abducted boy has become an Indian chief. Afterwards he is discovered on an island which had been used as a treasure store by the buccaneers. The two are picked up a few weeks later by Captain Herbert's vessel, in which Mr. Spencer has sailed in search of them. The hero is accompanied through his many adventures by the very king of cats, who deserves a place amongst the most famous animals of fiction. The book is certainly interesting, humorous, and exciting.

Afloat at Last. By John C. Hutcheson. (*Blackie & Son.*)—This is the narrative of a boy's experiences on board ship during his first voyage. From the stowing of the vessel in the Thames to her recovery from the Pratas Reef on which she is stranded, everything is described with the accuracy of perfect practical knowledge of ships and sailors. Many adventures are met with by our hero, the most perilous being the encounter with the pirates of the China Seas. The captain, the mate, the Irish boatswain, the Portuguese steward, and the Chinese cook are fresh and cleverly-drawn characters, and the reader will find "Afloat at Last" a reliable picture of what a seafaring life really is.

Highways and High Seas. By F. Frankfort Moore. (*Blackie & Sons.*)—The chief characters introduced into this book are, as the title suggests, highwaymen and pirates. Cyril Harley, the hero, falls into the hands of both, and, after many remarkable experiences, escapes. He tells his story in a deliciously humorous style, which cannot fail to be appreciated; and up to the last interest does not flag. He shows incidentally how small an amount of courage and romance there was in the pirates and highwaymen which writers of fiction frequently dwell so much upon. The book is sure to interest boys, and the illustrations are above the average excellence.

Tales. By Heinrich Zschökke. (*G. P. Putnam's Sons.*)—This is one of the neat little "Knickerbocker Nuggets." The "Tales" of Heinrich Zschökke have for nearly a century been accepted on the continent as belonging to standard German fiction, and as characterized also by a very definite and original individuality of their own. First we have a chapter concerning the author himself, telling us that he was born in 1774, the year of the famous comet. The story of his school life is one of those lessons of patience to schoolmasters which are conveyed in the biographies of those noted men who, when at school, were reputed bad or stupid. He had little relish for the so-called instruction given at school, and, indeed, such was his apparent stupidity that the master sent him away before his term had expired to save the reputation of his academy. Yet the lad, with all his stupidity, was a most diligent reader, and it was afterwards discovered, *not* by his teacher, that he had carried with him from school a larger amount, perhaps, of deep and varied learning than any of his companions. It is true that he began with such works as "Robinson Crusoe," and continued through all the voyages and travels he could lay his hands upon, but he ended—strange as it is—a most correct and accomplished classical scholar. At the time that his school-books were dreadful annoyances, he was drinking from the richest springs of literature in his own and foreign tongues. There was another reason why Zschökke did not advance as rapidly as others with his regular studies—he had already begun to think, and his mind and heart and soul were absorbed in pondering the great questions of this mysterious existence of ours. The stories selected are the following:—"Adventures of a New Year's Eve," "The Broken Pitcher," "Jonathan Frock," "Walpurgis Night."

Martyrs to Freedom; or, Struggles for National Liberty. By the Rev. Philip Barnes. (*John Hogg.*)—The author's object has not been merely to sketch the career of his twelve champions of the cause of liberty, but to deepen in the hearts of both young and old readers a love of liberty and sympathy with its defenders. The "champions" are of different nationalities. Thus we have Sir William Wallace, Sir Harry Vane, Llewellyn and David, Robert Emmet, Admiral Coligny, William the Silent, Andreas Hofer, Rhigas, Toussaint l'Ouverture, Abraham Lincoln, John Brown the hero of Harper's Ferry, and Tupac Amarn. Their struggles would reach from the Conquest to the present day if arranged in chronological order.

The Romance of the Forests. By Ascott R. Hope. (*John Hogg.*)—Mr. Ascott R. Hope is the schoolboy's favourite, and the fact that his name is resplendent in gold on the cover of the book will ensure its popularity. The volume is a web of stories, legends, adventures, descriptions, and the like, told in the writer's best style. A whole chapter is devoted to Robin Hood; and the German forests with their thrilling legends, the backwoods with the atrocities of red and the adventures of white men, tropical forests, and the swamps and woods of South America, all receive due attention.

We Four Children. By M. A. Hoyer. (*John Hogg.*)—The four children whose sayings and doings are here recorded are now growing grey-headed, and this little book is a memory of the days now distant. The children form the ambitious idea of starting a literary and scientific society. How they succeeded, and what pleasure they derived, we leave to our young friends to find out for themselves. The idea of the tale is excellent.

Noël and Geoff. By Frances Armstrong. (*John Hogg.*)—This is another story for children, giving an account of the home-life of two little boys, extending over three Christmas days.

Songs and Poems for Children. By Carrie Davenport. (*John Hogg.*)—There are about 200 songs and poems in this book, and 60 illustrations. Baby rhymes are included in company with pieces in various degrees of simplicity and seriousness. Variety is given by the introduction of lyrics less familiarly known than those which have traditional value and attraction.

The Cunning Woman's Grandson. By Charlotte M. Younge. (*National Society's Depository.*)—This interesting book, written in a most quaint and ingenious style, depicts very vividly the reforms, both religious and social, which were effected by the Misses More in the almost barbarous district of Cheddar a century ago. Rob Lake is the hero, a good-hearted country lad, and Kitty Cole the heroine; together they endeavour to further the principles imparted to them by the Misses More. The story narrates the difficulties they meet with, and the dangers they undergo in the performance of what they considered to be right. A peculiar character introduced is the "cunning woman," Rob's grandmother, who deals in the black art. She gets herself mixed up in a plot hatched by George Greystone, for which she suffers afterwards. As it should be in a book written to enforce moral principles in the young mind, good triumphs, in the end, over evil.

The Blue Dragon. By Frances Mary Peard. (*National Society's Depository.*)—"The Blue Dragon" is the sign of an inn in Chester, where the action of the story is laid, in the discontented, turbulent times that followed immediately upon the battle of Bosworth Field. Much of the story is occupied with a description of the "Miracle" plays of the middle ages, and of the interest which they excited among all classes, together with an account of the appearance of Chester city during the visit of the terrible pestilence early in the sixteenth century. It is one of the best of the story books published by the National Society, combining, as it does, much instructive matter with that which is interesting.

Chris Derrick. (*National Society's Depository.*)—Chris's father at last satisfies his son's ambition to go to sea, by taking him as ship's-boy on his own schooner "The Mouse" on a voyage to the French coast. There were rumours of war with France at the time, and privateering and mutiny were rife. The stirring adventures our hero meets with are effective in subduing his inborn longing for many years to come.

A Pair of Cousins. By M. Bramston. (*National Society's Depository.*)—This sentimental story tells the fortunes of the country-bred cousin, Flower Callaway, and of the town-bred Avis Goldenlea. Flower has very pretentious manners, Avis has much common-sense. The two most interesting characters of the story, however, are Jack Mascarene and his sister Nellie, the orphan children of an artist. Nellie, in attempting to save her friend Flower from drowning, loses her own life. This event does much to cure Flower of her conceit; she becomes more thoughtful, and so far loses her stuck-up manners as to consent to become the wife of a merry farmer's son. It turns out a happy marriage, as does that of Jack Mascarene with Avis Goldenlea.

Fairmeadows Farm. By Mary H. Debenham. (*National Society's Depository.*)—According to an old family tradition the luck of Fairmeadows depended on the hospitality of its occupiers towards strangers. The story is laid in the stirring times of Monmouth's rebellion. The family at Fairmeadows shelter a rebel fugitive, and for this offence trouble comes on the home. But all turns out well, as the fugitive has influential friends by whose mediation peace and tranquility is restored to the farm.

Cast Ashore. By Esmè Stuart. (*National Society's Depository*).—A vessel is wrecked on the Lancashire coast, and Mona is washed ashore. She is the daughter of the estranged son of Sir Jasper Anstley, sent home by her father in the hope that the sight of her would effect a reconciliation. Mona is taken care of by some cottagers, but the smugglers of the neighbourhood find out her relationship, and carry her off in the expectation of a reward. She is rescued by two sailor lads and handed over to the baronet, who is only too glad to receive his long-lost son once again.

In Charge. By Mary E. Palgrave. (*National Society's Depository.*)—The characters in this tale are well drawn, and are full of life and vividness; nowhere does the narrative lack interest. It relates the filial love and devotion of the heroine, Felicity Hardiston, the daughter of a signalman on the South Coast, whose special duty is to watch for smugglers; and also the constancy of her lover, who belongs to a band of smugglers. Through love of Felicity he breaks with his companions, gains their mistrust, and meets with death at their hands.

Banning and Blessing. (*National Society's Depository.*)—This story tells how a young girl, the real heiress to a baronet, gains her rightful inheritance, despite the endeavours to deprive her, of a black witch who had cursed the old baronet. The tale is written in a nice, bright style,

and the plot is well sustained. The illustrations are good, and the whole production is creditable.

Dolly's Adventures. By Yvonne. (John Hogg.)—This bright-covered little volume recounts the adventures of little Dolly during some "Happy Days at Cranberry." These adventures are certainly somewhat less exciting than those provided in the too popular "sensational" novels, but they are not the less healthy for that, and their very homeliness renders them of greater interest to the girls of Dolly's own age into whose hands the book may fall.

Miss Brown's Basket. By Mrs. H. Charles. (Nisbet & Co.)—Miss Brown is a kind-hearted, unselfish old lady, who gives a tenth of her small income to the poor, and takes great interest in the missionary societies of India. Filling her basket with brush-bags, kettle-holders, pen-wipers, &c., she sends it round the little town of Crutched Friars, and devotes the proceeds of the sale of these articles to Indian mission work.

One Little Vein of Dross. By Ruth Lamb. (Nisbet & Co.)—Mrs. Beauchamp goes to a ball, and on her return falls seriously ill. Her diamonds—the family heirloom which she had worn at the ball—are missed, but she is too ill to be told of the loss. Her husband searches everywhere and employs all means to find the lost diamonds, but in vain. The mystery is not cleared up until Mrs. Beauchamp recovers and tells that she placed them in her satin shoes for safety.

Number Three, Winifred Place. By Agnes Giberne. (Nisbet & Co.)—We are not favourably impressed with this production. It is as improbable a tale as we have met with for some considerable time. The career of Rhona, the heroine, attracted our attention; but this attractiveness in her was more than overbalanced by the three unattractive old maids and the mysterious Colonel.

Mr. Orde's Grandchildren. By C. S. Lowndes. (Nisbet & Co.)—Mr. Orde has two sets of grandchildren—one he hates, the other he cherishes. The father of the former had "gone into business," and for this crime Mr. Orde ignores his daughter and her children for sixteen years. But his haughty spirit is broken by a death and a supposed drowning, and the offending mother is reinstated in her father's affections. The book is well illustrated, and will, we think, be a favourite.

New Publications of Cassell & Co.

Little Folks, a Magazine for the Young; Bo-Peep, a Treasury for the Little Ones; Wandering Ways and Dumb Friends, by Maggie Browne; Tittle-Tattle Tales, by Julia Goddard; Scrambles and Scrapes, by Hugh Raker.—All these books for the little ones are bright and gay outside, befitting the sunny and cheerful arrangement of subjects and illustrations to be found within. "Little Folks" Christmas Number contains 432 pages of letterpress, with pictures on nearly every page, together with two full-page plates printed in colours, and four tinted plates. The serial stories are "Uncle Silvio's Secret," by H. Atteridge, and "Freda's Conquest," by Frederick Macdonald. "Fanciful Rhymes," with suitable pictures, chats about animals, puzzles of various kinds, and a variety of other entertainments of similar kind. "Bo-Peep" has some simple original stories and verses, with illustrations on nearly every page. Maggie Browne's books have a simple nursery story on one page, and an illustration opposite to it. The dumb friends include cats, dogs, fowls, birds and all possible four-footed pets. "Tittle-Tattle Tales" are similarly arranged, and consist of about forty short tales about children and home subjects, alternate pages being devoted to full-page illustrations. "Scrambles and Scrapes" has more of exciting incidents, of eagles, tigers, bears, red men, &c., the lost on land and sea, terrible scrapes and hairbreadth 'scapes.

The Prairie. By Fennimore Cooper.—Cassell's Red Library now contains fifty-two volumes of the best novels in the language, published at 1*s.* each in stiff cover, or 2*s.* handsomely bound in red cloth. The latest additions, besides "The Prairie," are "Dombey and Son," "Night and Morning," and "Kenilworth."

The Master of Ballantrae: a Winter's Tale. By Robert Louis Stevenson.—This is one of the five-shilling series, and is by the author of the popular stories, "Treasure Island," "Kidnapped," &c. This well-written and dramatic historical tale begins with the landing of Prince Charlie, in the memorable year 1745. The chief personages are the old lord, "his mind well nourished with study, and reputed in the country to be more cunning than he seemed;" the Master of Ballantrae, who "took from his father the love of serious reading, some of his tact, perhaps, as well, but that which was policy in the father became black dissimulation in the son;" Mr. Henry, "who was neither very bad nor very able, but an honest, solid sort of lad;" and Miss Alison Graeme, "a near kinswoman, an orphan, and heir to a considerable fortune, which was loudly called for by my lord's necessities."

Cassell's History of England. The Jubilee Edition, Vol. III.—The third volume of the revised popular History of England carries the history from the Great Rebellion to the Fall of Marlborough. The frontispiece illustrates the famous scene of Cromwell dissolving the Long Parliament, and at the head is a good representation of Christ Church, Oxford. Full-page illustrations are given of tragic or important situations, such as Charles at Naseby, the Last Charge of Dundee, the Assassination of Archbishop Sharpe. This edition was designed in '87, and is splendidly executed in every respect.

Cassell's Saturday Journal.—The yearly volume of this *Journal* contains more interesting reading of various kinds for the price (7s. 6d.) than any other book of the season. It is an immense volume of 1248 pages, and some hundreds of illustrations. It contains five complete serial stories, viz.:—"St. Cuthbert's Tower," by Florence Warden, author of "The House on the Marsh," &c. Illustrated (published separately at 31s. 6d.). "Fettered for Life," by Frank Barrett, author of "Lady Biddy Fane," &c. Illustrated. "No. 19, State Street" (a Tale of New York), by David Graham Adee. "Another's Crime" (from the Diary of Inspector Byrnes), by Julian Hawthorne. Illustrated. "A Diamond Button: Who was It?" by Barclay North. Illustrated. To these are added about one hundred short stories, many hundreds of interesting papers, and a large and varied store of entertainment and general information.

(1) *Red Feather: a Tale of the American Frontier.* (2) *The Boy Hunters of Kentucky. By Edward S. Ellis. With original illustrations by J. Fennemore.*—These are additions to the series of one-and-sixpenny books. They are both easy and pleasant stories of Indian adventure. Mr. Ellis is known as the author of the "Boy Pioneer," "Log Cabin," and other popular story books of the Deerfoot Series. The shorter stories before us are in the author's best style.

Polly: a New-Fashioned Girl. By L. T. Meade. With eight original illustrations by M. E. Edwards.—This is one of the three-and-sixpenny series. L. T. Meade is well known as one of the brightest and freshest writers of tales for girls. Her "World of Girls" has passed through several editions, and "The Palace Beautiful" has also already been reprinted.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending November 30th, 1889.

Abendroth (R.): Das Problem der Materie, 14m.
Adams's (W. D.) Rambles in Bookland, 12mo, 4s. 6d. cl.
Æschines against Ctesiphon, on the Crown, edited by R. B. Richardson, cr. 8vo, 5s. cl.
Æschylus, Supplices of, a Revised Text, with Introduction, &c., by T. G. Tucker, 8vo, 10s. 6d. cl.
Æschylus, The Agamemnon of, with Introduction, &c., by A. Verrall, 8vo 12s. cl.
Amiel (E.): Erasme, 3fr. 50.
Anglo-Saxon Chronicles, from 800 to 1001 A.D., edited by J. F. Davis, cr. 8vo, 4s. 6d. cl.
Aveling's (E.) Mechanics and Experimental Science, 5s. cl.
Baker's (W. G.) The British Empire, Part 1, cr. 8vo, 2s. cl.
Batch's (W. R.) Ready Reference, the Universal Cyclopædia, cr. 8vo, 3s. 6d. cl.
Bradley's (E. T.) Life of the Lady Arabella Stuart, 2 vols., 24s.
Bunyan's (J.) A Book for Boys and Girls, or Country Rhymes for Children, 12mo, 5s. leather or parchment.
Bury (H. B. de): Jeanne d'Arc, 7fr. 50.
Bury's (J. B.) History of the Later Roman Empire, 2 vols. 8vo, 32s. cl.
Carus's (Dr. P. Fundamental Problems, cr. 8vo, 4s. cl.
Chabot (J. D.): Etude Historique de la Cavalerie Allemande pendant la Guerre de 1870-1, Part 2, 3fr.
Charveriat (F.): A travers la Kabylie, 3fr. 50.
Cicero, De Amicitia, with Introduction, Notes, Vocabularies, and Translation, by S. Moses, 2s. 6d. cl.
Clelia's God in Shakespeare, cr. 8vo, 6s. cl.
Cooley (T. M.), Hitchcock (H.), and others' Constitutional History of the United States, 8vo, 9s. cl.
Corday (Charlotte), by R. K. van Alstine, cr. 8vo, 5s. cl.
Daudet (A.): La Lutte pour la Vie, 4fr.
Deane's (Rev. W. J.) Joshua, his Life and Times, cr. 8vo, 2s. 6d.
Dryden: An Essay of Dramatic Poesy, edited by T. Arnold, 3s. 6d.
Elze's (K.) William Shakespeare, a Literary Biography, 5s. cl.
Erdmann's (J. E.) A History of Philosophy, Vols. 1 and 2, 15s. each; Vol. 3, 12s. cl.
Examples of Lathes, Apparatus, &c., by Author of "Lathes and Turning," 8vo 2s. 6d. cl.
Exell's (Rev. J. S.) The Biblical Illustrator: St. Luke, Vol. 3, 8vo, 7s. 6d. cl.
Fernando's (H. M.) Science Biology Papers, 3s. 6d. cl.
Fisher's (H.) The Candidate in Music, cr. 8vo, 3s. cl.
Gay's Fables, 2s. cl. (Chandos Classics.)
Giberne's (A.) The Ocean of Air, Meteorology for Beginners, cr. 8vo, 5s. cl.
Godet (P.): Histoire Littéraire de la Suisse Française, 8fr.
Hallward's (R. F.) Flowers of Paradise, Music, Verse, Design, and Illustration, 4to, 6s. bds.
Haultain (W. N.) and Ferguson's (J. H.) Handbook of Obstetric Nursing, cr. 8vo, 5s. cl.
Henderson's (W. J.) The Story of Music, cr. 8vo, 6s. cl.
Hoehler (W.): Scholia Juvenaliana Inedita, 1m.
Howatt's (J. R.) Children's Angel, a Year's Sermons and Parables for the Young, 12mo, 2s. 6d. cl.
Inge's (W. P.) Selections from Valerius Maximus, 3s. 6d. cl.
Jespersen (O.): The Articulations of Speech Sounds, 2m. 80.
Josephus, Works of, Whiston's Translation, revised by Rev. A. R. Shilleto 3 vols. cr. 8vo, 3s. 6d. each, cl.
Kitto's (J. F.) The New Biblical Dictionary, 8vo, 10s. 6d. cl.
Knight's (A. E.) Bible Plants and Animals, cr. 8vo, 2s. 6d. cl.
Knight's (C.) Popular History of England, 9 vols. 63s. cl.
Lane's (C. A.) Descriptive Lantern Lectures on English Church History, cr. 8vo 2s. 6d. cl.
Low's (W. H.) History of English Literature, 1660-1714, 3s. 6d.
Macalister's (A.) A Text-Book of Human Anatomy, 36s. cl.
Macfarlane's (A.) Elementary Mathematical Tables, 3s. cl.

Marlow's Jew of Malta, hrsg. v. A. Wagner, 2m.
Masclef (A.): Atlas des Plantes de France, Part 1, 1fr. 25.
Maycock's (W. P.) Practical Electrical Notes, &c., for Use of Engineering Students, 32mo, 2s. cl.
Mivart's (St. G.) The Origin of Human Reason, 8vo, 10s. 6d. cl.
Moss's (F. J.) Through Atolls and Islands in the Great South Sea, cr. 8vo, 8s. 6d. cl.
Muirhead's (G.) The Birds of Berwickshire, Vol. 1, 8vo, 15s.
Nash's (J.) A Catechism of English Literature, 12mo, 2s. 6d. cl.
North-Country Poets, Modern Section, edited by W. Andrews, 8vo, 5s. cl.
Paris's (P.) Manual of Ancient Sculpture, 8vo, 10s. 6d. cl.
Percy's Reliques of English Poetry, hrsg. v. Arnold Srhröer, Part 1, 8m.
Postgate (J. P.): Gai Valeri Catulli Carmina, 3s.
Pritchard's (C.) Researches in Stellar Parallax by the Aid of Photography royal 8vo, 7s. 6d. swd.
Proctor's (W. C.) Glimpses of Europe, cr. 8vo, 3s. 6d. cl.
Renton's (A. W.) People's Dictionary of English Law, 5s.
Rudolph's (late Crown Prince) Notes on Sport and Ornithology, 8vo, 18s. cl.
Sanday's (W.) Appendices to the Greek Testament, 12mo, 3s. 6d.
Sargent's (J. Y.) Exemplaria Græca, Selections from Passages for Translation into Greek, 12mo, 3s. cl.
Saunders's (H.) Illustrated Manual of British Birds, 8vo, 21s.
Seymour's (C. D.) The First Six Books of Homer's Iliad, 6s.
Smith's (H.) A Century of American Literature, cr. 8vo, 9s.
Sophocles' Antigone, translated by Allcroft, 12mo, 2s. cl.
Synopsis of English History, 1660-1714, 2s. swd.
Swinburne's (A. C.) Study of Ben Jonson, cr. 8vo, 7s. cl.
Taylor's (H.) The Origin and Growth of the English Constitution, 8vo, 18s. cl.
Thomas's (D.) The Acts of the Apostles, 8vo, 10s. 6d. cl.
Timmins's A History of Warwickshire, 8vo, 7s. 6d. cl.
Tumlirz's (Dr.) Potential and its Application to the Explanation of Electrical Phenomena, cr. 8vo, 3s. 6d. cl.
Walpole (Horace), Letters of, edited by C. D. Yonge, 2 vols. 8vo, 32s. cl.
Waverley (The) Proverbial Birthday Book, a Collection of Proverbs, &c., from the Waverley Novels, 18mo, 2s. 6d. cl.
Winslow's (R.) The Law of Artistic Copyright, 8vo, 10s. cl.

CORRESPONDENCE.

PHYSICAL EDUCATION.

To the Editor of the Educational Times.

Sir,—As it is evident that our Government will, at no very distant date, be called upon to legislate for *compulsory* physical training in our elementary schools, will you kindly permit me, in consideration of the real welfare of our children, to warn educationalists, and all possessing any influence in the matter, against *hastily* sanctioning or accepting any system or code which does not court the strictest investigation, and which has not been subjected to a test of, at least, several years?

Our military code of gymnastics has never, since its introduction some twenty-five years ago, been countenanced or recognised by teachers outside military circles, lacking, as it does, the primary elements absolutely necessary in the training of young children and adults. That the civilians (private teachers) were correct in their judgment, is conclusively proved by the fact that the military authorities are at last introducing (unfortunately without due acknowledgment) the very forms of exercise which from the outset have obtained amongst civilians; consequently it is obvious that, as regards educational gymnastics, they have certainly nothing to learn from military teachers, whose experience, moreover, rarely extends beyond the building up, and training, of one particular class of material.

It must also be patent that teachers or advocates, possessing practical knowledge of only one code or system, are scarcely in a position to offer more reliable evidence than those teachers who, being officially connected with large societies, or under Government, are invariably compelled to act as the mouthpieces of either their superiors or some titled individual, who, whilst honestly believing in the efficacy of physical training, seldom possess sufficient practical knowledge to discern betwixt that which is real and solid and that which is merely a spurious imitation.

In view of these facts, I think it will be generally admitted that the utmost care should be exercised by all who may be called upon to support any Bill which may ultimately come before Parliament, and that the evidence of our private teachers, of both sexes, who have been free to carefully investigate and study the two original systems of body-training, deducting and blending according to individual ideas, should at least receive due consideration.

After careful inquiries, I find that amongst our most successful teachers, some with an experience of over twenty years, who have gone into the merits of the various codes, &c., now before the British public, there is a distinct leaning towards Ling's Swedish system, the whole of the movements of which, I am informed, have been most carefully thought out as to their physiological results, and are capable of the most complete explanation.

The splendid results which have been obtained in our London Board Schools since the introduction of Ling's system are beyond all praise, whilst its more recent adoption at Newnham, and almost all our principal Training Colleges and High Schools, speaks volumes in favour of its complete adoption in any country where the importance and real value of rational gymnastics is duly recognised. Yours faithfully,

Nov. 25th, 1889. Preceptor.

A FAIR FIELD AND NO FAVOUR.

To the Editor of the Educational Times.

Sir,—On page 21 of the current Owens College calendar are to be found these words: "The Oxford and Cambridge Local Examinations, in the case of those who have passed in Honours, and the Examination of the College of Preceptors (First Class or Second Class, First Division), will be accepted in lieu of the Entrance examination in the prescribed subjects." In these words the College for the first time gives official recognition to the Preceptors' examinations.

This recognition is due to a memorial lately presented by the Manchester Board of Schoolmasters, which set forth in some detail—

(1) That the Preceptors' examinations were already recognized by the various legal and medical authorities, and by the associated Chambers of Commerce.

(2) That the body of Examiners was one of great educational eminence.

(3) That the absence of set books in foreign languages, and also to a large extent in Latin, preserved the schoolmaster's just freedom, and kept his work from being hampered and cut up.

(5) That, inasmuch as the teacher was informed of the exact marks his pupils obtained in each subject, the examination possessed for him a degree of educational usefulness that was quite unique; and

(5) That, the fee not being prohibitory, a larger number of boys from a school could present themselves for examination.

Such an example should not be without its effect in other parts of the country. The numerous committees which exist at different centres for promoting the local examinations and rewarding the more successful candidates have, I presume, been formed not so much in the interest of this or that examination, but for the advancement of sound education in our secondary schools. And many of these committees are liberal-minded enough to listen to the prayer of such a memorial as the one above. For such memorials there is ample room. Lately, I asked our Secretary, Mr. Hodgson, what local committees rewarded Preceptors' candidates equally with other local candidates. I feel persuaded there are some, but he could not tell me of a single one.

I write in the interests, not of the Preceptors' examinations, but of good education. Given earnest men at the helm of the three Locals, given also a fair field and no favour, and you cannot increase the usefulness or extend the influence of any one of them without inciting the other two to fresh efforts. A Preceptors' mark-sheet, full of results, was lately shown to a member of the Cambridge Syndicate; the usefulness of such a document in the teacher's hands was pointed out to him; and he was asked —could not Cambridge give something of the same kind? His answer was, they could not put themselves to such trouble. But if, instead of examining half as many candidates again as Cambridge, the Preceptors were to examine twice as many, such a *non possumus* would soon be dropped, and a good examination turned into a better. J. S. Thornton.

THE LONDON MATHEMATICAL SOCIETY.

Thursday, Nov. 14th, 1889.—Sir J. Cockle, F.R.S., Vice-President, in the chair. Dr. W. Hoover, Professor of Mathematics and Astronomy, Ohio University, Athens, Ohio, U.S.A., and C. H. Thompson, B.A., Lecturer in Mathematics at St. David's College, Lampeter, were elected members, and Major D. D. T. O'Callaghan, R.A., Woolwich, were admitted into the Society.

The following gentlemen were elected on the Council for the ensuing session:—J. J. Walker, F.R.S., President; Sir James Cockle, Knt., F.R.S., E. B. Elliott, M.A., A. G. Greenhill, F.R.S., Vice-Presidents; A. B. Kempe, F.R.S., Treasurer; M. Jenkins, M.A., R. Tucker, M.A., Secretaries. Other Members of the Council:—A. B. Basset, F.R.S., Professor W. Burnside, M.A., Professor Cayley, Sc.D., F.R.S., J. W. L. Glaisher, Sc.D., F.R.S., J. Hammond, M.A., Joseph Larmor, D.Sc.,

C. Leudesdorf, M.A., Major P. A. MacMahon, R.A., Samuel Roberts, F.R.S.

The following papers were read:—"Isoscelian Hexagrams," R. Tucker, M.A.; "On Euler's ϕ-function," H. F. Baker, B.A. (communicated by M. Jenkins, M.A.), and Major P. A. MacMahon, R.A.; "On the Extension and Flexure of a thin Elastic Plane Plate," A. B. Basset, F.R.S.

MATHEMATICS.

10296. (Professor Crofton, F.R.S.)—Prove that (1) the number of ways (N) in which n things can be distributed among $x+r$ persons, in such a manner that *a particular set* of r persons must each receive something, is $N = \Delta^r x^n$; and hence (2) the number of ways in which n things can be distributed to r persons, each receiving something, is $N = \Delta^r 0^n$. [If $n < r$, $N = 0$; if $n = r$, $N = n!$]

Solution by Rev. T. R. Terry, M.A.; F. R. J. Hervey; *and others.*

For brevity, call a person who must receive something a restricted person, and let (r, x) be the number of ways of distributing n things (all different) among r restricted and x unrestricted persons; then, if $r = 0$, clearly, we have $(0, x) = x^n$.....(1).

To find (r, x), consider the effect of taking the restriction off a particular person A. Before removing the restriction there are r restricted and x unstricted persons, therefore (r, x) distributions. Afterwards there are $(r-1)$ restricted and $(x+1)$ unrestricted, therefore $(r-1, x+1)$ distributions. [The rest in Volume.]

9139 & 9190. (J. Brill, M.A.)—9139. A set of m points is taken on a parabola, having the point P for their centroid, and a second set containing n points is also taken, having the point Q for their centroid. Prove that the tangents at the extremities of the diameters through P and Q meet at the centroid of the mn points of intersection of the tangents at the m points with those at the n points.

9190. Three sets of points are taken on a parabola, the first containing l points, the second m points, and the third n points. P is the centroid of the l points, Q that of the m points, and R that of the n points, and O is the centre of the circumscribing circle of the triangle formed by the tangents at the extremities of the diameters through P, Q, R. Prove that O is the centroid of the centres of the circumscribing circles of the lmn triangles that can be formed by taking a tangent at one of the l points for one side, a tangent at one of the m points for a second side, and a tangent at one of the n points for a third side.

Solution by Professor Schoute.

Though both problems are easily verified directly we prefer to give a geometrical demonstration based on elementary properties of the parabola.

9139. In the first diagram M_1 and M_2 are two points of the set of m points, and B is the pole of M_1M_2. Now the parallelogram BA_1GA_2 described on the tangents BM_1 and BM_2, the free vertex G of which is any point of M_1M_2, determines a third tangent A_1A_2 of the parabola, and its point of contact C lies on the diameter of G. For, as

$$BA_1 : A_1M_1 = M_2A_2 : A_2B,$$

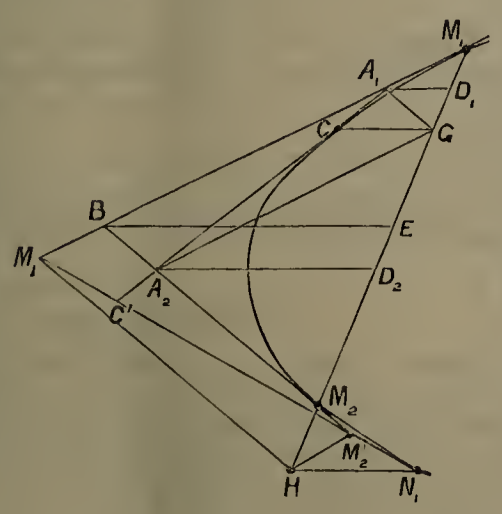


Fig. 1.

the line A_1A_2 touches the parabola; this curve, being the envelope of the join of corresponding points of two similar divisions and the join of the point of contact C with G, is a diameter of the parabola, as we have

$$A_1C : CA_2 = M_1A_1 : A_1B$$
$$= M_1G : GM_2 = D_1G : GD_2.$$

Let N_1 be a point of the set of n points, and M_1', C', M_2' the points where the tangent in N_1 is met by the tangent in M_1, C, M_2. Then

$$M_1G : GM_2 = M_1'C' : C'M_2'$$

proves that C' will be the centroid of the masses μ_1 and μ_2 placed in M_1' and M_2' when G is the centroid of those masses placed in M_1 and M_2.

[The rest in Volume.]

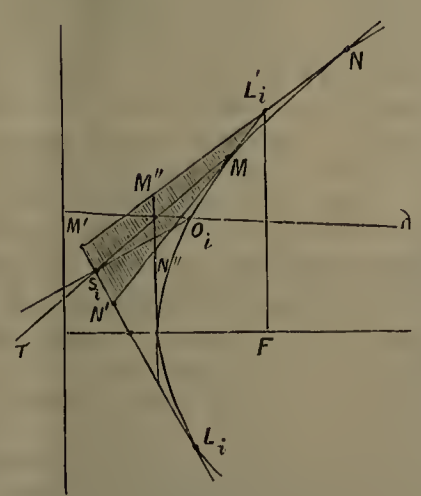
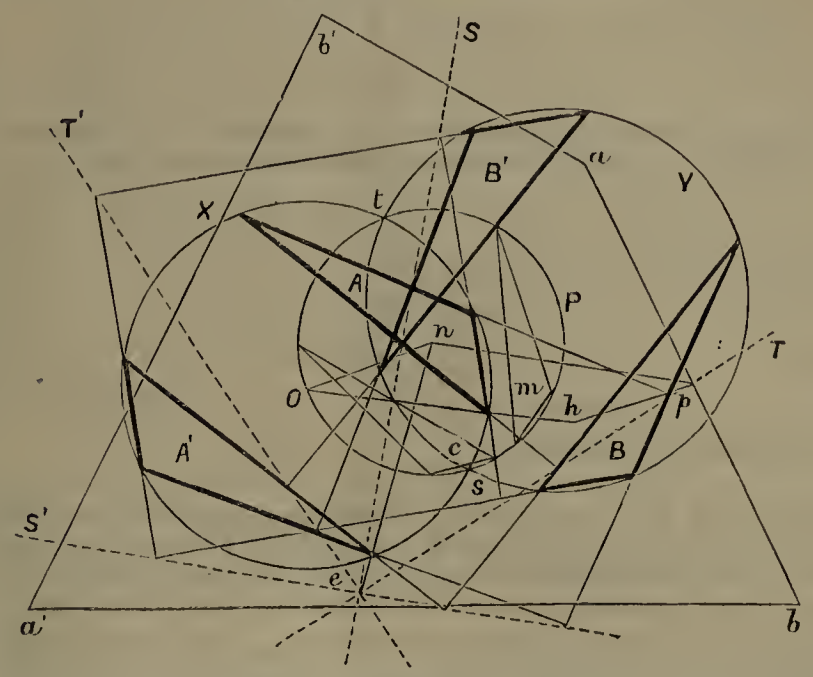


Fig. 2.

10015. (F. R. J. Hervey.)—If B be the triangle formed by perpendiculars to the sides of a given triangle A at their intersections with any transversal T, prove that (1) the circumcircles (X, Y) of A, B are orthogonal; (2) the distance between their orthocentres is bisected by T; (3) to a given orthogonal circle Y correspond two transversals T, S, each of which, if the centre (P) of Y describe a circle of radius k about that of X, envelopes a three-cusped hypocycloid the locus of whose centre, when k varies, is the straight line which bisects at right angles the distance between the circumcentre and orthocentre of A; (4) if P describe any curve, the intersection of S, T describes an orthogonal projection of a similar curve.

Solution by the Proposer.



If circles X, Y (centres O, P) intersect at s, t, inscribed figures A, B in perspective at t are similar; the same rotation, with expansion or contraction, about s which turns X into Y, turning A into B. Conversely, in the case in question, if A, T, and hence B, are given, and if the line joining any pair of corresponding vertices v, w of A, B meet X again at t, the orthogonal circle through t, w passes through the remaining vertices of B. [The rest Volume.]

10323. (A. W. Panton, M.A.)—If the general equation of a circular cubic be $(x\cos\alpha + y\sin\alpha)(x^2+y^2) + ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$, prove that (1) the coordinates of the double focus are

$$\tfrac{1}{2}(b-a)\cos\alpha - h\sin\alpha, \quad \tfrac{1}{2}(a-b)\sin\alpha - h\cos\alpha;$$

and (2) if the double focus of a nodal circular cubic be situated on the curve, the tangents at the node are rectangular.

Solution by Professor Sebastian Sircom, M.A.

1. The real asymptote is parallel to $x\cos\alpha + y\sin\alpha = 0$, and is found to be $L \equiv x\cos\alpha + y\sin\alpha + a\sin^2\alpha - 2h\sin\alpha\cos\alpha + b\cos^2\alpha = 0$; thus the equation may be written

$$L\left\{x^2+y^2-2x\left[\tfrac{1}{2}(b-a)\cos\alpha - h\sin\alpha\right] - 2y\left[\tfrac{1}{2}(a-b)\sin\alpha - h\cos\alpha\right]\right\} + k^2 M = 0,$$

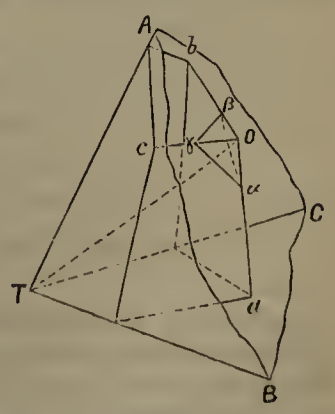
whence the coordinates of the focus are those given in the question.

[The rest in Volume.]

8943. (W. J. C. Sharp, M.A.)—The angle between the great circles bisecting two angles of a spherical triangle, which is subtended by the third side, is the supplement of the angle contained by the chords of the corresponding arcs of the polar triangle.

Solution by Professor Schoute.

Let T be the centre of the sphere, T (ABC) the solid angle corresponding to the given spherical triangle, and O any point of the line TO passing through the incircle of the spherical triangle. Let Oa, Ob, Oc be perpendicular to the planes TBC, TCA, TAB, and on these lines be taken $Oa = O\beta = O\gamma$. Then $\beta\gamma$, $\gamma\alpha$, $\alpha\beta$ are parallel to the chords of the polar triangle in question, and it is evident that these lines are respectively perpendicular to the planes TAO, TBO, TCO. And as the angle between two planes equals that formed by two perpendiculars on these planes, the theorem is proved.



[Mr. Sharp's Solution, not nearly so elegant as Professor Schoute's, was obtained by solving the triangle OBC (O being the incentre) so as to

find BOC, and comparing the result with the known angle between the chords. See TODHUNTER's *Spherical Trigonometry*, p. 73.]

10320. (The EDITOR.)—Show that the values of x, y, z, from the equations

$$a(x-y+z)^{\frac{1}{2}}(x+y-z)^{\frac{1}{2}} = xy^{\frac{1}{2}}z^{\frac{1}{2}},\quad b(x+y-z)^{\frac{1}{2}}(-x+y+z)^{\frac{1}{2}} = yx^{\frac{1}{2}}z^{\frac{1}{2}},$$

$$c(-x+y+z)^{\frac{1}{2}}(x-y+z)^{\frac{1}{2}} = zx^{\frac{1}{2}}y^{\frac{1}{2}},$$

are $$\frac{a}{bc}(b^2+c^2-a^2),\quad \frac{b}{ca}(c^2+a^2-b^2),\quad \frac{c}{ab}(a^2+b^2-c^2).$$

Solution by D. J. GRIFFITHS; C. MORGAN, M.A.; *and others.*

By multiplication, $(x-y+z)^{\frac{1}{2}}(x+y-z)^{\frac{1}{2}}(-x+y+z)^{\frac{1}{2}} = \dfrac{\pm xyz}{(abc)^{\frac{1}{2}}}$.

Dividing the corresponding members of this equation by the corresponding members of each of given equations, and squaring, we have

$$-x+y+z = \frac{ayz}{bc},\quad x-y+z = \frac{bzx}{ca},\quad x+y-z = \frac{axy}{ab}.$$

Adding the first two equations, we obtain

$$2z = z\left(\frac{ay}{bc}+\frac{bx}{ca}\right);$$

therefore $$z = 0 \text{ or } a^2y+b^2x = 2abc.$$

Similarly, $x = 0$ or $b^2z+c^2y = 2abc$, $y = 0$ or $c^2x+a^2z = 2abc$,

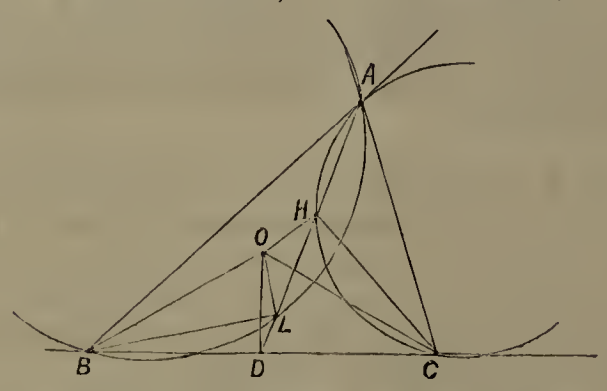
whence follows the stated result.

10281. (E. M. LANGLEY, M.A.)—Circles are described to touch AB, AC, at A, and pass through C and B respectively. If the median through A meets these circles again in H and L, show that these points are equidistant from the circumcentre of ABC. Show also that BL = CH.

Solution by G. G. STORR, M.A.; D. T. GRIFFTHS, M.A.; *and others.*

We have $\angle BLD = 180° - BLA = BAC$;

similarly, $\angle CHD = BAC$; $\therefore\ \angle BLD = BOD$;



hence a circle will go round BOLD; $\therefore\ \angle OLH = OBD = 90° - BAC$;

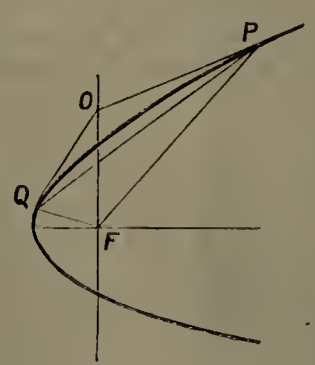
similarly, $\angle OHL = 90° - BAC$; $\therefore\ OH = OL$.

Also $\angle OLB = 90° = OHC$ and $OB = OC$; $\therefore\ BL = CH$.

10215. (R. KNOWLES, B.A.)—From a variable point O on the latus rectum of a parabola, whose focus is F, tangents are drawn to meet the curve in P, Q; prove that the locus of the centre of the circle PQF is a semi-cubical parabola.

Solution by Rev. J. L. KITCHIN; Rev. T. GALLIERS; *and others.*

Take $FO = k_1$ – a variable; then the equation to PQ is $ky = 2a(a+x)$; and if (α, β) be the coordinates of the centre of the circle round PFQ, we easily obtain the relations



$$k^3-(k^2-4a^2)^{\frac{1}{2}}\{k^2+4a(a-\alpha)\}-8a^2\beta = 0,$$

$$k^3+(k^2-4a^2)^{\frac{1}{2}}\{k^2+4a(a-\alpha)\}-8a^2\beta = 0;$$

whence $$k^3 = 8a^2\beta,$$

$$ak^2+4a(a-\alpha) = 0;$$

thus $$(\alpha-a)^3 = a\beta^2,$$

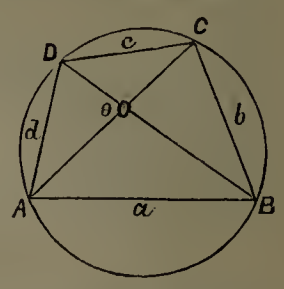
is the locus of centres, a semi-cubical parabola.

10199. (D. T. GRIFFITHS.)—If circles can both be drawn round and in a quadrilateral whose sides are a, b, c, d, and the angle between the diagonals θ, prove that, if $\theta < \frac{1}{2}\pi$,

$$\left(\frac{bd}{ac}\right)\theta = 2-\tfrac{2}{3}\left(\frac{ac}{bd}\right)+\tfrac{2}{5}\left(\frac{ac}{bd}\right)^2-\tfrac{2}{7}\left(\frac{ac}{bd}\right)^3+\&c.$$

Solution by W. J. GREENSTREET; Rev. J. L. KITCHIN; *and others.*

If $A+C = B+D = \pi$, and $a+c = b+d$, the area,



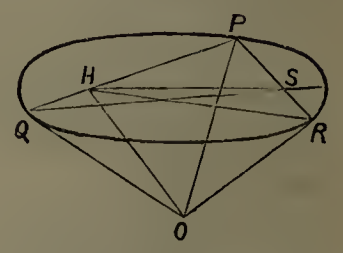
quadrilateral $= \frac{1}{2}(ac+bd)\sin\theta = (abcd)^{\frac{1}{2}}$,

$$\therefore\quad \tan\theta = 2\left(\frac{ac}{bd}\right)^{\frac{1}{2}}\Big/\left(\frac{ac}{bd}-1\right);$$

hence, expanding θ in terms of $\tan\theta$, and arranging coefficients, we get the stated result.

10202. (MAURICE D'OCAGNE.)—Si les cordes PQ, PR d'une conique passent par les foyers de cette conique, démontrer que la normale à la conique en P et ses tangentes en Q et en R sont concourantes.

Solution by E. M. LANGLEY, M.A.; J. C. ST. CLAIR; *and others.*

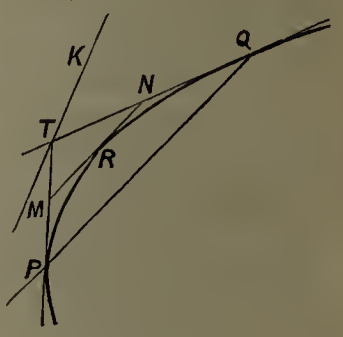


Let the tangents at Q, R meet in O; then $\angle OHR = OHQ$, *i.e.*, OH is the external bisector of $\angle PHR$. Also OR is external bisector of $\angle PRH$; therefore OP is internal bisector of $\angle P$. Therefore OP is normal at P.

10248. (R. KNOWLES, B.A.)—Tangents TP, TQ meet a parabola in P, Q; the diameter through T meets the curve in R; the tangent at R meets TP, TQ in M, N, respectively; prove that the circles TPQ, TMN touch at the point T.

Solution by G. G. MORRICE, M.B.; R. WHAPHAM, B.A.; *and others.*

Through T draw a tangent TK to the circle TPQ; therefore $\angle KTQ = \angle TPQ$. Now we know that MN is parallel to PQ;



therefore $\angle TMN = \angle TPQ$,

therefore $\angle KTQ = \angle TMN$,

therefore TK is a tangent to the circle TMN, at T; therefore, &c.

[As M and N are the mid-points of the segments TP and TQ, the circle TPQ is obtained by the multiplication of the radii vectores of the circle TMN by two, T being the origin of radii vectores; therefore, &c.]

10291. (L. W. ROBINSON, B.A.)—If R be radius of circumcircle of a triangle, and ∂, ∂_1, ∂_2, ∂_3 the distances of its centre from escribed centres, prove that $$\partial^2+\partial_1^2+\partial_2^2+\partial_3^2 = 12R^2.$$

Solution by Rev. T. R. TERRY, M.A.; J. C. HOROBIN, M.A.; *and others.*

It is well known that $\partial^2 = R^2-2Rr$, and $\partial_1^2 = R^2+2Rr_1$, &c.; whence, adding and remembering that $r_1+r_2+r_3-r = 4R$, we get the result.

QUESTIONS FOR SOLUTION.

10376. (Professor SYLVESTER.)—If ϕ, ψ, ω are three algebraic functions of x, y, y', y'', such that ϕ', ψ', ω' contain a common factor $\theta(x, y, y', y'', y''')$, show that the complete primitive of $F(\phi, \psi, \omega) = 0$, where F is any function-form, may be found algebraically. [Prof. SYLVESTER remarks that this Question is an extension of a well-known principle of LAGRANGE and that it may itself be indefinitely extended in more than one direction.]

—377. (Professor NASH, M.A.)—If I, I′ are the inverse BROCARD-points of a triangle ABC—the inverses of ww' with respect to the circumcircle [see Quest. 9313. not yet solved]—show that the triangles AII′, BII′, CII′ are similar to ABC. [This gives a much simpler method than that of Quest. 8987, also unsolved, for constructing the triangle when the circumcircle, the BROCARD-points, and one angle are given, and also a very simple proof of Mr. SIMMONS' unsolved Quest. 8732.]

—378. (Professor WOLSTENHOLME, M.A., Sc.D.)—From a point O are drawn straight lines OP, OP′ touching a given parabola in P, P′; find (1) the locus of O when the ratio OP : OP′ is given; also prove that (2) this locus cuts the directrix at right angles in two points; (3) if from either of these points O the tangents OP, OP′ meet the latus rectum in L, L′, and LQ, L′Q′ be also tangents in Q, Q′ to the parabola,

$$OP : OP' = LP : LQ = L'Q' : L'P';$$

and (4) the focal distance of any point on the locus will be the least possible when the point lies on the tangent at the vertex of the parabola (being the point of contact of a common tangent to the locus and to the parabola), and this minimum distance bears to the distance between focus and vertex the given ratio of the tangents.

10379. (Professor de Longchamps.)—Résoudre les équations

$$(2x+b+c)(2x+c+a)(2x+a+b)+(x+a)(x+b)(x+c) = 0,$$

$$8(x+a)(x+b)(x+c)+(x+b+c-a)(x+c+a-b)(x+a+b-c) = 0,$$

$$8(x+b+c-a)(x+c+a-b)(x+a+b-c)$$
$$+(x+3a-b-c)(x+3b-c-a)(x+3c-a-b) = 0;$$

et trouver la *clef* qui permet de former, en nombre indéfini, les équations du même genre.

—380. (Professor Neuberg.)—On donne, dans un même plan, deux triangles ABC, A′B′C′. Trouver trois masses α, β, γ, qui, appliquées respectivement soit en A, B, C, soit en A′, B′, C′, admettent le même centre de gravité.

—381. (Professor Syamadas Mukhopâdhyây, B.A.)—Three double tangents PQ′, QR′, RP′ to three circles PP′, QQ′, RR′ intersect in a triangle ABC, AB, BC, CA being reckoned positive in the directions PQ′, QR′, RP′; prove that, (1) if an odd number of the double tangents be inverse, one of the following relations must hold,

$$(PQ'-AB) \pm (QR'-BC) \pm (RP'-CA) = 0;$$

(2) if one of these relations hold for three double tangents, the same relation will hold for the other three double tangents which pair with them; and (3) the following is not true unless the triad contains an odd number of inverse common tangents: "If pairs of common tangents be drawn to three circles, and if one triad of common tangents be concurrent, the other triad will also be concurrent." (Casey's *Sequel*, Bk. III., Sec. II., Ex. 48.)

—382. (Professor Schoute.)—Given a system of three rectangular coordinate axes OX, OY, OZ, and a point P. Any plane through P meets the axes in A, B, C. Show that the locus of the point P′, isogonally conjugate to P with respect to the triangle ABC, is a surface of the third order, and discuss its character according to nodal points and right lines.

—383. (Professor Crofton, F.R.S.)—If n persons stand in a row, prove that (1) the number (N) of ways in which m things can be distributed among them, in such a manner that no two consecutive persons are passed over, is

$$N = \Delta^n 0^m + n\Delta^{n-1}0^m + \frac{(n-1)(n-2)}{1\,.\,2}\Delta^{n-2}0^m$$
$$+\frac{(n-2)(n-3)(n-4)}{1\,.\,2\,.\,3}\Delta^{n-3}0^m + \ldots;$$

and hence (2), n being large, if an event is found to occur m times in a period of n years, and never to fail for two years running, the problem of finding the probability of it failing to occur in a given year can be reduced to an equation in Finite Differences. [n being large.]

—384. (Professor Gay.)—On a une circonférence O et deux points fixes A, B sur un diamètre. On mène un second diamètre PQ, et par les points PAO, QBO on fait passer deux circonférences O_1, O_2. Trouver le lieu du centre radical des circonférences O, O_1, O_2 quand PQ tourne autour du point O.

—385. (Professor Gob.)—Soit ABCD un parallélogramme quelconque, et soient A′, B′, C′ les seconds points de rencontre des droits DA, DB, DC avec la circonférence circonscrite au triangle ABC. Démontrer que la droite A′D est la moyenne géométrique, en grandeur et en position, des droites A′C et A′B′.

—386. (Professor Morley.)—Prove that all maximum triangles in a given ellipse have equal Brocard-angles.

—387. (The Editor.)—Solve the equations

$$x^2(y-z) = a, \quad y^2(z-x) = b, \quad z^2(x-y) = c.$$

—388. (J. J. Barniville.)—Prove that the formula for

$$[1^2]\,2^{-0}+[1^2+2^2]\,2^{-1}+[1^2+2^2+3^2]\,2^{-2}+\ldots = 24,$$

$$[1\,.\,1^2]\,2^{-0}+[2\,.\,1^2+1\,.\,2^2]\,2^{-1}+[3\,.\,1^2+2\,.\,2^2+1\,.\,3^2]\,2^{-2}+\ldots = 48,$$

$$[1\,.\,1^2]\,2^{-0}+[3\,.\,1^2+1\,.\,2^2]\,2^{-1}+[6\,.\,1^2+3\,.\,2^2+1\,.\,3^2]\,2^{-2}$$
$$+[10\,.\,1^2+6\,.\,2^2+3\,.\,3^2+1\,.\,4^2]\,2^{-3}+\ldots = 96,$$

$$[1\,.\,1^2]\,2^{-0}+[4\,.\,1^2+1\,.\,2^2]\,2^{-1}+[10\,.\,1^2+4\,.\,2^2+1\,.\,3^2]\,2^{-2}$$
$$+[20\,.\,1^2+10\,.\,2^2+4\,.\,3^2+1\,.\,4^2]\,2^{-3}+\ldots = 192.$$

—389. (A. E. Jolliffe.)—If r is the radius of the circle

$$a^2yz+b^2zx+c^2xy+(px+qy+rz)(x+y+z) = 0,$$

and R the radius of the circumcircle of the triangle of reference, prove that

$$r^2 = 4R^2\,(\text{discriminant})/(a^2b^2c^2).$$

—390. (E. Césaro.)—Démontrer que la chaînette d'égale résistance, qui a pour équation intrinsèque $\rho = \frac{1}{2}a\,(e^{s/a}+e^{-s/a})$, est la seule ligne dont le rayon de courbure soit égal au segment de la normale, intercepté par deux droites fixes parallèles.

—391. (E. Lemoine.)—Soient ABCD un quadrilatère, AB et CD, BC et DA les couples de côtés opposés se coupant respectivement en λ et μ, ω et ω' des points divisant harmoniquement $\lambda\mu$. Démontrer que la conique qui passe par les six points A, B, C, D, ω, ω' est le lieu des points de contact des tangentes menées par ω et ω' à toutes les coniques inscrites dans le quadrilatère ABCD.

10392. (Artemas Martin, LL.D.)—A coin of unknown radius is dropped horizontally into a circular box, radius r; find the probability that the centre of the bottom of the box is covered by the coin.

—393. (Rev. G. Richardson.)—If the transversals AD, BE, CF of the triangle ABC divide the opposite sides in the ratios $l:1$, $m:1$, $n:1$, respectively, prove that (1) the area of the triangle they form : area ABC

$$= (lmn-1)^2 : (mn+m+1)(nl+n+1)(lm+l+1);$$

(2) the two triangles are similar if

$$(l+1)(mn+m+1),\ (m+1)(nl+n+1),\ (n+1)(lm+l+1)$$

are in the duplicate ratios of the sides of ABC; and (3) if any one of the transversals is trisected by the other two, $4lmn = 1$.

—394. (Rev. T. R. Terry, M.A., F.R.A.S.)—A uniformly thin hemispherical shell, of radius a and mass M, attracts (according to the law of nature) a particle which is attached to the centre of the hemisphere by a string whose length l is less than a. If the particle be slightly displaced from the position of equilibrium, the string remaining tight, find the time of a small oscillation. Hence show that, if a particle resting on the inside of the hemispherical shell described in Quest. 10326 be slightly displaced from the position of equilibrium, the particle remaining in contact with the surface, then the time of a small oscillation is approximately 7·9 years.

—395. (V. Retali.)—Deux droites qui se coupent en un point O sous un angle de 30°, forment avec les droites isotropes menées par O, un faisceau équianharmonique, c'est-à-dire tel que les trois rapports anharmoniques fondamentaux du faisceau sont égaux. En conclure une construction simple du point qui, avec trois points donnés, dont deux sont imaginaires conjugués, forme un groupe équianharmonique.

—396. (Maurice d'Ocagne.)—Etant donné un triangle ABC, soit I le point de rencontre de la conjuguée harmonique de la hauteur AH par rapport aux côtés AB et AC, et de la parallèle menée par le milieu M de BC à la bissectrice, intérieure ou extérieure, de l'angle BAC. Démontrer que, si la perpendiculaire menée par I à BC coupe AB en B′ et AC en C′, on a BB′ = CC′.

—397. (M. Boulanger.)—Mener par un point fixe une droite qui intercepte, entre une droite fixe et deux droites parallèles entre elles dont l'une passe par le point fixe, deux triangles dont la somme des surfaces soit minimum.

—398. (Capitaine de Rocquigny).—En un point quelconque M d'un quadrant de cercle AB, on mène une tangent, rencontrant le rayon OA en N. On élève sur OA la perpendiculaire NT = NM, et l'on joint AT, MT. Démontrer que (1) MT passe par un point fixe; (2) le lieu de T est une hyperbole équilatère (théorème connu); (3) le point d'intersection des droites NM et AT se meut sur une hyperbole.

—399. (F. R. J. Hervey.)—Of the three quadrilaterals formed by four lines, let X, Y denote any two, each with a definite sense of description; and let p, q, r, s be the ratios of the sides of Y, taken in order, to the corresponding (that is, collinear) sides of X. Prove that, provided we start with that line on which the sides of X and Y are represented with their proper sense by LM, MN, respectively, we have the relations $(q-p-1)(r-s-1) = 1$, $qr = ps$.

—400. (D. Biddle.)—Three equal spheres touch each other. Find the probability that the plane which cuts one cuts all.

—401. (W. J. Greenstreet, M.A.)—Prove that a train in motion meets with greater resistance from a *cross*-wind, than from a *head*-wind.

—402. (E. M. Langley, M.A.)—PQ any diameter of one of two circles which cut orthogonally, cuts the common chord at 1 and the other circle in C. If AB is any chord of the first circle through 1, show that C1 is a symmedian of the triangle ABC.

—403. (J. C. St. Clair.)—Two unequal circles roll with equal angular velocity on a fixed straight line. Show that in every case the envelop of their radical axis is a parabola.

—404. (J. O'Byrne Croke, M.A.)—Simplify as much as possible

$$\begin{vmatrix} \dfrac{r_1}{r-r_1}, & \dfrac{s_1}{s-s_1}, & \dfrac{rs-r_1s_1}{(s-r)(s_1-r_1)} \\[2ex] \dfrac{r_2}{r_1-r_2}, & \dfrac{s_2}{s_1-s_2}, & \dfrac{r_1s_1-r_2s_2}{(s_1-r_1)(s_2-r_2)} \\[2ex] \dfrac{r_1}{r-r_3}, & \dfrac{s_1}{s-s_3}, & \dfrac{rs-r_3s_3}{(s-r)(s_3-r_3)} \end{vmatrix}.$$

—405. (R. W. D. Christie.)—Prove that

$$(13p-4^nr)\,10^{6m+n}+r \equiv 13R,$$

where m, n, p, r may be any integer whatever.

—406. (Asparagus.)—If at each point P of the curve $r = 8a\cos^3\frac{1}{3}\theta$ we take a length PQ = $3a$ along the normal at P towards the centre of curvature, the locus of Q will be a two-cusped epicycloid generated by a

circle of radius a rolling on a fixed circle of radius $2a$, the centre of this fixed circle being at a distance a from the origin. [The evolute of the curve $r = 8a\cos^3\frac{1}{3}\theta$ is a similar epicycloid of half the linear dimensions.]

10407. (Alpha.)—Prove that

$$\int_0^1 \log(1+x)(\log x)^2\frac{dx}{x} = \frac{\pi^4}{1440}, \quad \int_1^0 \log(1-x)(\log x)^2\frac{dx}{x} = \frac{\pi^4}{90},$$

$$\int_0^1 \log\left(\frac{1+x}{1-x}\right)(\log x)^2\frac{dx}{x} = \frac{\pi^4}{720}.$$

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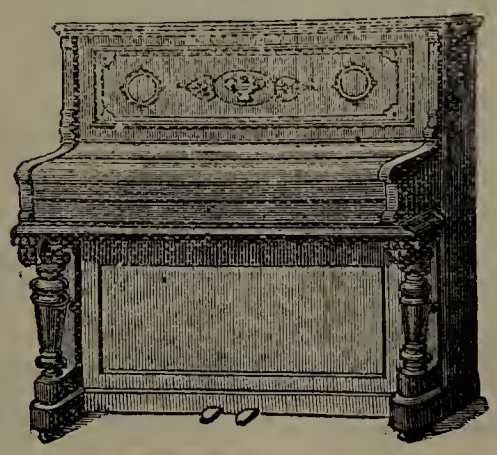

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THE

EDUCATIONAL TIMES,

AND

Journal of the College of Preceptors.

Vol. XLIII.] New Series, No. 345. JANUARY 1, 1890. {Registered for Transmission Abroad} *Price to Non-Members, 6d. By Post, 7d.*

COLLEGE OF PRECEPTORS.—The Half-Yearly General Meeting of the Members of the Corporation will be held at the College, Bloomsbury Square, W.C., on Wednesday, the 22nd of January, at 2 p.m. C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—EXAMINATIONS FOR 1890.

1. DIPLOMAS.—The Midsummer Examination of Teachers for the Diplomas of the College will commence on the 1st of July, and the Christmas Examination on the 30th of December.

2. CERTIFICATE EXAMINATIONS.—The Midsummer Examination for Certificates will commence on the 17th of June, and the Christmas Examination on the 9th of December.

N.B.—The Higher Certificates of the College are recognised by Her Majesty's Judges, and by the General Medical Council, as guarantees of good general education; and consequently the holders of them, who may be intended for the Legal and Medical Professions, are exempted from the necessity of submitting to the Preliminary Literary Examinations held by the Incorporated Law Society, and by the various Medical Corporations of the United Kingdom. The Lords of the Committee of Council on Education admit the holders of the same Certificates, without further examination, to the Competition for allowances granted to Students of the Junior Training Class of the National Art Training School. All the College Certificates above the Third Class, the holders of which have passed an Examination in Latin, are also recognised by the Pharmaceutical Society and the Royal Veterinary College.

3. EXAMINATIONS FOR CERTIFICATES OF PROFICIENCY IN MERCANTILE SUBJECTS.—The next Examination will take place on the 16th of June.

4. PROFESSIONAL PRELIMINARY EXAMINATIONS.—These Examinations are held in March and September. The next Examination will commence on the 4th of March.

5. INSPECTION OF SCHOOLS.—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

PRIZES.

Diploma Examination.—In addition to the Doreck Scholarship of £20, the following Prizes will be competed for: Theory and Practice of Education, £10; Classics (Greek and Latin), £5; Mathematics, £5; Physical Science, £5.

Certificate Examination.—The "Isbister Prize" will be awarded to the Candidate who stands First, and the "Pinches Memorial Prize" to the Candidate who stands Second in General Proficiency. Prizes of Books will also be awarded to the Third and Fourth in General Proficiency, and to the First and Second in the following subjects:—Classics, Mathematics, Modern Languages, Natural Science, English Subjects. The "Taylor Jones Memorial Prize" will be awarded to the best Candidate in Scripture History.

The Regulations of the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

PRELIMINARY EXAMINATION of MEDICAL STUDENTS.—The COLLEGE of PRECEPTORS will hold an Examination for Certificates recognised by the General Medical Council as qualifying for Registration as a Medical Student, on the 4th, 5th, and 6th of March, 1890.

The Examination will take place in London, and at the following Local Centres:—Birmingham, Bristol, Leeds, Liverpool.

Examination Fee, 25s.

Regulations and Entry Forms may be obtained on application to the Secretary of the College of Preceptors, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

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THE UNIVERSITY OF ST. ANDREWS grants Diploma and Title of L.L.A. to WOMEN. *Subjects of Examination and Examination Papers* include those for the M.A. Degree. For Prospectuses, apply to the SECRETARY L.L.A. Scheme, The University, St. Andrews, N.B.

COLLEGE OF PRECEPTORS.—A *CONVERSAZIONE* will be given by the President and Council of the College, at University College, Gower Street, W.C. (by the kind permission of the Council of University College), on Tuesday, the 14th of January, at 8 p.m. C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—ANNUAL DINNER (1890).

The Dinner will be held at the Holborn Restaurant, January 22nd, at 5.30 p.m. Ladies and Gentlemen who are Members of the College may obtain tickets (5s. each) up to January 21st, on application to the Secretary, College of Preceptors, Bloomsbury Square, W.C. Every Member has the privilege of introducing *one* friend, for whom a ticket must be obtained on or before January 18th.

Evening dress is not requisite.

EDWARD PINCHES, JOHN STEWART, } *Hon. Secs.*

COLLEGE OF PRECEPTORS.—SCHOLARSHIPS FOR INTENDING TEACHERS.

With the view of encouraging the systematic training of teachers for their profession, the Council have established four Scholarships (two for male and two for female candidates), which will be offered for competition at the Certificate Examination in June, 1890.

The value of each of these Scholarships is £45 for a single year, or £30 a year for two years, if the candidate should determine to extend the period of training over more than one year.

The Scholarships are tenable

(*a*) At any Training College for Teachers in Secondary Schools, either at home or abroad, that may be approved by the Council; or

(*b*) At any school of established reputation, approved by the Council, which is prepared to offer such facilities for training as may be satisfactory to the Council; it being open to the Council to require the attendance of the scholar at such lectures on the Theory and Practice of Education, and to require him or her to pass such examinations in the Science and Art of Teaching, as the Council may determine.

Candidates (who must not be under 18 or over 24 years of age at the date of the Examination) are required to declare their intention of competing for these Scholarships prior to the Examination, and to submit such testimonials of character as may be considered satisfactory by the Council.

The Scholarships will be awarded to those candidates who, having fulfilled the above conditions, obtain the highest places in the Honours Division of the First Class. C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—(BLOOMSBURY SQUARE, W.C.)

LECTURES FOR TEACHERS.

SEVENTEENTH SESSION.

The First Course of Lectures (Seventeenth Annual Series), by JAMES SULLY, M.A., LL.D., Late Examiner in Mental and Moral Science in the University of London, on "The Theory of Education," will commence on Thursday, February 13th, at 7 p.m.

In these Lectures the scientific principles underlying the Teacher's Art will be fully dealt with, and always in their direct bearing on the practical work of teaching. Important questions, as the proper way of estimating knowledge, and the right order of studies, will be explained and discussed, and the whole subject illustrated as far as possible by historical references to views of leading writers on Education. Pains will be taken to make the various points handled as simple as possible, and students will be aided by the setting of written exercises upon the subjects of the lectures, by directions as to reading, and, so far as time allows, by oral explanation of different points.

For Syllabus see page 43.

The Fee for the Course is Half-a-guinea.

The Lectures will be delivered on Thursday Evenings, at 7 o'clock, at the College, Bloomsbury Square, W.C.—Members of the College have Free admission to all the Courses of Lectures.

C. R. HODGSON, B.A., *Secretary.*

NOTICE.—The "EDUCATIONAL TIMES" for FEBRUARY will contain the CLASS LISTS of CANDIDATES who have passed at the recent CHRISTMAS EXAMINATIONS of the College of Preceptors. The Volume for 1889 is now ready, price 7s. 6d. Cases for binding the Volume may also be had, price 1s. 6d.; by post, 1s. 8d.

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Communications regarding Examinations, Attendance, and University business generally, should be addressed, The REGISTRAR, Victoria University, Manchester.

The Calendar (price 1s.), containing the Regulations, Copies of Examination Papers, Lists of Graduates, &c., is published by Mr. J. E. CORNISH, Manchester, and by Messrs. MACMILLAN & Co., London.

CAMBRIDGE HIGHER LOCAL EXAMINATIONS.—Some Vacancies occur for Students in the MARIA GREY COLLEGE, 5 Fitzroy Street. Classes for various Groups and Instruction in Teaching. New Term, January 14. Conditions of PRINCIPAL.

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(For other advertisements see pp. 3 and 2).

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THE PROGRAMME of these Examinations has been so modified that the Junior and Senior Certificates now correspond as nearly as possible with the Government Leaving Certificates for Secondary Schools in Scotland. The Junior Certificate qualifies *pro tanto* for the Medical Preliminary Examination.

Regulations and programme may be had on application to the Clerk of Senatus.

A copy of the Annual Report will be sent to Headteachers on application to the Assistant Secretary, who will also supply what further information may be desired.

H. CALDERWOOD, LL.D., } *Joint*
S. S. LAURIE, LL.D., } *Secretaries.*
W. MITCHELL, M.A., *Assist. Secretary.*

Edinburgh University, November, 1889.

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TWO ENTRANCE SCIENCE SCHOLARSHIPS, of 125 guineas and £60 respectively, open to all first-year students, will be offered for competition in September, 1890.

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Prospectuses and all particulars may be obtained from the Medical Secretary, Mr. GEORGE RENDLE.

E. NETTLESHIP, *Dean.*

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GRAY'S INN ROAD, LONDON, W.C.
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Full particulars may be obtained on application to the Secretary.

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Twenty-fourth Session.

A New Course of Lectures open to Teachers and Governesses will commence on MONDAY, 27th JANUARY, 1890, and terminate at EASTER.

The Class will meet on Mondays and Thursdays, from 7 to 8.30 p.m.

Fee for the Course, payable at the first Lecture, £1. 10s.

An Examination will be held at the close, and a Certificate granted to those who prove their efficiency.

Intending Students must apply to the Secretary for a form of admission.

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BRISTOL.

The SECOND TERM will begin on Jan. 21st. The College supplies for persons of either sex, above the ordinary school age, the means of continuing their studies in Science, Languages, History, and Literature. The Chemical, Physical, Engineering, Geological, and Biological Laboratories are open daily. The Engineering Department includes Civil, Mechanical, Electrical, and Mining Engineering and Surveying; and special arrangements for practical work have been made with various Engineers in and near Bristol. Information with regard to the lodging of Students may be obtained on application. Several SCHOLARSHIPS are tenable at the College.

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SOCIETY OF APOTHECARIES OF LONDON.—The next EXAMINATION in ARTS will be held at their Hall, Blackfriars, E.C., on Friday and Saturday, the 7th and 8th March, 1890.

This Examination will qualify Candidates for registration as Medical Students.

A Syllabus of the subjects, which, according to the regulations of the General Medical Council, may be passed at one or more examinations, can be had on application. An Examination in Arts will again be held on the 6th and 7th June, 1890.

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Tickets 2s. each. Apply to Miss BARRETT, at the School.

FROEBEL SOCIETY'S SATURDAY LECTURES, CHARING CROSS.—The SPRING COURSE, 1890, on Kindergarten Gifts and Occupations and Blackboard Drawing, begins January 25th. E. Cooke, Esq., will also give a course of Evening Lessons on the Observation of Plants. Particulars to be had from the SECRETARY, 17 Buckingham Street, Adelphi.

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The Educational Times.

COLLEGE OF PRECEPTORS.

EVENING MEETING, DECEMBER 18TH, 1889.

The Chair having been taken by ALEXANDER J. ELLIS, Esq., M.A., F.R.S., W. H. WIDGERY, Esq., M.A., read the following Paper:—

CLASS TEACHING OF PHONETICS AS A PREPARATION FOR THE PRONUNCIATION OF FOREIGN LANGUAGES.

THE great advances made during the last twenty years in the science of language are mainly due to the recognition of the importance of phonetics. Without phonetics, philology must remain a confused mass of disjointed facts, incapable of harmonious arrangement. To thread our way through the labyrinth we need a knowledge of the formation of the sounds of language, a knowledge to be won from the living: the dead can give us only letters.

The first article in modern method is this fruitful and fundamental truth: The unit in language is the spoken sentence. Ready as we may be to assent to what seems so simple and obvious, further reflection will show clearly that this truth means a complete revolution in our method of teaching. The unit in *language* is the spoken sentence. A favourite argument to shore up a tottering cause is the claim for the retention of Latin on the ground that it gives us a more lively and intimate sense of the meaning of many English words. Language, then, has something to do with the action of the tongue: how much were we told of this action when we began our *Primer?* The meaning of a word is determined mainly, not by its derivation, but by the psychologic habits of the borrowing nation. In the educational world are many women as nice as they are learned. It is no help, but a hindrance, to be fully alive to the derivation of *nice* from *nescius*, ignorant. The unit in language is the *spoken* sentence. If we want to solve the problems of Greek and Latin grammar, we must study modern dialects; to understand the effect of Norman-French on English at the Conquest, we must turn our attention to the inverse conditions now existing in modern Canada. The unit in language is the spoken *sentence*. So we shall put the grammar and the exercise book last, not first; we do not build up our sentences, mosaic-like, by a multitude of rules, but we deduce them from the mouth of the teacher.

What, then, is a sentence? A sentence is the manifestation, through the organs of speech, of the thoughts or feelings of a speaker, made in such a way as to be understood by the hearer.

Now we can analyse a sentence in different ways. If we take the logical side and pick out the separate ideas, we arrive gradually at the vocabulary; this analysis of a sentence into single words is no easy matter, as missionaries have often found. By directing our attention to the way in which the words are connected in meaning we arrive at a syntactical analysis.

For a phonetic analysis we leave the meaning entirely on one side, and attend only to the sound-groups and the manner of their production. It is a very useful exercise to go to a public meeting and to pay no heed to what is said, but only to *how* it is said. We shall soon find, as Mr. Sweet puts it, that the "correct speaker," like the sea-serpent, is often heard of, but never seen.

Treating speech as consisting only of sounds, the ear is conscious of a rhythmic flow of them uttered with varying force and at various pitches, and separated by bars of rest.

The superiority of poetry over prose is due to the more skilful interchange of the logical divisions into words, with the pauses of the rhythm: when they coincide too frequently, the sentence falls to pieces. The just counterpoise of meaning and music marks the poet.

As we listen, we hear that certain sounds are struck with greater stress; others are of a higher pitch. In English, stress and pitch run together: languages like French, where the stress is far more even and the pitch more variable, are peculiarly difficult to an English ear and tongue.

Whenever we are conscious of a change in the stress or the pitch we have the limits of a syllable: in each syllable the ear picks out one of the sounds as fuller and more powerful than the others, this sound is called a vowel, or more correctly a sonant, as distinguished from the other consonants. Whether a particular sound is a "vowel" or not depends entirely on its surroundings. In *ankle*, *l* is a sonant, but in *anklet* a consonant; in *pst*, *s* is the sonant or vowel. In this way we arrive ultimately at the single sounds of a language: the sentence is broken up into rhythmic groups, each group into syllables, each syllable into sounds either sonant or consonant.

In striving to improve the pronunciation of a large class in German, I found I could get the sounds produced rightly at times by persistent insistance; but the moment the attention was taken off, the English habit reasserted itself, and I began to feel that if the teaching of pronunciation was to be something less than a Sisyphus piece of labour, it was imperative to begin on English. The English sounds at least were certain, and by practising on them some idea of the formation of sounds in general might be arrived at. We can only hope to obviate English habits by a thorough drill of the organs of speech.

We begin by writing on the board the words—

thin — then
seal — zeal
rush — rouge
fish — vision.

The tendency to imitation is so strong in children that in phonetic work it is advisable to have the answers given at first in chorus. Let your best boy repeat alone, and then pitch on your worst: if he fails you can bring down on him a deluge of sound by simply saying, "Tell him, the class."

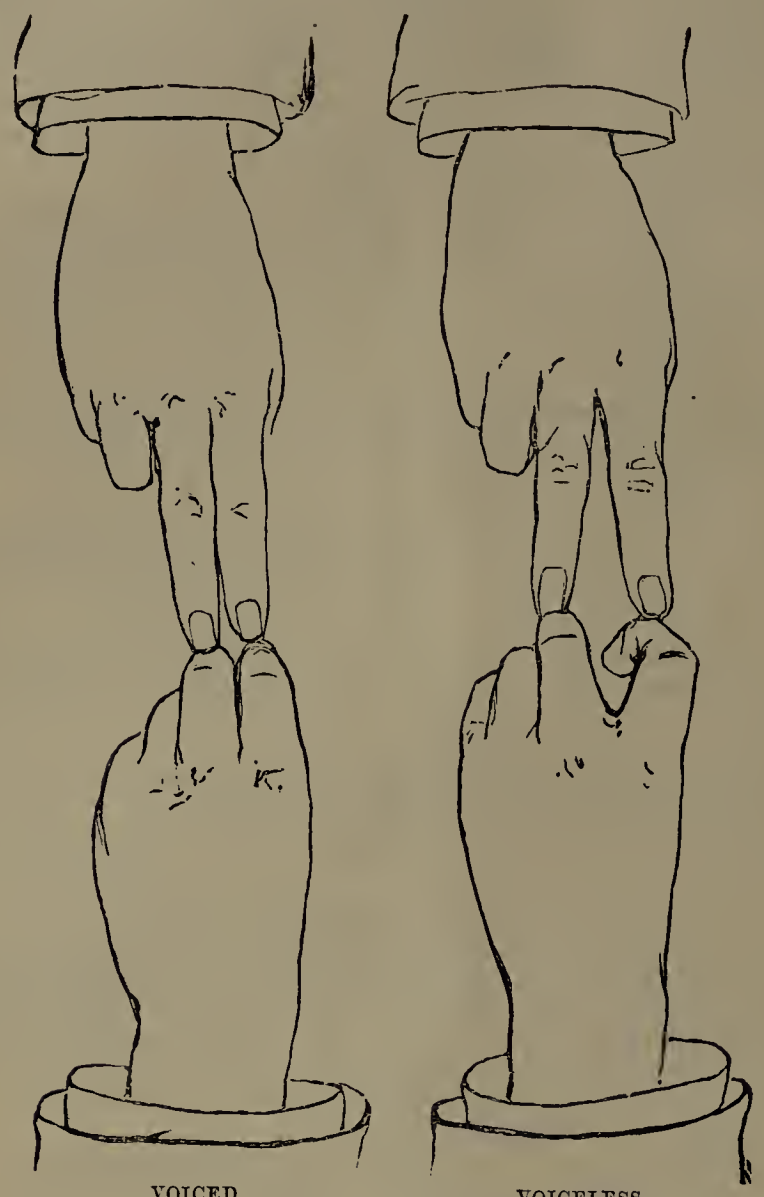
What's the difference between seal and zeal? Where does the sound come from? Is the change from *s* to *z* the same as from *f* to *v*? Before a body of practical teachers there is no need to give the raking fire of questions necessary to elicit knowledge from children, or to make them feel strongly that for a long time they have been doing something to which they have never given a thought. To hit off the exact amount of time to withhold an answer is one of the delicacies of the art of teaching. Well, you next tell the children to put their fingers into their ears, and to give the words in chorus. "Please, sir, your head buzzes all the time with the second column." "Where does the buzz come from?" This soon leads to a little talk on sound. How do we hear a piano or a fiddle? You show the children the vibrating ends of a tuning-fork; they don't usually think they have anything like that in their body. There is no need to dwell at any length on acoustics and physiology to-night; they can be studied in the ordinary text-books. I usually find one lesson enough. The teacher must, of course, have a fair knowledge of these subjects.

The three essential points are the production of a steady stream of outgoing breath, the intervention of some obstacle such as to cause the production of a sound, and a resonance chamber to give it body.

The buzz, you explain, does come from two vibrating bodies in the throat; you may show them to the class, either with the laryngoscope or a wax model.

An ingenious method of graphically registering the move-

ments of the larynx, the lips, and the soft palate was invented by Dr. Ch. L. Rosapelly. (*Inscription des mouvements phonétiques. Ecole pratique des hautes études. · Travaux du laboratoire de M. Marey*, 1875.) A continuous wavy curve was obtained in pronouncing *abba* or *amma* ~~~~~~~~~~, but with *appa* the line is straight in the middle ~~ *a* ~~ *p* ~~ *p* ~~ *a* ~~.



VOICED. VOICELESS.

The action of the vocal chords can easily be imitated by the fingers in the manner shown in the figure. When I blow out a candle the vocal chords or ledges stand wide open; if I close the ledges the air presses them up, and a slight puff of breath escapes, while they, in virtue of their elasticity, swing back below their position of rest. (Place the two forefingers together and put them across the lips with the nails just under the nose: send out puffs of air between the knuckles.) When these pulsations are regular and rapid we have a musical note, and the sounds are said to be voiced. With the chords open the sounds are voiceless. This fundamental division into VOICED and VOICELESS must be made perfectly clear. We return to our first table.

A quiet request for the *letters* which represent the sounds will lead to some difference of opinion among the boys; there will be no need for you to tell them that our alphabet is hardly all we desire. Insist strongly on the importance of the *sounds*; scientific work can be done only with the sounds. It will do no harm if you point out that the chaotic muddle, ironically dignified by the proud title of orthography, into which we have allowed the printer to drive us like a flock of sheep, robs both class and master of a fair portion of their lives.

Now pronounce distinctly a set of words beginning with the letters of the alphabet taken in succession, and ask whether the first sound is voiced or voiceless. After considerable discussion we shall get the following:—

Voiced	*a, b, d, e, g, i, j, l, m, n, o, r, u, v, w, y, z.*
Voiceless	*c, f, h, k, p, q, s, t, x.*

q, and *x*, being superfluous, are cut out.

On what principle are we to further classify our sounds: by the speaker or the hearer, by physiology or by acoustics? Opinions still vary greatly as to the musical analysis of the sounds of speech, and as the acoustic effect necessarily follows the physiological position, we had better, for the present, classify entirely from the point of view of the speaker.

The "Revised Latin Primer" calls *t* a hard dental, thus confusing both methods of classification. Hard and soft may do very well for boiled eggs, or the roe of a herring; for sounds they are quite out of place. In English we shall not call *t* a dental for the simplest of all reasons: *t* is not normally a dental.

Again, Latin, a language in which pitch is subordinated to stress, borrowed its grammatical terminology from Greek, a language in which stress was subordinated to pitch. The word *accent*, as we learn from Quintilian, was made to translate *prosōdía*: the latter meant originally a musical accompaniment to speech to keep the pitch right. This was then wrongly applied to denote the stress in Latin, and a still further confusion was made in French by using the accent marks to denote different vowel sounds. Till we have done with the Latin grammar and all its unscientific ways, our teaching of modern languages will remain sterile. That teachers should for centuries have caned into children statements which an appeal to experiment instantly shows to be wrong, fills one with sadness. We used to be told that consonants could only be pronounced by means of a vowel: I think you can hear my *s* or *f* at the other end of the room.

Keeping, then, to our physiological classification, our next task is the more difficult one of finding out *where* the sounds are produced. We take the consonants first, as they are easier than the vowels.

The place for *p, b, f, v* will be given correctly, but for the rest the wildest answers will prove how completely our spelling has ruined any phonetic sense which nature may have implanted in the child. Luckily our difficulties can be removed by a graphic method invented by Mr. Oakley Coles.

Your dentist can make you a false palate of vulcanite or silver. You take a little alcohol, mix it with chalk, and smear over the palate, which is put into position as soon as the alcohol has evaporated; pronounce any consonant followed by the vowel *a*. The tongue takes off a portion of the chalk, and the palate is found to be bared.

We must have names for the different parts of the tongue and the roof the mouth.

For the tongue we distinguish the back, the front, the blade, and the point. The roof we divide into the soft and hard palate, the alveolars which are convex, and the teeth.

By means of the false palate we shall get the following scheme:—

BACK.	FRONT.	BLADE.	POINT.	LIP-TEETH.	LIP.
k, g	*y*	*s, z*	*d, l, n, r, t*	*f, v*	*b, m, p, w*

But these are not all the consonants of the English language. Can any one give me some more simple sounds? If you receive no answer write *fillip, Philip*, and *top hat* on the board. How came *ph* to stand for *f*? When the Latins first began borrowing from the Greeks, *th, ph, ch* were true aspirates, like the final sounds in our hot, stop, lock. *Thúos* becomes *tus*, and *chálix* is *calx*: a later and more pedantic use put in an *h* to represent the slight explosion of breath after the stop: a similar pedantry would be to write *khind* for the German *kind*, or *stoph* for *stop*. After the second century A.D. the aspirates became opens (spirants), and *ph* was unfortunately retained for *f*. The Italians have had the sense to discard *ph*. Now what digraphs have we representing a single sound? You will be given *ch, ph, th*, and *sh*; add *wh, ng*, and point out that *ch* stands for two sounds.

What are we to do? Those who fear the printer will not disturb his lower case. But we with the blackboard and chalk can fulfil the scientific demand of a single sign for a single sound, a single sound for a single sign.

The values of *th* can be replaced by the Old English þ (thorn) and ð ("barred *d*"). These letters were unfortunately lost to our alphabet, because Caxton did not take the trouble to add them to his continental font. For *sh* put š ("open *s*"), and for the corresponding voiced sound ž ("open *z*"): ƿ ("barred *w*") for *wh*, and *y* ("tailed *n*") for *ng*.

Now take the group of point consonants *d, l, r, t, n*; with *t, d* the outgoing breath is completely stopped, and we call them

"shut" consonants; *t*, *p*, *k*, in fact, are not sounds at all, but silences. With *l* the breath is released over the sides of the tongue, and the sound is said to be "divided"; for *n* the breath passes through the nostril, while *r* is formed by flapping once the point against the palate, the passage for the breath being open. Now the same varieties are possible for the other positions of the tongue, and we have finally this table:—

	Back.	Front.	Blade.	Blade-point.	Point.	Point-teeth.	Lip-back.	Lip-teeth.	Lip.
Open.		*y*	*s z*	*š ž*	*r*	*þ ð*	*ϖ w*	*f v*	
Shut..	*k g*				*t d*				*p b*
Nasal	*ŋ*				*n*				*m*

h is an unvoiced open-throat consonant.
l is a voiced divided-point consonant.
ŋ "tailed *n*"; *š*, *ž* "open *s*, *z*"; *þ* "thorn"; *ð* "barred d"; *ϖ* "barred *w*".
The voiceless-sounds are placed on the left of the squares.

	yes	hiss his	rush rouge	red	thin then	whet wet	fat vat	
cot got				to do				pat bat
sing				no				mat

Give the children a thorough drill on the above, going through it horizontally and vertically; amuse them by unvoicing, *y*, *r*, *l*, *m*, *n*, *ŋ*, and form the open sounds corresponding to *k*, *g*, *p*, and *b*.

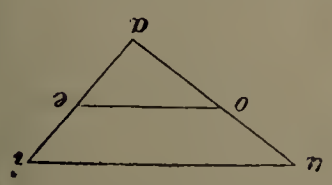
The analysis of the "vowels" is a far more serious matter; we require some knowledge of the acoustic properties of a resonance chamber. The pitch of a musical note depends solely on the number of vibrations made by the sounding body. If we twitch a violin string it will vibrate in segments of varying length, the longest giving the fundamental tone, the shorter lengths the overtones, and the longer the undertones. If the sound be made near any other body, usually air, capable of the same number of vibrations, it also will become sonorous and reinforce the original sound. Pour some water into a bottle and hold a vibrating tuning-fork over the mouth: by altering the level of the water we shall obtain a volume of air capable of vibrating in unison.

Since water evaporates we may use molten wax if we want to keep a set of resonance chambers for class purposes. Now the pharynx, the mouth, and the nose form a resonance chamber, capable of great variation in shape, mainly by the movements of the soft palate, the tongue, and the lips; of these the tongue is the most important. The sound emitted by the vocal chords is reinforced by the appropriate resonance chamber, and as the chamber accommodates itself to the pitch, we obtain the different vowels. The possible number of vowels is determined by the amount of differences of resonance-modified pitch the ear is capable of distinguishing. With English vowels the nasal cavity is closed, and it is sufficient to register the changes of the tongue and lips.

Pronounce the words *lout*, *loot*, *lather*, and then drill on the vowels thus:—

a — *i* — *a* — *i*
a — *u* — *a* — *u*
i — *u* — *i* — *u*
i — *a* — *u*
i — *u* — *a*

A sense of the place where the sounds are produced will gradually arise, and we may for the present put them at the angles of a triangle.



Intermediate to the extreme positions lie *e* and *o*: this will give us three levels for the tongue—high, mid, and low. (The vowels are supposed to have the Italian values.)

This change of vertical position may be brought about by the tongue sinking passively with the jaw, or it may take place independently; it is quite possible to pronounce all the vowels so as to recognise what is meant while holding a pencil between the teeth. In fact, as Mr. Bell puts it, the chief duty of the jaw is to keep itself out of the way. Practise on *pit*, *pet*, *pat*, or *full*, *no*, *not*, till the distinction is clear.

Now for the horizontal positions of the tongue: what happens when we pronounce *far*, *fie*, *fen*? The part of the tongue nearest the palate gradually advances from the "back" of *far* to the "front" of *fen*, the first sound in the diphthong *fie* being "mixed."

The various positions of the tongue can be very well shown by holding the right hand at the proper distance from t he left arched to represent the roof of the mouth. (See below for *r*.)

Another important division of the vowels is to be found in the words—

bate — bet.
but — father.
naught — not.

Scholars are not agreed as to the cause of this phenomenon, to which various names have been given: primary and wide, narrow and wide, tense and lax. Mr. Bell ascribes wideness to the "expansion of the cavity *behind the tongue*." Mr. Sweet, however, thinks that "the narrowness of back sounds appears to be due to tension and consequent advancing of the uvula, often with a simultaneous sympathetic retraction of the tongue. The flexible soft palate has, therefore, the same function in the back of the mouth as the flexible front of the tongue has in the front of the mouth." For the front vowels the lax position can be shown by keeping the hand stretched out flat, and raising the two middle fingers, so as to form an arch, for the tense position.

As a rule, in English, long vowels are tense and short lax.

The tongue, then, may have three horizontal and three vertical positions, and in each the surface may be tense or lax. Now for the lips. Pronounce the words *ha*, *haw*, *ho*, *hoo* before a mirror, and notice how the lips begin quite apart and gradually close up; the three degrees of labialization correspond, as a rule, to the height of the tongue.

Now if we denote rounding by two dots over the letter, we get the further groups.

i — *ü* — *i* — *ü*
é — *ö̈* — *é* — *ö̈*
è — *ö̈* — *è* — *ö̈*
} Tongue still—lips move.

u — *ü* — *u* — *ü*
ó — *ö̈* — *ó* — *ö̈*
ò — *ö̈* — *ò* — *ö̈*
} Lips nearly still—tongue shifts.

i — *u* — *i* — *u*
é — *ó* — *é* — *ó*
è — *ò* — *è* — *ò*
} Lips change—tongue changes.

We have still to consider the "glides," a group of sounds not recognised at all by the ordinary grammars, but playing an important part in the historical changes of a language. Since the breath issues in a continuous stream a number of intermediate sounds must be made in psssing from any one fixed position of the tongue to another.

The favourite position of the English tongue is somewhere in the *t* district; if, therefore, a *t* is followed by our only front consonant, *y*, there is a natural tendency to produce an *s*-sound: *don't you know* easily slipping into *dontcherknow*.

When the tip of the tongue vibrates several times against the alveolars, we have a trilled *r*; if, however, the tongue is brought to the alveolars with only a single flap, we have the ordinary English *r* before a vowel, as in *rat*. But when a vowel precedes the *r*, it is reduced to a glide. Keep up the pronunciation of *far* and look in the mirror; now sound *far away*, and observe how the tongue rises once between the two vowel sounds: here we have a real case of the *liaison*, so common in French.

This upward tendency of the tongue is sometimes introduced to avoid the hiatus between two vowels, in places where it has, historically speaking, no right; *idear of*, *Victoriar our Queen*, are more common than desirable.

The hands may be employed as in the wood-cut to make this action of the tongue visible. (See following page.) Although *r* has thus been reduced, its action on the preceding vowel is very marked, its chief effect being to "lower" the sound. A trilled *r* may be made by practising on a quick pronunciation of *td*, *td*, *td*.

The value of some such training as the above will be obvious directly we begin a foreign language. Our teachers are usually appointed because they have a good "accent": but the possessor of the most faultless pronunciation stands helpless before a class incapable of seizing a sound solely by way of imitation. Tell an

English boy that the French *gn*, as in Boulogne, is the nasal corresponding to *y*, and your remark will be worth any amount of imitation: not the possession but the power to impart ought to be the chief demand we make on the teacher, and in language-teaching this power can be obtained only through phonetics.

Dr. Gladstone said he did not see how the pronunciation of words of a foreign language could be exhibited without the use of phonetics. The twenty-three letters of the English alphabet were wholly inadequate to represent the sounds of the language unless diagraphs were employed. Bell's "Visible Speech" was the most perfect instrument for the expression of sounds in different languages; it looked difficult, it was true, but it was not as difficult as it looked. Other devices had been suggested, but not one of them had been generally recognized. There was a system in use by the Indian Government which was applied successfully to the languages of India, but it appeared that even this method failed when brought to bear upon the complexities of the English language. Tennyson, in writing some of his poems to imitate a north-country dialect, had evidently used a method of his own, but without a knowledge of the dialect intended to be represented it would be impossible to read it with any approach to accuracy. Another case occurred to him of a government inspector, who, in one of his reports, had printed a passage to show a variety of dialect, but he had never heard of any one who had been able to make anything of it. It could not be denied that it was a very great want in English that there was no generally recognized way of writing down sounds.

Mr. Lutte remarked that at the present time, when so much attention was being given to the teaching of foreign languages, it was of the highest importance to have a sensible plan of representing sounds, which would facilitate the acquisition of a language; and the study of phonetics was, he considered, best calculated to effect this object. He himself began to teach French forty-seven years ago, and remembered how vast a proportion of time was devoted by him merely to correct blunders in pronunciation.

Mr. Baumann said that it was nearly certain that no one at the present day pronounced Latin or Greek in the way the Romans and Greeks themselves did. It was sometimes urged that the study of the actual sounds of a modern language would lead us to a correct pronunciation of the language from which the former was directly derived; but it was equally possible that, in the inevitable changes which went on from age to age, the contrary might be the case. It was argued that the proper teaching of French might dispense with the necessity of studying Latin; and if that were the case, why might not German take the place of Greek? The sort of physiological exercise suggested by the lecturer would, no doubt, be valuable in teaching the learner how to adapt his organs to the unfamiliar sounds of a foreign language, but he had found that with shame-faced English boys there was some little difficulty in getting them to make the necessary contortions of the face required in order to imitate the new sounds.

The Chairman said that one of the chief difficulties in carrying out the suggestions of the lecturer was that there were very few teachers who were equal to the work, and it would first be necessary to train teachers for the purpose. The great majority of those who were concerned in the teaching of language had very little idea of the physiological process involved in the utterance of articulate sounds. There were, indeed, hardly any two persons who pronounced words in precisely the same way; and certain sounds in the English language could hardly be acquired by a foreigner after many years' residence in the country. Perfect accuracy, however, was not required. The general question of phonetic spelling was not that under consideration. It was not sufficient to rely upon simple imitation to impart correct pronunciation; for bad pronunciation came chiefly through bad imitation, which a little instruction in the way in which the vocal sounds were produced would serve to correct. The practical objection to "visible speech" was the many new symbols that were required; and, apart from the difficulty in getting printers to adopt the new characters, the attempt to read it, according to his own experience, had an unpleasant, if not injurious, effect on the eyesight. A principal reason of the neglect of phonetics was, he believed, that in the greater number of grammar schools Latin and Greek still constituted the staple of the instruction given, and these ancient languages were pronounced according to the English fashion, a fashion which itself changed from time to time with the current pronunciation of the vernacular tongue. The elements of phonetics, as outlined by the lecturer, ought, he considered, to be known by every teacher of language.

Mr. Widgery having briefly replied to the remarks of the various speakers, a vote of thanks to the lecturer concluded the proceedings.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A meeting of the Council was held on Saturday, the 14th ult. Present—Dr. Wormell, Vice-President, in the Chair; Rev. R. Alliott, Miss Bailey, Mr. Bowen, Mr. Brown, Mrs. Bryant, Dr. Buchheim, Mr. Eve, Rev. Dr. Frost, Rev. Dr. Hiron, Miss Hughes, Mr. Ogle, Mr. Reynolds, Mr. Southee, and Mr. Stewart.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the Christmas Examination for Certificates had been held on the 3rd to 6th December, at 241 Local Centres and schools in all parts of the country. The total number of candidates for whom fees were paid was 9,648. He also reported a considerable increase in the number of candidates entered for the Christmas Examination of Teachers for Diplomas.

He announced that the Conversazione, to be given by the President and Council of the College, would take place at University College, London, by the kind permission of the Council of that College.

The report of the Examination Committee was submitted.—The report embodied a scheme for incorporating the results of the Certificate Examination in the general report on the work of a school by a Visiting Examiner, under Scheme A. of the Regulations for the Inspection and Examination of Schools. It also recommended that the limits of age of candidates for the Scholarships for Intending Teachers should be altered from "18 to 24 years" to "17 to 21 years."—The report was adopted.

The draft report of the Council to the General Meeting was considered, and referred to the President, Vice-Presidents, and Dean, for final revision.

The following persons were elected Members of the College:—

Mr. S. L. Clarke, Thornhill, near Wigan.
Mr. A. Craston, M.A. Camb., Cambridge House, Wigan.
Mr. G. T. Lowe, 39 St. Michael's Road, Headingley, Leeds.
Miss L. Wilcock, 22 Narcissus Road, West Hampstead, N.W.

The following books have been presented to the Library since the last meeting of the Council:—

By the Author.—Henchie's Mensuration.
Blackie.—Elementary Mechanics, Part I.
Holden (St. Andrews).—Meiklejohn's New Geography, Short Geography, English Language, History of England and Great Britain, Spelling Book, Spelling List; Morell's English Literature.
Macmillan.—Bell's Milton's "Allegro," "Il Penseroso," &c.; Deighton's Shakespeare's "Twelfth Night."
Relfe.—Charles' Modern Thought and Modern Thinkers; Hawley's English Grammar for Beginners.

LIFE AT GIRTON.

(*From the Women's World*).

An early breakfast, served from eight to nine (some industrious students begin their day with a private breakfast party at five or six, and only partake of the college meal as an after-thought), is followed by a morning devoted, almost without exception, to private study, or to attendance at lectures given in college by the resident lecturers, or at the numerous courses in Cambridge now thrown open to women. The early hours of the afternoon, which by common agreement of the students are considered "noise-hours," are usually given to recreation, tennis being the most popular form of outdoor amusement, and pianos, with an occasional fiddle, having full swing indoors. After luncheon coffee-parties are also a common occurrence, the entertainment being of the most informal description, while the hostess seldom scruples to dismiss her guests or leave them to entertain themselves if she has work or lectures on hand. From three until the six o'clock dinner silence reigns again in the college. Many classical and mathematical lectures are given at this time by Cambridge lecturers, who come out to the college for the purpose, and the students who have not lectures usually, though not so universally as in the morning, devote a part or the whole of these hours to private study. After dinner again informal coffee or tea parties are frequent, and friends generally meet in a haphazard kind of way, which, perhaps, may be best described as "loafing" into each other's rooms. In the May term this "loafing" takes place round the grounds, and an interesting study of shawls might be made from the windows overlooking the lawn and tennis courts. The formal social duty of calling on freshers is performed in this after-dinner hour, most of the college business is transacted, meetings are held, and subscriptions to the various societies paid. In the May term it is the favourite hour for tennis, and in all three terms the fire-brigade has a fortnightly practice immediately after "hall" (some of the poorer specimens of Girtonians think this a little severe, as the practice often includes a double-quick march from end to end of the long corridors; but the officers are inexorable, and catalogue all who brave their scorn and fight shy of the brigade as "ill or lazy"). From half-past seven to nine are "silence hours" again, and then, or later in the evening, an hour or two's work is commonly done—freshers with "little-go" on the

brain, are reported to get in four or five before retiring for the night, but they generally learn in a term or two that it does not pay. Nine p.m. is the orthodox hour for knocking off work and for the more elaborate forms of social intercourse, club meetings, occasional dances, small debates, and so forth—above all, for the regulation formal tea-party. There are certain points about this entertainment peculiar to college life, if not to Girton, notably the fact that the guests bring, not their own mugs merely, but a whole trayful of refreshments. The college custom is to send to all the rooms a tray, with a roll and butter, and the materials for whatever beverage—tea, coffee, cocoa, or plain milk—is preferred by each student, and this custom greatly facilitates the discharge of the social duty. For it is understood that when a student gives a nine-o'clock tea-party all the guests take their own trays, the hostess providing only the hot water, and such luxuries as cake and jam. Thus, at 9 p.m., in all the corridors, is presented the striking spectacle of students hurrying in all directions—sharp corners are very dangerous at this time—to their respective entertainments, balancing trays in one hand, and in the other—unless they are such old hands as to know the college blindfold and avoid all pitfalls of boots, water-cans, and unexpected angles—carrying candles in case the festivities should outlast the college lights. It is at these parties that new students are first initiated into college society, and so strong is our instinct of hospitality that the "freshman" must be of a remarkably gregarious disposition who does not find tea-parties, which she experiences in their most formal tedious aspect, grow decidedly monotonous after a few weeks.

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

A large number of Reports of Honours and other Examinations have appeared during December.

Some of the B.A. Honours lists are in some points not quite satisfactory. For instance, no scholarships are awarded, although two of the three prizes are carried off. Again, there are only two successful candidates in Mathematics, one in the first and one in the third class; and there is but one (a lady, Miss Jessie Edwards, of Mason College) in Mental and Moral Science, and she is in the second class; it would seem that at last the candidates are shunning this (once the most popular) subject, apparently in despair of discovering what the examiners want. The Classical list is fuller, comprising thirteen names (two of ladies), and there are three in the first class, the third being one of the ladies (Miss E. L. Johns, of Girton). Fourteen candidates are successful in French, and, strangely enough, not one is a lady, although French is usually thought to be pre-eminently a ladies' subject; three of the fourteen are in the first class, and all three are marked worthy of the prize, which, as the first candidate (Mr. J. R. C. Hall, a private student) is over twenty-three years of age, is awarded to the second (Mr. Herbert Edwards, also a private student, formerly of Dame Owen's School, who was first in Honours at Matriculation in June, 1887). In German there are four successful candidates, but only one in the first class (Mr. G. R. F. Shee, of Stonyhurst, who took the prize in German at the Intermediate last year); the next candidate is a lady (Miss C. C. Ashworth, of the Royal Holloway College). The English list, however, is a very lengthy one, comprising the names of thirty candidates, of whom nine are ladies, and of the nine, two (Miss Jessie Edwards, previously mentioned, and Miss Phœbe Sheavyn, of University College, Aberystwith) stand first and second in the first class, and are marked worthy of the prize, but are above the age within which it is tenable: it is passed on to the third candidate (Mr. H. H. Johnson, a private student). The fourth candidate is also a lady, and stands at the head of the second class.

The Examinations in Scripture are usually regarded as an addendum to the B.A. Examination. They involve a large expenditure of money, time, and labour; no fee is charged for entrance; and a prize of five pounds is offered at the First, and a prize of ten pounds at the Further Examination, to every candidate who can obtain a place in the first class. The result this year is, that no candidate appeared at the Further Examination, and only two appeared at the First, of whom one (Mr. Frank Brown, M.A., B.Sc.) is in the first class. The result last year was just about the same.

The B.Sc. candidates, who appear to number on the average about one-fourth of the B.A. candidates, are twice as liberally treated in the matter of scholarships; they have an exclusive right to compete for six of these, worth £100 each, and equal rights with the B.A. candidates in respect of two others, worth £150 each. Four of the first-mentioned six are this year awarded. The scholarship in Chemistry goes to Mr. S. F. Dufton, of Trinity College, Cambridge, who obtained the exhibition in Chemistry at the Intermediate in 1887; Mr. Dufton, however, stands second in the Honours list, the first candidate (Mr. A. J. Cooper, of Mason College) being over twenty-three years of age. The scholarship in Physics is awarded to Mr. R. A. Lehfeldt, of St. John's, Cambridge, the only candidate in the first class; the scholarship in Zoology to Mr. E. W. MacBride, also of St. John's, who took the Neil Arnott Exhibition and Medal in Physics at the Intermediate in 1887; and the scholarship in Physiology to Mr. T. R. Taylor, of Guy's Hospital and the Yorkshire College. The scholarships in Botany and Geology are not awarded, although in the latter subject there are three names (one of a lady) in the first class.

The M.B. Honours lists are fairly lengthy—fifteen names under Medicine, nine under Obstetrics, and thirteen under Forensic Medicine. This year (a very unusual thing) the scholarship in Medicine is not awarded, but the first two gentlemen in the first class (Mr. C. M. Kitching, of Guy's, and Mr. R. Pickard, of St. Bartholomew's) are bracketed, and each obtains a gold medal. In Obstetric Medicine, only one candidate (Mr. E. P. Paton, of St. Bartholomew's) is in the first class, and he obtains the scholarship and a gold medal. In Forensic Medicine, Mr. H. M. Bowman, also of St. Bartholomew's, obtains the scholarship and a gold medal, and Mr. J. E. Platt, of Owens College, obtains a gold medal.

Ten candidates have passed the B.S. Examination, and five of them afterwards succeeded in obtaining Honours in Surgery. The scholarship and a gold medal are awarded to Mr. A. G. Francis, of St. Bartholomew's, and a gold medal is awarded to Mr. C. M. Kitching, mentioned above as obtaining a gold medal in Medicine.

Only two candidates appear to have passed the Master in Surgery Examination.

The M.D. list exhibits this year two new features: three candidates have passed in the new branch of "State Medicine," and of the twenty-nine under the old heading of "Medicine," four are noted as having lodged successful Theses. The large gold medal is awarded to Dr. J. Rose Bradford, of University College; and three other candidates are marked as having obtained the number of marks qualifying for the medal. Dr. Bradford was already a Doctor of Science in the University; five others of the new Doctors were already Bachelors of Science; five more were Bachelors of Surgery; and one was both B.Sc. and B.S.

Four candidates, *all ladies*, have passed the examination for the Teacher's Diploma; one of these has been a student at the Maria Grey College.

Lastly, at the Intermediate Examination in Music, 10 candidates have passed; at the B.Mus., two; at the Intermediate D.Mus., one; and at the full D.Mus. it is said that one candidate has passed conditionally upon a satisfactory public performance of his Exercise at the earliest convenient date.

Cambridge.

Carus Greek Testament Prizes.—The prize for bachelors has been awarded to Ds A. V. Valentine Richards, Christ's College. The prize for undergraduates to Ds A. W. Greenup, St. John's College.

The Hare Prize has been awarded to A. C. Pearson, M.A., of Christ's College, for the essay entitled "The Fragments of Zeno and Cleanthes, with introduction and explanatory notes."

Mr. J. H. Middleton, Fellow of King's, and Slade Professor of Fine Art, has been elected to fill the place of Dr. Waldstein at the Fitzwilliam Museum.

The Hopkins Prize for the period 1880–1882, in connexion with the Philosophical Society, has been awarded to Mr. R. T. Glazebrook, of Trinity, for his researches in Physical Optics.

On the recommendation of the Classical Board, a grant of £100 from the Worts' Travelling Scholars' Fund has been made to Mr. F. G. Frazer, Fellow of Trinity, to enable him to examine on the spot the result of recent excavations in Greece, with a view to a translation of Pausanias, upon which he has been engaged for some time.

In Congregation a report of the Council has been adopted, affiliating to the University 27 institutions, which are already affiliated to the University of Calcutta up to the B.A. standard. Most of these institutions are in Bengal; but a few are in other parts of India, which as yet possess no University of their own, such as the Central Provinces of Burma; and at least three are in Ceylon. The result of affiliation is that their students are excused one year's residence at Cambridge.

Oxford.

The Hertford Scholarship has been awarded to Mr. W. M. Geldart, of Balliol; *proxime accesserunt* Mr. B. L. Abrahams and Mr. G. W. Stevens, both of Balliol; distinguished, Mr. F. G. H. Anderson, of Balliol.

Mr. F. Pullinger, B.A., of Corpus Christi, has been elected to the Burdett-Coutts Scholarship.

Mr. G. C. Richards, B.A., Balliol, has been elected to the Craven Fellowship, and Mr. W. T. Woodhouse, B.A., Queen's, to the Studentship given by the British School at Athens.

The examiners for the Ireland and Craven Scholarships have reported the following order of merit:—W. M. Geldart, Scholar af Balliol; R. J. Walker, Scholar of Balliol; C. M. Mulvany, Demy of Magdalen; E. J. Palmer, Scholar of Balliol; and J. C. Smith, Exhibitioner of Trinity.

The Ireland and First Craven Scholarships are awarded to W. M. Geldart; the Second Craven Scholarship to E. J. Palmer; and the Third Craven Scholarship to J. C. Smith.

Other Universities, Colleges, and Schools.

Mr. Walter Alexander Raleigh, B.A., of King's College, Cambridge, has been appointed to the King Alfred chair of modern literature at University College, Liverpool, vacant through the transfer of Professor A. C. Bradley to Glasgow. Mr. Walter Raleigh was at the top of the second class of the History Tripos, and at one time after his degree was teaching at one of many colleges in India. We have not heard whether Mr. Raleigh has yet made his mark as an English scholar.

At a recent meeting of the Governors of Ashville College, Harrogate, John Bowick, B.A., LL.D., Camberwell, London, was appointed headmaster from a large number of applicants, several of whom were Oxford and Cambridge graduates. Dr. Bowick was a student (1876–7) of the Glasgow Free Church Training College.

Miss Joanna Baker, who succeeds her father in the chair of Greek at Simson College, Iowa, U.S.A., might be claimed by some English dons as an illustration of their new dictum that the feminine mind is especially adapted to master the niceties of the Greek tongue. Miss Baker began the study at four years of age, and could read Xenophon at eight; at fourteen she compiled a lexicon of the "Œdipus Tyrannus," and at sixteen was a college tutor of Greek. One thing seems to be omitted from this list: was Miss Baker ever a child?

Dr. J. G. Greenwood, acting on medical advice, has been compelled to resign the principalship of Owens College, Manchester, to which office he was appointed in 1855, five years after the foundation of the College. He has also resigned the chair of New Testament criticism. Prof. A. W. Ward has been elected as the new principal.

The Council of the Boys' Public Day School Company have elected Mr. G. D. Dakins, M.A., Assistant Master in the High School, Newcastle, Staffordshire, to be Headmaster of their South Shields High School.

EDUCATIONAL NOTES AND SUMMARY.

Lord Hobhouse, in supporting the report from the Corporate Property Committee on the group of schemes published by the Charity Commissioners with reference to the City of London parochial charities, to which we have referred in another column, said the first suggestion was that much more time was required to allow the inhabitants of London, who were the owners of these funds, to consider maturely the mode in which it was proposed to deal with them. In the report they would see that the City Polytechnic was a very large recipient of subsidies from the parochial funds. It was to have upwards of £51,000 down, and upwards of £5000 annual income, say one-seventh of the whole funds. They naturally wanted to know what was the City Polytechnic. It did not exist. And as late as Friday, the 6th of December, a scheme was published which for the first time purported to give them some notion of what this institution consisted of. The City Polytechnic was a conglomerate of three other institutions, and the governing body was to consist of twelve persons to be supplied by three constituent institutions. He quoted from the scheme, and gave an account of the governing bodies of the constituent institutions, from which it appeared that the letters of the alphabet would play a very large part in the constitution of the governing body. Ought they not to use every effort to delay the passing into law of this central scheme, which disposed of the bulk in fact of the City parochial funds into the hands of persons they knew not, and were to be administered upon trusts, a greater part of which were not yet declared, and a large part of which were only declared on Friday, December 6th? It was not reasonable to press them in that way. With regard to the governing body, they had received petitions against it from the vestries of Lewisham, Fulham, Hammersmith, St. James's, Westminster, and the Strand district. Another suggestion was that more freedom should be given to that permanent body of trustees which the Legislature had taken pains to construct. He did not deny that there was a great deal to be said for the opposite view, for the view of the Charity Commissioners, which might find favour, and he confessed for himself that he should be much less unfavourable to it than he was if it were not that he was convinced that they were dedicating the bulk of these funds to objects which were still in the experimental stage, and which depended for their success upon the energy, the ability, the public-spirit, the facility, the enterprise of the gentlemen at their head, qualities of which it was most difficult to find a succession, and which were usually found to be incompatible with the working of permanent endowments and permanent fixed trusts. It was said that the Charity Commissioners had made promises by which they had brought in assistance, partly from open-handed public-spirited persons, partly from bodies which had the control of public funds, and that those promises had so bound the City parochial charities that they could not now be disturbed without, it was said, a shaking of the public confidence. That there had been such negociations he did not doubt, but they knew nothing of those negociations; they were not in the schemes, and they were absolutely ignorant of any particulars concerning them, and when they were elevated into the rank of promises, and they were told that they could not consistently with justice or honour disturb an arrangement based on them, he begged leave to enter his protest. He begged leave to move the adoption of the report.

Mr. Evan Spicer moved an amendment to the effect that the Council was unable to agree with the recommendations of the Corporate Property Committee as they now stood. He thought this report to be weak, inaccurate, and mischievous at the present time. It was weak because it wanted that scheme to be attempted piecemeal; it was inaccurate because it appeared to be built up of inaccuracies, and it was mischievous because he could not help feeling that it threw cold water on the scheme of polytechnics, and might have a tendency to check the giving of the money of the Londoners, and thereby check the schemes which had been started, and for which money was needed. The Charity Commissioners, he thought, had gone on very sound principles. The public had already spoken with no uncertain sound in reference to these schemes. It was a pity that this report should have been written, throwing cold water upon such a scheme by which such magnificent results had been produced. Let Parliament deconsecrate half of the churches to which reference had been made, and make use of them for public meetings and places where musical entertainments might be given for the people. Some of them were most suitable for public libraries and reading-rooms. He would let the endowments go with them for the support of these places, for he was sure those endowments would be better used in this way than they were now, because if there was a scandal at the present time in London it was that these endowments were given to men who did so little, and in many cases they were given to men who literally had nothing whatever to do for their money. The Charity Commissioners would not have raised the large sum of £700,000, unless the public had known that they were to receive endowments to carry on the work for which they put down the capital for buying the land and buildings.

The amendment was then put, and on a division there were—for the amendment 49, against 53, majority against the amendment, 4. The clauses of the report were then put. On the clause providing "that it should not give the bulk of the funds to a class of institutions (polytechnics) not yet sufficiently tested in point of time or in number of experiments, so as to show that they will supply the needs of the poorer inhabitants of the metropolis, and are capable of being managed satisfactorily under permanent schemes," Mr. Quintin Hogg proposed as an amendment the following addition:—"But that this principle should be applied with due regard to, and so as to disturb as little as may be, arrangements which have been made, and on which money has been spent in reliance on the representations of the Charity Commissioners." Lord Hobhouse accepted the addition, which was agreed to. The other recommendations were agreed to and the report passed.

We referred last month to an extraordinary manifesto of the N.U.T., against Dr. Fitch. On reading it we were struck with the disingenuous perversion of his evidence before the Royal Commission, and having obtained from the offices of the L.S.B. a copy of that part of the evidence which contained the words quoted, we perceived that some one on the Executive had grossly blundered, and in the interests of truth we published the context of each quotation and a statement by the principals of all the training colleges visited by Dr. Fitch, contradicting the assertion that "Dr. Fitch has used his position of Inspector of Training Colleges to prejudice the minds of the authorities of such colleges against the organisation and work of the Union."

Dr. Pye Smith once wrote:—"Exemption from mistake is not the privilege of mortals; but, when our mistakes are involuntary, we owe each other every candid consideration; and the man who, on discovering his errors, acknowledges and corrects them, is scarcely less entitled to our esteem than if he had not erred." The authors of the manifesto, however, seem not to have erred *involuntarily*, for the secretary signs a letter on the subject more disingenuous, if possible, than the original manifesto. He writes:—"The assertion is, 'The Executive have reason to believe, &c.,' and this the statement of the twenty-three principals does not contradict." We commend Dr. Pye Smith's dictum to the notice of our friend Mr. Heller.

At an educational meeting, lately held in the grand hall of the Merchant Taylors' School, Charterhouse-square, Mr. L. Stanley in the chair, a discussion took place on the Registration of Teachers. Mr. F. Storr explained in detail the object of registering teachers of every grade of school, and dwelt

upon the necessity of the unification of every class of teacher—the humblest village teacher, the Master of Eton. He praised the ability of primary teachers as masters of the art of teaching, and regretted that the serious mistake had been made in the past of not including elementary teachers in Bills proposing legislation on the subject of registration. Mr. Charles Smith, a member of the Executive of the N.U.T., recounted at some length the action which the Union had taken in regard to this question, and trusted that a registration enactment would soon become law. Miss Ward, of the Maria Grey Training College, followed, speaking warmly in favour of the proposals of the Bill promoted by the Teachers' Guild in regard to registration. The Principal of the Borough Road Training College (Prof. Barnett) preferred not to criticise the principles of the proposed Bill, inasmuch as he was in a large measure responsible for its drafting. He dwelt forcibly, however, upon the necessity for all grades of teachers being subjected in some recognised efficient school to a strict course of training in the art of teaching. Dr. Fitch agreed with Mr. Barnett that the training of every class of teacher was desirable. Mr. Garrod dwelt strongly on the professional aspect of the matter, and pointed out some striking analogies between the medical profession and the profession of teaching which the Bill sought to establish. Mr. Stanley concluded the meeting by bringing forward all the objections to the Bill he could think of, so that its promoters might know beforehand the kind of criticism it was likely to receive.

Dr. J. H. Gladstone, in a paper lately read to the Society of Arts on "Scientific and Technical Instruction in Elementary Schools," pointed out that elementary science, as a class subject, had gained no footing in our schools, and that since 1882 the few departments which had taken it up were now ceasing to do so. Nor was the result more hopeful in reference to scientific specific subjects. In those standards in which those subjects might be taught, the number of scholars had increased from 286,000 to 472,000 during the last six years, but there was not a single scientific subject, with the exception of mechanics, which showed a similar increase, while in others there had been a great falling off. This he attributed chiefly to the present system of payment by results. In concluding his paper, Dr. Gladstone wished it to be distinctly understood that he by no means claimed for scientific or technical instruction any exclusive or even predominant place in the curriculum of the elementary schools. It seemed to him that, in the schools common to all children, each child should be dealt with as possessing a physical, intellectual, and spiritual nature, and that its education should be directed in due proportion to science and literature, while also recognising its æsthetic and moral culture. The elementary school should not give, but it should prepare the way for, those more special studies which, in polytechnics, technical schools, and continuation classes, may fit the learner to perform easily and happily all the varied work of life.

In the discussion which followed, Mr. Mundella said that he had lately been in Paris, and had examined what had been done in France during the last eight years; and he knew nothing so marvellous in all his educational experience. The last year of the Empire the Budget for public instruction was 33,000,000 francs (£1,320,000); in 1888 it was 135,000,000 francs (£5,400,000) for teaching alone. In France education was compulsory from end to end. There was a Minister of Public Instruction, whose duties were not confined merely to elementary education, but the latter was complete from the *école maternelle* up to the university. No child could leave the primary school until he was thirteen, or had received a certificate of having completed the course of instruction. In all primary schools drawing was taught, and modelling in clay, and with great advantage. Then there were the superior elementary schools, between the primary and secondary, and here more advanced scientific and manual instruction was given, there being one continuous curriculum throughout. There were a few of this class of schools in England, said Mr. Mundella, and he reminded his hearers that he had recently opened at Norwich the fifty-second, but in France 700 had been called into existence in eight years, and they were increasing every year. After these came the *école professionnelle*, which meant practically trade schools, and splendid schools they were, and all these were free. Then came the secondary education, which cost £4, £5, or £6 a-year. All this was a modern creation, but there were now no children passing out at nine or ten in the Third and Fourth Standards. That might be called an ideal, but seeing it was being carried out in France, he considered it a disgrace to England to be below any other country in the matter of education. The material in England, both teachers and children, was as good as any in the world; it only wanted a properly organised system, and it was high time it should be provided.

It was Dr. Thomas Arnold's opinion, remarks *The New York School Journal*, that a man is only fit to teach so long as he is himself learning daily. A teacher is doing what he ought to do only when he is learning more than his pupils. We might as well stop living when we get to the point where we can stop studying, for studying always means improving. The expression, "I know enough to teach the common branches," was more common a few years ago than to-day. The impression is growing that we shall never know enough to teach the common branches, or any other branches, as well as they may be taught. The teacher who settles down for life on a state certificate, a normal school or college diploma, ought to be settled in some place where there are no schools, for he is certain to settle into a soggy mass of inert stolidness. The best teachers among us are our most growing scholars.

The Report on the Cambridge Higher Local Examinations in 1889 has been lately presented to the Senate. It is interesting to note that the number of candidates in 1869 was only 36, and that it had risen in ten years to 741, that it touched the highest point in 1887, when as many as 1001 candidates presented themselves, and that since that year it has been declining and is now only 898, while the percentage of failures is greater than usual. With regard to the work of the candidates, the reports of the various examiners speak with varying degrees of hopefulness. The Old Testament work was on the whole less satisfactory, there was a general inability to trace causes, connexions, or consequences of events; nor was it in this branch of study alone that a want of thought and originality had to be deplored. The argument of Hooker was not mastered nor the exact point of Butler's argument grasped. In English language and literature more originality is sighed for, while in psychology, though the questions were simple, the answers were for the most part inaccurate. Practical chemistry was disappointing, the average of botany was low, algebra was unsatisfactory, and composition, whether Greek, German, Latin, or French, there was none. We are glad to find, however, that history, unpractical chemistry, and political economy all showed a marked improvement on last year.

Writing in *The New York School Journal*, Mr. W. M. Giffin says:—

"A man may hold a diploma from all of the colleges in the country, may rank first in his class, and yet he dare not write M.D. after his name, or take up the practice of medicine, until he has been through the special school of medicine, or, in other words, the professional school of the doctor. Pedagogy has no place in the college, unless it be there the same as medicine, theology, and law. *It must not be part of a miscellaneous course*, but as a special course or special professional course. Just as long as teachers are willing to accept an A.B., a B.S., an A.M., a Ph.D., or even an LL.D., just so long will they receive no others. When men who are to become teachers are willing to go to college, take a miscellaneous course, and be satisfied with an A.B., followed in due course of time with an A.M., just so long must they take up with that which is open to all, common to all, meaningless to all. We have Ph.D.'s who teach; Ph.D.'s who preach; Ph.D.'s who practise law; and Ph.D.'s who do absolutely nothing. Hence, to know the value of Ph.D. we must have a knowledge of the man. LL.D. is considered a high and honorable degree. I am willing to concede that it is, and yet I have never seen a physician, be his practice ever so limited, who would exchange his M.D. for it. Why, then, in the name of all that is honest and just, cannot our man-uplifting, God-serving, noble profession be honoured with such degrees as shall belong to it, and to it only? It ought to come, it is going to come, and it must come at no distant day."

Members of the College of Preceptors, and past and present pupils of the City of London School, will hear with regret the sad news of the death of Dr. Cuthbertson, the head mathematical master. Dr. Cuthbertson died suddenly in St. Augustine's Church during morning service on 1st December.

THE Cambridge Training College has now thirty-one students. A third house has been taken, and the Council are in negotiation for a fourth, to be opened in January. Several of the newly entered students are University graduates, and the majority of them have completed a course at one of the local University colleges.

THE Council of the Firth College, Sheffield, having received official notice of an annual Government grant of £1,200, have decided to apply it towards an extension of the literary work of the college.

SURELY (says the *Pall Mall Gazette*) among the unappreciated benefactors to humanity may be reckoned the Abbé de l'Epée, the apostle of the deaf and dumb. Not only did he give up his whole life to them, but he invented the "deaf and dumb alphabet," and opened a free school in which to teach his system. Gratitude must be a cultivated virtue among French deaf-mutes. In view of the good Father's death having occurred December, 1789, just one hundred years ago, they are going to make a great demonstration at his tomb in St. Rock, and intend to petition the Government to allow them to transfer his remains to the Panthéon. Deaf-mutes have received considerable attention since the day that de l'Epée opened his school in 1760. A little later, one Thomas Braidwood started a similar establishment in Edinburgh, which was visited by Dr. Johnson during his tour to the Hebrides. Indeed, the Braidwoods became famous in connexion with this line of work. The founder's two sons became teachers of the deaf and dumb, and his nephew, Dr. Watson, opened the first free school in England of the kind in Bermondsey in the year 1792. A deaf-mute seems capable of becoming almost anything excepting a soldier or policeman.

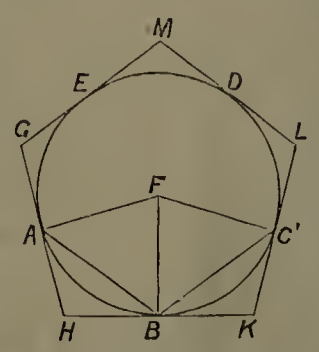
CORRESPONDENCE.

SHORT AND SIMPLE PROOF OF A PROPOSITION IN EUCLID, BOOK IV.

To the Editor of the Educational Times.

SIR,—The demonstration usually given of the problem which is Prop. 12 of Book IV., viz., *To describe an equilateral and equiangular pentagon about a given circle*, is not only prolix, but by many students is found difficult to remember, and the latter objection is also made to a briefer demonstration lately put forth. A brief and easy demonstration may, however, be presented, and as the same has by many students and teachers been deemed highly acceptable, I beg your permission to submit an outline thereof to your readers. One would suppose that it must have been already published, but I have not seen it.—Yours obediently, W. J. REYNOLDS.

[The annexed diagram is lettered as usual, but the construction for the purpose of the demonstration is merely the drawing of two consecutive sides of the inscribed pentagon and the joining the centre of the circle to the extremities of these two sides.]



Firstly. The equality of the tangents HA and HB is most easily deduced by the 6th of Book I. from the fact that the angles HAB and HBA are the remainders when the equal angles FAB and FBA are taken from the equal right angles EAH and FBH, and that they are therefore (by the third axiom) equal.

Secondly. The angles FBA and FBC may be shown by means of the 8th of Book I. to be equal.

Thirdly. The equality of the angles HBA and KBC is deduced from the fact that they are the remainders when the equal angles FBA and FBC are taken from the equal right angles HBF and KBF.

Fourthly. The equality each to each of the remaining angles and sides of the isosceles triangles HBA and KBC is shown by reference to the 26th of Book I.

The proof, according to the foregoing indications, will, I believe be found when written out formally to be shorter (for the same fulness and use of permitted abbreviating signs) than any other.

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THE EDUCATIONAL TIMES.

LONDON, JANUARY 1, 1890.

WHILE all the world is talking of the great English poet whose death occurred so lately, it may, perhaps, prove not wholly uninteresting to some of our readers if we briefly call attention to a few of the most characteristic of his views on life and its triumphs and failures. What Browning has written is now much more widely read than it used to be; and his opinions, presented as they are with such striking dramatic objectiveness, are likely to exercise considerable influence over those for whom life is now slowly but surely changing from a dream to a reality. Even the general reader—possibly so called because he reads nothing in particular—is growing less confident when he asserts, as a proof of his own intellectuality, that he cannot understand Browning. Tennyson's view of life is tolerably familiar to most of us. He would have us live by law, acting the law we live by without fear. The three prime requisites for this are self-reverence, self-knowledge, self-control. Vigorous endeavour, sustained and directed by knowledge and thoughtfulness, is what he constantly urges upon us—an intelligent submission to, and fulfilment of, the law of life. Browning's view is in striking contrast to this. Where Tennyson looks at the race as a whole, Browning looks at the individual. Both are optimistic; but progress for the former means progress of mankind's whole life; the latter is more interested in the progress of the individual soul. Both desire strength of will and undaunted activity; but, for sustainment and direction in willing, Tennyson looks mainly to knowing; Browning, without by any means ignoring the value of knowledge, looks mainly to feeling. The life in submission to law—the common everyday life of imitation, custom, and placid movement—is, in Browning's eyes, not only not helpful towards a soul's progress, but is commonly obstructive to it, and is even at times destructive of the highest spiritual life. The worldly life, as he calls it, must not by any means be ignored. It must be lived out strongly and usefully; but no one must set it in importance before his spiritual life. This spiritual part of man's nature can only grow by exercise, by self-originated, self-directed activity, activity of the soul's own self. This activity may be ill-timed and ill-directed, and so come into conflict with the necessary laws of society. In this way it may cause calamity to oneself and others; but, nevertheless, the soul has gained in growth by having been allowed to act. The precise character of this growth Browning at times—though certainly not often—seems to ignore, probably because to him the soul in its essence is good and not evil, and therefore its true natural activity is also good. Again, the activity may be well-timed and rightly directed, and yet the result may be what the world calls failure, or even tragedy. To Browning such cases are not

failures at all, but the supreme and crowning movements of human existence. In his view the true tragedy is when one sinks down content with the worldly life and the spiritual growth so far attained, and ceases to follow the lead of the soul's true natural impulses and emotions. These are the cases which most keenly interest him; and he is never tired of tracking the soul's change through all its intricacies, and setting the whole story before us with startling dramatic vividness.

In Browning's view, it is not knowledge of, and intelligent obedience to, the law of duty which best help us to choose the true path of life, but rather infinite desire and never-ceasing aspiration, inspired and guided by love, and stretching upwards towards the perfect love which is God. The periods of life which Tennyson holds to be the most glorious are those in which the spirit victoriously struggles in the cause of conscience against impulse and desire; Browning chooses rather those moments when the whole state of the soul is revealed in the light of some sudden passion, or when some all-important resolution is taken, in reliance upon the insight which vivid emotion bestows. Neither view is complete in itself. Indeed, in a sense, each may be said to complete the other. But, whereas Tennyson's view rests (it seems to us) on a sounder philosophy, and is constantly applicable to everyday life, Browning's is difficult of application, and leaves the greater part of life without guidance. We cannot always be in a state of high-strung emotion, and such a state is not propitious to a free activity of intellect.

We have touched upon but one point out of many which it would be necessary to discuss before we could pretend to have set before our readers the whole of Browning's view of life—and even then we should have omitted his views on love and art, and poetry, and politics, and much else. The point was suggested by what seems to us the most striking poem in the new volume "Asolando"—the last we shall ever receive from him. To many of us his death is a loss greater than can well be described in a newspaper. We may differ here and there as to points in his philosophy of life, but we can never forget or outlive the effect of his power to inspire pure and noble thoughts, and to make us feel, as none else ever did, how beneath what seems at the first or even the second glance evil, there still often lurks a soul of goodness. We conclude with a verse from the poem we have referred to:—

> "Then life is—to wake not sleep,
> Rise and not rest, but press
> From earth's level, where blindly creep
> Things perfected, more or less,
> To the heaven's height, far and steep."

Those practically engaged in the education of children cannot, in these days, complain that they receive no hints or guidance of any kind from educational theorists for the improvement of their teaching. Hardly a month passes without an article, speech, or lecture specially devoted to the exposition of what their authors regard as the true aims and methods of education. This is particularly so in reference to the first stages of education—what is called the kindergarten stage. There is nothing to deprecate in this; for, until we get hold of the right method of education, it is eminently desirable that every educationist who conceives that he has a new method to broach should have an opportunity of making it public and getting it discussed — provided that it is based on some body of general principles, and is not the result of mere whim and fancy. Meanwhile we should reach good methods sooner if those who have any generalization to announce in this connexion would carefully eschew obscurity and mysticism. These faults of style are great hindrances to the general acceptance of the theories with which they are associated. Writers who undertake to explain the principles of Friedrich Froebel not uncommonly fall into the mystical moods of their master. They write of "Nature," "following Nature," and Natural methods of education, as if "Nature," in the sense here used, needed no definition—as if it was the easiest thing in the world to understand her ways and follow her precepts.

Thus the anonymous writer of an article in this month's *Macmillan* tells us that "we owe to Froebel the first recognition of the high purpose in children's play, and the idea of ordering it and arranging it so as to form a harmonious development according to Nature's methods," and that "Nature is a great healer, and sets many crooked places straight."

Now, without in the least bestowing praise or blame on the methods here indicated, we cannot allow that they illustrate very happily Nature's practice as an instructor — if that is what the writer means. A truer presentation of Nature's method is that given by Huxley in his Essay on a Liberal Education. There we are told that those who won't learn at all in Nature's University "are plucked; and then you cannot come up again: Nature's pluck means extermination." The "compulsory legislation" of Nature is characterised as "harsh and wasteful in its operation. Ignorance is visited as sharply as wilful disobedience, incapacity meets with the same punishment as crime. Nature's discipline is not even a word and a blow and the blow first, but the blow without the word; it is left for you to find out why your ears are boxed."

"The object," says Huxley, "of what we commonly call education, in which man intervenes, and which I shall distinguish as artificial education, is to make good those defects in Nature's methods; to prepare the child to receive Nature's education neither incapably nor ignorantly, nor with wilful disobedience, and to understand the preliminary symptoms of her displeasure, without waiting for the box on the ear. In short, all artificial education ought to be an anticipation of natural education."

"When wild in woods the noble savage ran," Nature was his sole and sufficient educator. His education was narrow, but adequate to his needs. A good many things have happened since, and the "heir of all the ages" is not satisfied with those direct teachings of Nature which sufficed for his ancestor. He has learnt more of the real meaning of Nature, and can interpret her lessons better. It is no doubt possible, especially in the first stage of education, to make the spontaneous activity of the senses the pleasurable means of getting a good deal of knowledge of things. This stage ends soon: at a very early period the mind of the child has to make experience of impressions which are not simply pleasurable or simply painful, but are indifferent or uninteresting.

"One of the problems of the present time," says the writer in *Macmillan*, "is the successful application of Froebel's principles to the education of children beyond the age for the kindergarten. Owing to the fact that the attention of teachers has been more frequently directed to the practical working out of Froebel's principles, so far as young children

are concerned, than to the general principles themselves and their application to the training of older children, we have not yet a good system of training for children too old for the kindergarten and too young for the grammar school." Then the writer goes on to mention some points in the sort of training fitted for children between seven and fourteen. Of these we can concur entirely in the first and last. The second is startling, viz., "Book-learning must be given up in the case of any child to whom it cannot be made pleasurable." Had this precept been practised in our schools, it is almost certain that the number of our great scholars, present and past, would have been greatly reduced. Whether the general intellect and ability of the race would have been improved by the plan of abolishing books is, of course, beyond our power even to guess. But there can be no doubt that very much of what we now, rightly or wrongly, value highly, would have been absent.

It was not to be expected that the London County Council would allow the proposed schemes of the Charity Commissioners for dealing with the City Parochial Charities to pass unchallenged. The presence of Lord Hobhouse as Chairman of the Corporate Property Charities and Endowments Committee was a guarantee that the subject would soon receive attention. The Report of this Committee asks for delay, and foreshadows some objections to the proposals; and, indeed, the applications of the funds which the Commissoners are making are so novel and peculiar that such objections may very easily be made. Of the non-ecclesiatical part of the total funds, about £50,000 a year has to be dispensed. The Commissioners give about £4000 a year in pensions, and a capital sum of £150,000 (representing about £4,500 a year) to secure vacant spaces. The whole of the remaining sum—that is to say, a yearly amount of over £40,000—they propose to devote to a brand new kind of institution, called a Polytechnic.

According to the strict interpretation of English law, when a charitable fund has ceased to be applicable to the object for which it was originally intended, it ought to be applied to some analogous object which, according to the change of times and circumstances, may be supposed to be most in accordance with the intentions of the founder. What, then, is the *cy-près* of the obsolete City Charities? What would the founders themselves have done for the classes in whose welfare they were so much interested, if they had lived among us with a full knowledge of the circumstances and exigencies of the present day? The Commissioners seem to think that the donors would bestow their money on Polytechnic Institutions, and they have tested the point by asking the charitable of to-day to subscribe equal sums to those they proposed to apply to this purpose from their funds. The response to this appeal has gone far to prove that the donors of the old parochial funds would, in these days, have sided with the Commissioners. They would have concluded that, at least in London—the centre of our industrial system—to educate the working and middle classes to habits of frugality, activity, and forethought, providing both for their bodily health and their mental cultivation with all necessary appliances for technical instruction, is to go far towards the solution of the problems of how to avoid destitution and diminish crime. If this be the mission of the new institutes, then, it would be a pity to delay operations for a day longer than is necessary. The shadowy nature of the sketches of the aims of the Institute alone seems to justify the appeal for delay. The terms of the Report are as follows:—

"The Charity Commissioners had framed and published four schemes, relating to Bishopsgate, Cripplegate, Aldgate Freedom, and to 107 small parishes. The fourth was the main or central scheme. The time was now running during which objections and suggestions might be sent in, and it was on that point that the committee asked for directions. These schemes dealt with funds of the value, roughly stated, of £100,000 a year; the matters were quite novel; they embraced a large number of details; and it was obviously of great importance to London that the arrangements now made should be beneficial ones. Londoners at large clearly ought, if possible, to have a voice in the disposal of property of such importance to them. London had had no local government and no representative body until this Council was created. Londoners, therefore, had no opportunity whatever of being heard during the preparation of the schemes; their first opportunity occurred after the publication of the schemes. No scheme of the Commissioners was made public until the latter part of August. The exact day of the publication the committee did not know, for the schemes were not dated; but the time allowed for making objections and suggestions was two months from the day of publication. The publication took place in the dead time of the recess, when the Council was dispersed; and when the committee got together again for work their first act was to apply to the Charity Commissioners to extend the time of discussion to January, 1890. They had seen their way only to extend it to 1st December next, but the committee recommended that the Commissioners should be respectfully requested to enlarge the period for making suggestions and objections until 15th January."

The period asked for is not long, but the schemes have advanced, in many cases, past the possibility of retreat, land having been bought and sold, and buildings planned. Moreover, the report does not make it clear why the Council cannot at once make such suggestions as it wishes to make.

REVIEWS, NOTICES, &c.

Text-Book of Algebra. Part II. By Professor G. Chrystal, M.A., LL.D. (Adam & Charles Black).

Professor Chrystal has not followed some distinguished examples in keeping the promise of a second volume of his work hanging over us for years. We have had to wait so long for the continuation of Thomson and Tait's Natural Philosophy, that hope deferred has made the heart sick, but Professor Chrystal even apologises for the delay of a few months. He has not, he says, reached ten volumes, but the present concluding volume is somewhat larger and has cost him infinitely more trouble than he expected.

We always find ourselves in accord with him because he is a teacher as well as a professor, thinking always of the educational effect of what he deals with more than of its philosophical or distinctively scientific aspect, and in the work before us there are two points with which we very heartily agree. With most good teachers of mathematics it is a matter of method to let students feel the need of a new rule before it is forced upon them. Problems in arithmetic which may be solved less awkwardly by algebraical methods are given to be worked at first in the more cumbrous way, so that when the algebra is introduced its efficacy may be seen at once. Similarly, questions of mechanics and geometry, which are best solved with the notation of the Calculus, are worked without its explicit use, in order that the methods of the latter may be imbibed with greater avidity. The student who suddenly discovers that he has been using the Calculus for months without knowing it, is in a very healthy condition as regards his ability to make sound and rapid progress in this branch of mathematics. Professors who are not teachers, who are no more in sympathy with their audience than with the benches on which they sit, cannot understand this principle of method in teaching. They prefer to deal with Algebra as Algebra only, the Calculus as the Calculus only, and a clearly marked division recommends itself not only to the lecturing professor, but sometimes to the examiner also. We have dwelt upon this point because the evil is so far spreading that even in a certain Society for the Improvement of Mathematical *Teaching*, rank heresy of the kind referred to has been promulgated without challenge. Professor Chrystal, in his Preface, is sufficiently

emphatic in reducing the Infinitesimal Calculus to its proper place:—

"The main object of Part II. is to deal as thoroughly as possible with those parts of algebra which form, to use Euler's title, an *Introductio in Analysin Infinitorum*. A practice has sprung up of late (encouraged by demands for premature knowledge in certain examinations) of hurrying young students into the manipulation of the machinery of the differential and Integral Calculus before they have grasped the preliminary notions of a *Limit* and of an *Infinite series*, on which all the meaning and all the uses of the Infinitesimal Calculus are based. Besides being to a large extent an educational sham, this course is a sin against the spirit of mathematical progress. The methods of the Differential and Integral Calculus which were once an outwork in the progress of pure mathematics, threatened for a time to become its grave. Mathematicians had fallen into a habit of covering their inability to solve many particular problems by a vague wave of the hand towards some generality, like Taylor's Theorem, which was supposed to give 'an account of all such things' subject only to the awkwardness of practical inapplicability. Much has happened to remove this danger, and to reduce d/dx and $\int dx$ to their proper place as servants of the pure mathematician. In particular, the brilliant progress on the Continent of Function-Theory, in the hands of Cauchy, Riemann, Weierstrass, and their followers, has opened for us a prospect in which the symbolism of the Differential and Integral Calculus is but a minor object. The proper understanding of this important branch of modern mathematics, a firm grasp of the Doctrine of Limits and of the Convergence and Continuity of an Infinite Series, is of much greater moment than familiarity with the symbols in which these ideas may be clothed. It is hoped that the chapters on Inequalities, Limits, and Convergence of Series, will help to give the student all that is required, both for entering on the study of the Theory of Functions and for rapidly acquiring intelligent command of the Infinitesimal Calculus. In the chapters in question, I have avoided trenching on the ground already occupied by standard treatises: the subjects taken up, although they are all important, are either not treated at all or else treated very perfunctorily in other English text-books."

There is another point. We have always thought that the student should not be kept too long at any particular point. If he cannot thoroughly understand the Triangle of Forces or the *Pons Asinorum*, don't detain him to secure thoroughness: let him go on; the comprehension of it will come with new lights and later experience. We quote Professor Chrystal:—

"I may here give a word of advice to young students reading my second volume. The matter is arranged to facilitate reference and to secure brevity and logical sequence; but it by no means follows that the volume should be read straight through at a first reading. Such an attempt would probably sicken the reader, both of the author and of the subject. Every mathematical book that is worth anything must be read 'backwards and forwards,' if I may use the expression. I would modify Lagrange's advice a little and say, 'Go on, but often return to strengthen your faith.' When you come on a hard or dreary passage, pass it over; and come back to it after you have seen its importance, or found the need for it further on. To facilitate this skimming process, I have given, after the table of contents, a suggestion for the course of a first reading."

The subjects treated of are Permutations, Combinations, Inequalities, Limits, Convergence of Infinite Series, Binomial and Multinomial, Exponential and Logarithmic Series, Summation, Expansion and Transformation, Continued Fractions, Probability, and Theory of Averages. The chapter on Summation of the Fundamental Power-Series for complex values of the variable, and following chapters, contain incidentally what is usually given in English works under the title of Analytical Trigonometry. Professor Chrystal, in justifying this arrangement, says: "If any one should be scandalised at this traversing of the boundaries of English examination subjects, I must ask him to recollect that the boundaries in question were never traced in accordance with the principles of modern science, and sometimes break the canon of common-sense." We should like to see his method applied to so-called Dynamics, which contains only algebraical notions, and into which not a single dynamical principle enters. Professor Chrystal has conferred a lasting obligation on English-speaking students of mathematics, by spending "the spare time of five busy years" to such excellent purpose for their profit.

Parallel Grammar Series. An English Grammar for Schools: Part I., Parts of Speech and Accidence. By Prof. E. A. Sonnenschein and J. Hall, M.A. (*Swan Sonnenschein & Co.*)—Our first thought on reading through this small book was that it would be far more useful for those who intend to pass from the study of English grammar to that of the grammar of other languages, than for those whose grammatical study will be confined to that of English alone; and further consideration has only confirmed us in this opinion. In saying this we do not mean to indicate a fault in the book, but merely to characterise it clearly. To be able to write a sound grammar of any one language, one must know the grammars of several languages—as is plainly the case with the authors of this series. But when writing for those who will only study one grammar, we avoid marking distinctions which, though they are implicitly involved in the language in question, are only of real value in those which are to follow, or when the time has come to attempt something in the nature of comparative grammar. For instance, in the book before us, the treatment of the cases of nouns, good as it is, introduces many points which, though true of English, and valuable when we come to compare Latin and Greek with English, are of no real value for modern English taken singly. [By the way, does Prof. Sonnenschein consider "He is the same age as you," "What trade art thou?" (p. 20), standard modern English?] We must not, however, be taken to imply that there is any large amount of extraneous matter thrust into the pages of this book. On the contrary, what will most strike the reader is how much wrong-headedness and mere futility, to be usually found in English grammars, has been resolutely cut out and excluded. Another good point is the directing of the learner's attention to the function of a word (what it does), rather than to what it is. The descriptions of the parts of speech are careful and clear—it is very refreshing to find pronouns at least spoken of as words which "identify without naming"—and the treatment of the tenses of verbs will, we think, be both new and interesting to most of our readers. Indeed the book as a whole is strikingly fresh and clear and sound, and we can heartily recommend it. It costs only one shilling. In conclusion there are just one or two points on which we feel inclined to indicate dissent. We do not see much use in the lists of verbs on pp. 46–49, and 51–53, and no use at all in the list of prepositions on p. 13. We strongly disapprove of the dragging in of the etymologies of technical terms, which quite as often as not are a hindrance, and are never of any real help. And lastly, we venture to express a hope that in some future edition, instead of beginning with the parts of speech already classified, the authors may find it possible to prefix a section showing how this classification is actually arrived at.

A Companion to School Histories of England. By Prof. J. E. Symes, M.A. (*Rivingtons.*)—This is a series of short essays on the most important movements, social, literary, and political, in English history; and is intended to supplement the ordinary books in use. These books as a rule are driven, by lack of space—or because the writer has views of his own as to what history should be—into treating many matters of prime importance, or at any rate of prime interest to the young, so briefly as to be scarcely intelligible to beginners, while at times some of these matters are omitted altogether. Prof. Symes has chosen some thirty of these "movements," and has dealt with them more fully and with greater detail than school histories usually do. Whether teachers of history will quite agree with him as to his selection of topics really matters little, for there are plenty to choose from. They will find the essays carefully written and far from dull, though certainly not so brilliant as those which J. R. Green scattered so lavishly through his delightful book. Those essays which deal with literary matters are particularly thoughtful and interesting; and the whole series, though of course not constituting a complete narrative, do certainly give us (as Prof. Symes hopes) a good general impression of the social, material, and intellectual growth of the nation. We have often stated it as our view that young learners should begin their study of history with fairly full accounts of the most important movements strung together by the briefest possible narrative. And that as they proceed they should fill in the interstices more and more, till the whole has been fully dealt with. This is the plan which the study of child-nature teaches us to be the only right one. And it is, as a matter of fact, the one which most of us use when studying a subject by ourselves—the main matters first, and the minor and intermediate matters afterwards. Prof. Symes' little book (which we believe costs 2s. 6d.) will give those who wish to try the plan an excellent opportunity of doing so. They can take the main matters from him, and can readily supply the connecting links from their school histories.

A Short Geography; with the Commercial Highways of the World. By Prof. J. M. D. Meiklejohn, M.A. (*Simpkin, Marshall, & Co.*)—The plan of this little book is to give the minimum of what the author thinks necessary information, and to print it clearly and strikingly by means of several varieties of type. The population of towns is given in round numbers; and when the town is outside the British Isles its population is

compared to some town in England. Thus: "BERNE (50—half the size of Birkenhead) is the 'capital,' because the Parliament meets there." We confess we are not very well acquainted with the size of Birkenhead. All we know is that it has about 84,000 inhabitants. So we do not feel much helped by the comparison. For this plan to be of real value one of the terms of the comparison should have previously been thoroughly made known to us, and should not itself be variable. Moreover, the terms selected as known should not be too numerous, and should have something in common with those with which they are compared. The selection in the book before us seems mainly made at random. Nor are the statements always quite accurate. Berne is more than half the size of Birkenhead; while, seeing that Jamaica is a good 460 square miles *larger* than Yorkshire, it is disconcerting to find it set down as "three-fourths the siez of Yorkshire." Greece is not a very important country, no doubt, and it gets only twelve lines, half of them small print. But there seems to us a lack of earnestness in the telegrammatic statement:—"The chief occupations are agriculture and commerce. The Greeks are very clever. The chief export is currants." There are good ideas in the book, of course, as there always are in Prof. Meiklejohn's school books; but they do not seem to us to have been thoroughly worked out.

Lectures on Russian Literature. By Ivan Panin. (*G. P. Putnam's Sons.*)—This small book—which is beautifully printed, but rather poorly bound—contains six lectures on Pushkin, Gogol, Turgenef, and Tolstoi, delivered not long ago before a Boston audience. The most marked characteristics of the four writers are brought out with great clearness, and the illustrative quotations are made with good judgment and translated with considerable care. But the number of flighty and erratic opinions expressed about literature which every one knows must tend to inspire the reader with but little confidence in the lecturer's opinions on literature, which is but slightly known to most of us, or not known at all. The style too of the lectures is at times a little distressing—Carlylesque without Carlyle's power, or Emersonian without Emerson's clear cool head. Mr. Panin is also given overmuch to ejaculating "O my friends!" and rushing off into long tirades of sentiment—like the writer whom he so much admires, Mr. Ruskin—and he evidently has a sincere delight in the expression of his feelings, and a sincere desire that the expression of them may prove helpful to his fellows. But they are so out of keeping with the lessons of life, which mankind has so far with great difficulty learnt, that we can hardly honestly wish that all of them should be taken to heart. The insistance, however, on brotherly love, and brotherly service, and the dignity of honest work honestly done—which is the fundamental idea in so much that Tolstoi has written—certainly deserves our hearty sympathy and praise. On the whole, in spite of its preaching, the book has really given us much pleasure to read. Of Tolstoi and Turgenef we already know somewhat, and admire highly what we know; and Mr. Panin has made us very anxious to know more. Pushkin and Gogol are only names to us; and we fear that the untranslateableness of the best lyric poetry of the former will prevent our ever knowing him at all. But Mr. Panin's description of and quotations from Gogol's "Taras Bulba" have fully determined us to learn more of what is evidently (as indeed we have been told before) a very striking, if not a unique production.

Virgil, Aeneid Book I. Gai Iuli Caesaris I. By C. H. Poole. (*Relfe Brothers.*)—We fail to discover any special merits beyond cheapness in these specimens of the "Collegiate Series of Classics." Of texts so well-worn it would require considerable pains to produce editions which should not have some value. As Dr. Poole is "Classical Examiner to a Public Examining Board," it will be understood that the requirements of examinations have been kept in view. Both in the notes and vocabularies there are frequent traces of the haste with which the task of compilation has been executed, resulting sometimes in considerable confusion of expression. For instance, in the Caesar we have, "Under these mantlets the men worked and were pushed forward to shelter the working parties"; and again, "The mine (*cuniculus*), used by the besieged and besiegers, by it the former undermined the *agger*, the latter to make breaches in the walls." In the Virgil, on *mene incepto desistere* is the note, "'Shall I overcome, desist from my purpose?' Here the accusative with affinitive [*sic*] is used with a governing verb to express indignation, &c." Part of an explanation of the term "ablative absolute" is that "it is neither the accusative after the verb nor the nominative to it." Two examples are given of the ethic dative, neither of which is properly so classed, and *onomatopeia* [*sic*] is used and explained as a technical term for the fitting of sound to sense. *Castra* is derived from *cado*, "to settle down"; *calamitas* is allowed its choice of being derived "either from *cado*, I fall, through the obsolete adj. *calamis*, or from *calamus*, grain, hence *calamitas*, a fall of hail or tempest, which damages the crop." A great point is made of marking quantities, as in *mōlo, praetēr, fāctum, confēctus, cītra, cībaria, cērtus, cērtior, fūriae.* To adopt the severe judgment passed by Dr. Poole on two unnamed classical works, "those who simply trust to such guides, often in an examination room, fail on that account to give correct replies." It may be plausibly argued, no doubt, that the reference here is to a furtive and dishonourable use of annotated editions by candidates undergoing examination, but a considerable acquaintance with Dr. Poole's system of punctuation enables us to pronounce that this is not the case.

German Poetry for Beginners: a graduated collection of easy poems for repetition. Edited, with Notes and Vocabulary, by Emma S. Buchheim, Editor of Niebuhr's Heroengeschichten, and of Chamisso's "Peter Schlemihl." (*Clarendon Press.*)—The Clarendon Press has published an excellent selection of German poetry for repetition, edited by Miss Buchheim, a member of a family of which several members have devoted themselves with remarkable success to the diffusion of the German tongue among the English-speaking branches of the Teutonic race. Miss Buchheim has already made herself favourably known by her "Niebuhr's Heroengeschichten" for beginners, and also by her good sense in selecting, and her carefulness in editing, for students of a larger growth, Chamisso's ever-fresh story of Peter Schlemihl. The classic editions of works of Lessing, Goethe, Schiller, and Heine, by her father, Professor Buchheim, of King's College, as well as his grammatical works, are too numerous for enumeration here, and are, moreover, far too well known to require enumeration. To Mrs. Buccheim we are indebted for a very tasteful selection of Schiller's letters. And, had not an all too early death, hastened by an over-zealous devotion to work, cut short a most promissing career, we believe that the late Mr. A. Buchheim, of Manchester Grammar School, would have added to the world's knowledge in philology, and in mathematical science. Miss Buchheim has made the selection of German poetry which is now before us with a view to its being learnt by heart. And, on this matter, we cannot refrain from an expression of regret that the good old fashion of "repetition" is so little followed now-a-days. Whether it be from a desire to economise time for the more numerous subjects that are taught, or from a utilitarian spirit, it is certain that this useful practice obtains far less among us than in Germany or France, or even in the England of thirty years ago. This is unsatisfactory; for, besides its great value in strengthening the all-important faculty of memory, repetition gives the student a stock of ideas and of reminiscences, it develops his taste (for we presuppose that he is required to learn, not "Bradshaw's Guide" or the *Daily Telegraph's* advertisements, but well-chosen pieces exclusively); and in the case of a foreign tongue it gives him a vocabulary and some power of pronunciation. Especially is it valuable with German poetry, which is so much akin to our own, in feeling as well as in language, that it finds easy access to the English student's heart; while, in its lyric form at least, it supplies him with the very words and expressions which he needs most. Miss Buchheim has exercised a wise discretion in drawing upon modern poets only. The volume contains but few pieces that were written before the present century; very many, on the other hand, that are quite of the present day, and many, too, that are taken from admirable poets who become less famed in foreign lands because, while writing well, they have not written much. It is quite a feature of this book that, by the side of favourite poems of Goethe and Uhland and Heine, it shows us specimens, worthy to rank with them, by men whose names are rarely or never heard by the ordinary English reader of German. The whole selection has been made with unerring taste. The notes are very full, and are just what they should be for the learners for whom they are intended—that is, explanatory enough to make the study of poems easy and even attractive. Miss Buchheim appends a complete Vocabulary and an Index to the notes—a very useful feature. Her book, complete in itself as it is, will make an excellent Reader for beginners; and of the children who use it next year, many will remember its pages with fondness fifty years hence.

Algebraic Analysis. By G. A. Wentworth, A.M., J. A. McLellan, LL.D., and J. C. Glashan. (*Ginn & Co.*)—The first or introductory part of this work illustrates the fundamental theorems and the most important processes of pure Algebra. It contains

complete explanations and illustrations of topics which receive but scant attention in ordinary books, such as the Principle of Symmetry, Theory of Divisors, and its application to Factoring, and Applications of Horner's Division. The volume closes with a large collection of exercises in Determinants, which present under new forms many of the general results obtained in the earlier chapters, and to these they add many important propositions in other subjects; as, for example, in the method of least squares, in linear, homographic, orthogonal, and homaloid transformations, and in the degeneracy of the tangency of quadrics. Excellent taste and judgment are exhibited in the beauty and elegance of the production. These, as we have before observed, are marked characteristic of the works sent forth by this firm, which has lately started a London agency. The fact that its books are free from the trammels of the English examination system is sufficient to make them before long a boon to the English teacher.

The History of King Alfred the Great of England. By Jacob Abbott. (*Blackie & Son.*)—We do not remember to have seen this little book before; but as the publishers do not give it any date we cannot be certain whether it is old or new. We can, however, assure our readers that it is very carefully put together, and very pleasantly written. Of course in so small a book we do not look for new departures or newly-discovered facts. What we have a right to demand is accuracy of detail and clearness and skill in exposition, and these are what Mr. Abbott gives us. He begins with an account of early Britain and the legends concerning it. He then passes on to the Roman occupation; and so to the coming and settlement of the Angles and Saxons. All this is interestingly told in two chapters. Then follows a chapter on the incursions and settlements of the Danes—which brings us to the true subject of the little book, the life and times of King Alfred. This subject is well and picturesquely treated in the next nine chapters, the character of the king and his mode of government being particularly well brought out, as is also the nature of the difficulties with which he had to contend. A short sequel brings us down to the eve of the Norman Conquest. Altogether this is a very satisfactory little book, and we heartily recommend it to the notice of our readers. It contains 160 pages, and costs one shilling.

The Essay Writer: being Hints on Essays and how to write them. By Henry Skipton. (*Crosby Lockwood & Sons.*)—The author of this volume, which forms one of "The Civil Service Series," gives a few hints on essay-writing; but the bulk of the book consists of eighty essays on divers subjects grouped under five headings—I. Questions of the day; II. The History of an Institution or Custom; III. Proverbs and Quotations; Illustrated; IV. Abstract Subjects; V. Miscellaneous Subjects. Justice is done to both sides of burning questions with an impartiality which successfully cloaks the writer's own opinions; and arguments *pro* and *contra* have been copiously provided. Whether Members of Parliament will seek information from "The Essay Writer," as the author "ventures to hope," it is impossible to say, but certainly such a compendium of information and such an abstract of argument on a great variety of popular topics cannot fail to be useful to amateur debating societies and petty journalists; while it supplies just the information required by the less lucky *literatus* whose Pegasus can only be urged on by the lash of an examining board.

Seven Thousand Words often Mispronounced. By W. H. P. Phyfe. (*Putnam's Sons.*)—English has endured a great deal at the hands and tongues of America. It has had the *u* excised from *favour*, the position of the final two letters altered in *centre*, so as to make it *center*, and has had *collided* thrust upon it. There are rumours that its pronunciation has been treated somewhat cavalierly also, so that it is with something approaching a feeling of suspicion and hostility that we view Mr. Phyfe's endeavour; and we are relieved to find that *palm* is not to be pronounced *pam*, and that the *calm* of our childhood is to be left undisturbed. It is a shock to learn that, according to Webster, the pronunciation of *card* as *kyard* is a habit particularly cultivated in England, but it does not appear that *stupendious* is of exclusively English origin, and a discreet silence is kept about *theayter*. We scarcely recognise that it will be of much use to most of us to get over the fence of *dichlorotetrahydroxybenzene*, but it is as well to know that *Aboukir* (in a note) refers to the battle of that ilk, and our admiration deepens into surprise when we learn that *Caius* is a *cottage* at Oxford. To be just, however, to Mr. Phyfe, there are many difficulties which are here cleared up, and there are few people who will not find some ancient stumbling-block removed; for, as he claims in the preface, he has not shunned the difficult, and he has not rendered himself amenable to the criticism involved in Young's couplet:—

> "How commentators each dark passage shun,
> And hold their farthing candle to the sun."

Shakespeare's Cymbeline; Shakespeare's Othello. With Introduction and Notes, by K. Deighton, B.A. (*Macmillan & Co.*)—On first inspection of these annotated editions of Shakespeare's plays we note with pleasure a resemblance in arrangement and style to the Clarendon Press Series, with an improvement as regards binding—serviceable strong stiff cloth covers taking the place of the too fragile red-brown paper. Further, there is the welcome addition of an alphabetical index to the copious notes; and marginal headings in the introductions which much facilitate reference to them. The Introductions, which in point of arrangement are exactly similar in each volume, treat of the Date, Origin, Characteristics, Duration, and Plot of the plays. As regards Othello, the author, for want of space, does not attempt to "summarize even upon a single point the vast mass of criticism, which in England, Germany, Austria, and France has grown up round Othello." He advises students, however, to confine themselves to one commentator, and mentions Hudson as giving in "the simplest language" the most satisfactory conspectus of the various points of interest, together with a clear and intelligent analysis of all the important characters in the play. With regard to *Cymbeline*, the editor gives "the unsparing condemnation of Johnson" side by side with "the warm eulogy of Swinburne," two types of criticism which display the spirit of their times no less than the characteristics of their authors. As for the notes appended to the text, they are so extensive that we can safely say that no difficulty of word or phrase is left unexplained.

(1) *British Landscape and Coast Scenery.* (2) *Marine Painting. Each containing eight facsimiles of original water-colour drawings and numerous pencil outlines after J. M. W. Turner, R.A.* (3) *Flower-Painting for Beginners: Twelve Studies from Nature, with many outline sketches and full instructions.* (*Blackie & Son.*) Vere Foster's Lessons in Marine and Landscape Drawing and Painting have already been the means of diffusing a knowledge of art and developing much taste for drawing and painting. With the view of extending this influence, the late Edward Duncan, in his day the best marine artist of the Society of Painters in Water Colours, was asked by the publishers to produce a new set of water-colour drawings, more advanced than his earlier works, and the present series is the result. Duncan always made an accurate and carefully drawn outline study of his picture, and the editors of these works do well to insist throughout that students shall be careful to follow his plan. Young artists are too prone, in these days of hurry and bustle, to take little or no pains with their sketch, and their works suffer in consequence. The works supply a model for this accurate outline with every subject, and advise that it should be copied to perfection before any colouring is done. The practical instructions for the copying have been supplied by an eminent water-colour painter, on the system followed by the artist himself. The style is the old-fashioned one of honest, careful work, no haste no scamping of the work being excused. Experienced critics, such as Mr. Ruskin, have often expressed the opinion that the early masters of the old English school of water-colour painters are the best teachers we can have. Duncan was a disciple of this school, and his admirable drawing and sound practice of careful quiet colouring—avoiding violent contrasts and theatrical effects—are well suited for imitation by beginners. Many of the sketches contain groups of figures, and when this is the case the figures are always in harmony with the surroundings, and supply excellent practice for young pupils. The chief subjects in Landscape Scenery are Norham Castle; Sussex Fishermen; Tarbert, Loch Fyne; Cottage Scene; Straw Barges; Chiddingstone Church; Ulleswater; Tantallon Castle. The Marine Sketches contain Flint Castle; Jersey Fishermen; Ship at Sea in a dead calm; Lifeboat going to a Wreck; Dutch Fishing Vessels; Calais Harbour; Wreck at the Mumbles; French Lugger; A Barque in a Gale. The Flower groups contain daisies, poppies, dahlias, roses, sweet peas, cherries, clematis, geranium, pansy, and a bird's nest. All these exhibit the great advance of chromolithography in recent years; they are excellent facsimiles of good water-colours.

The Girl's Own Annual and Boy's Own Annual. (*Religious Tract Society.*)—These journals have the everlasting credit of showing how to replace the penny dreadfuls, that formerly constituted the only periodic literature for boys and girls, by whole-

some reading, equally special and attractive. The suitability of these volumes for the imperious young people who must be catered for after their own tastes, is manifest at a first glance. In the girls' journal there are several serial stories—"Our Bessie," by Miss Rosa Nouchette Carey; "A Young Oxford Maid," by Miss Sarah Tytler, a tale of Oxford during the War of the Commonwealth; and "The Hill of Angels," by Miss Lily Watson. Of practically useful items we have a great variety; excellent papers on cooking appear every month under the title of "Our Chef." These are due to the authorship of Mrs. Mary Peacock. Next in utility is the series on "Dress in Season and in Reason," by "A Lady Dressmaker." "How Working Girls Live in London" is one of a short set of papers which will do good service by arousing interest and sympathy in the workers who are about us. *The Boy's Own Annual* of course, abounds with tales of adventure. M. Jules Verne relates the story of "Adrift in the Pacific," noticed elsewhere; "Conqueror Compass," by Mr. Franklin Fox, already favourably known as the writer of sea stories; "A Marvellous Conquest," by A. Laurie; "Sir Ludar," by Talbot Baines Reed. There are also numbers of shorter but equally interesting tales by well-known authors, among which is "Cycnotragœdia," a very humorous swan tragedy, by Rev. A. N. Malan. There are some splendid articles on skating, and photographs of the leading skaters of various countries; also articles on "Telegrams and Telegraphy," "Chess," &c. There is nothing whatever in *The Boy's Own* which may not be read with profit by girls, so that girls have two annuals, *Boy's and Girl's Own.*

OUR LIBRARY TABLE.

High School Lectures. By M. E. G. Hewett. (Swan Sonnenschein & Co.)—Miss Hewett is the Headmistress of the Girls' High School, Napier, New Zealand; and the lectures in question are those delivered by her at this school. They deal with the following topics:—The Ideal in Life and Character, Health, Food, Dress, Books, Money, Thrift, Education, Manners, Social Intercourse and Women's Duties, Politics and Women's Rights. They are written with great clearness, earnestness, and good sense, and show that Miss Hewett has not only been diligent to collect the right kind of information, but has also very carefully thought it over in its bearing on the present and future lives of her pupils. We have read her book with considerable pleasure, and cordially recommend it to both men and women teachers. The title of the last lecture ("Politics and Women's Rights") need not frighten any one. "Politics" are taken as including all that affects public and social welfare; while the "rights" of women relate mainly to their being allowed to share in work tending to this welfare, with the consequent duty of making themselves fit to do so. The book contains 150 crown octavo pages, and costs three shillings and sixpence.

The Pronunciation of Greek, with suggestions for a Reform in the Teaching of that Language. By E. A. S. Dawes, M.A. (Nutt.)—This is a pamphlet of some 80 octavo pages, dealing with the origin of the present very faulty pronunciation in England of classical Greek, and an exposition of, and a plea for, the pronunciation used by the modern Greeks themselves. Miss Dawes shows that she has studied her subject with care, and makes her points with great clearness and force. It seems to us that she would have strengthened her argument for reform, if she had dwelt less on the value to possible travellers in Greece of being able to speak the language so as to be understood by natives, and more on the fact that the oral method is the right one for teaching a language; for the vast majority of us learn Greek for the purpose of being able to *read* the great classical works written in that language, and not for purposes of conversation or correspondence. When she proposes that an educated Greek should be attached to each of our public schools, we part company with her altogether. As far as the question of right pronunciation alone is concerned, we think she fully proves her point, and shows, moreover, considerable knowledge of the subject while so doing.

The British Empire. Part I., The Home Countries. By W. G. Baker, M.A. (Blackie & Son.)—"The Home Countries" is the subject of No. 2 of the Geographical Manuals of this publisher. The pupil is expected to have become acquainted with the various forms of land and water, as illustrated in the previous volume of this series, "Realistic Elementary Geography," the distinctive features of which are similar to those now before us. There are numerous illustrations, and several good maps.

Barter's Manual Training, Group A. (Cassell & Co.)—Mr. Barter has, in this series of eight diagrams, given us an admirable introduction to elementary carpentry. There is a certain similarity in the diagrams; each gives the elevation, plan, end elevation, section, and the isometric projection of the subject dealt with, and there is in each a list of the requisite tools. The plates are clear and lucid; visible cuttings are plainly shown by black lines, invisible by black dotted lines, while red lines join parts which are to be fitted together. They are highly polished on stout canvas, with roller. The subjects of the diagrams are—Lapped Halving, Dovetail Halving, Bridle Joint, Double Mortice and Tenon, Single Haunched Tenon, Common and Lap Dovetail, Housing, Grooved and Tongued. Amateur carpentry among our boys generally resolves itself into two classes: whittling, or the putting together of pieces of wood previously prepared. But the boy who follows out Mr. Barter's course will not only have an excellent idea of carpentry, but will also have gone through a course of training in manual exactness, and this in itself is educationally a great advantage.

Science of Everyday Life. By John A. Bower, F.C.S. (Cassell & Co.)—This small volume has been written for the Young People's Section of the National Home Reading Union, and forms one of the science books in the first year's course. Young people who do not pretend to take up scientific reading as a regular study may possibly find the book serviceable. The chapters treat of matter, motion, weight, the air, the burning of a candle, water—of the most common things by which we are surrounded.

The Southern Skies. By Richard A. Proctor, B.A., F.R.A.S. (W. H. Allen & Co.)—In twelve maps we have a guide to the constellations of the Southern Hemisphere, showing the position of the principal star-groups night after night throughout the year. There is an introduction and a separate explanation to each map.

Elementary Mechanics. (Blackie & Son.)—This little book is designed for the use of junior classes. It follows closely the lines laid down in the Education Code for the "specific subject" *Mechanics.* The matter is placed before the student in a very concise and clear manner.

Elementary Physics. By Mark R. Wright. (Longmans, Green, & Co.)—Mr. Wright's book forms one of Longmans' Elementary Science Manuals, and will serve as a suitable text-book for any class beginning the study of Physics. The leading facts are brought under the notice of the student by easy experiments. It contains chapters on Heat, Sound, Light, Magnetism, Frictional Electricity, and Voltaic Electricity, with examination questions, and a useful Appendix containing instruction for the construction of apparatus.

A Primer of Sculpture. By E. Roscoe Mullens. (Cassell & Co.)—This is a short treatise on the rudiments of sculpture, and will serve as a practical guide to beginners. It contains many beautiful illustrations taken from well-known subjects.

The Komick Orackle, or Book of "Fake." By the Bogus Bohemian. (John Heywood.)—Many hours of fun are guaranteed to those who adopt the "fake."

Niels Klim's Wallfahrt in die Unterwelt. By Ludwig Holberg. Edited by H. Babbitt. (D. C. Heath & Co.)—The book, a satirical work, which was suggested by Swift's "Gulliver," was published at Leipzig, and written in Latin. It gives an account of the author's journeys on another planet, the inhabitants of which were trees. By comparing the laws, customs, and habits of the different countries of that planet with those obtaining in European countries, the author teaches his fellow-men many useful lessons. It contains a tremendous flagellation of various abuses in Church and State, and aroused in its time a great deal of indignation. Omitting altogether those things that are now obsolete and too didactic, the editor, in making a judicious selection from the German version, presents a useful and entertaining text-book for rapid reading in the second year's German of our schools and colleges, and one which will cause the students to read it for the sake of the story rather than a sa task.

Caesar's Commentaries, Book III. (Bell & Sons.)—This is another instalment of what is called the Lower Form Series, consisting, like its predecessors, of a reprint of Mr. George Long's notes, with a vocabulary by Mr. W. F. R. Shilleto. This latter, which alone requires notice now, has evidently been compiled with real care, and, what is by no means the rule in vocabularies, with exact reference to the text it accompanies. The book is cheap and well got up.

Introduction to the Study of Commercial Geography. By John J. Cardwell. (John Heywood.)—The chapters of this book are arranged as lectures, introductory to the study of commercial geography. They treat mainly of map drawing and projection from memory, and the work closes with a chapter on the teaching of commercial geography. The author has brought out his principles clearly and with great accuracy, and deserves special praise for his excellent practising maps of countries situated between certain parallels and meridians.

Shakespeare' Twelfth Night. By K. Deighton. (Macmillan & Co.)—In no way inferior to the other volumes of the series is this addition to Macmillan's English Classics. The introduction is short, but in it all matters of interest are dealt with, while matters of controversy are omitted. The quality and style of the notes we have already discussed in noticing previous volumes of the series. They contain many interesting particulars which tend to lighten the study of our greatest poet, and ensure the attention of the student.

Laugh and Learn. By Jennett Humphreys. (Blackie & Son.)—Is undoubtedly the easiest book of nursery lessons and nursery games. Beginning with the alphabet, the authoress gradually and systematically leads the young child through the intricacies of reading, writing, counting, and drawing; and then, apparently coming to the conclusion that it is time for play, treats in a very pleasant manner with fun, charades, puzzles, indoor diversions, play songs with music, and nursery drill with music. Every mother of children should have "Laugh and Learn," and go through with them the excellent course it contains.

Pieces arranged for Violin and Pianoforte.—Modern Gems, by Carl Volti; Chant Pathétique, by L. Balfour Mallett; Early Blossoms, by Carl Volti; Cavatina, by Seymour Smith; Gavotte in F, by L. Balfour Mallett. (Beal & Co.)—The "Modern Gems" are in two series. No. 10 of the first series is entitled "Ring o' Bells." The accompaniments are very simple, but very

effective. The "Chant Pathetique" is in D, the Cavatina in A, and the Gavotte in F. All are figured in the violin part.

Pieces for Pianoforte.—Rustic Sketches: a Series of Easy Pieces, by Carl Hemann—(6) *Oak Leaves*, (1) *Tripping o'er the Meadows*, (12) *Moonlight Music. Sans Pareil; Londres, Danse Anglaise; Constantinople, March Turque; La Vestale Valse; by Leonard Gautier. Two Sonatinas, by Adolf Roloff; Au Secours, March, Willem Vandervell; Valse de Concert, by Graham P. Moore; Babina, by Arthur Thompson McEvoy.* (*Beal & Co.*)—The "Rustic Sketches" are easy pieces, written to follow Hemann's Tutor. No. 1 is a Valse in the open key. No. 6 a Polka. No. 12 a Melody in G and D. All are figured. All the others are pieces having more than ordinary merit, the prettiest being the March by Vandervell, "Babina, a Morceau à la Styrienne," and the Valse, "La Vestale."

Songs.—The Old Pensioners (*Key B flat, range C to E*); *Sweet Blissful Days* (*Key A flat, compass C to F*); *Only an Answer* (*Key E flat, compass E to F*); *The Messmate's Story* (*Key G, compass B to E*), *by Arthur Thompson McEvoy. The Children* (*Key C, compass C to F*), *by L. Barone. My Soul to Heaven, my Heart to thee* (*in F, compass C to F*), *by Piccolomini. The Silver Falls*, (*in F, compass C to F*), *by H. Elliot Lath. Marjorie Rondolette, Marigold Galopade, Primrose Valsette, Rosebud, Mazurka de Salon, by Enos Andrew.* (*H. Klein & Co.*)—There is a want of pieces of merit, such as these, for beginners. Nothing could be easier than they are, and considering this fact they could hardly be more melodious. The Rondolette and the Valse "Primrose" are especially simple, and at the same time strikingly interesting.

Demosthenis de Corona. By B. Drake. (*Macmillan.*)—This is very much more than a reissue of a well-known and valuable edition. Not only have both text and notes been revised, but the latter have been enlarged by the addition of at least a third of new matter; while a new introduction of considerable length has been prefixed. How well all this has been done will be easily understood by those who can penetrate the thin disguise of the initials E. S. S., under which the reviser has been content to veil his identity. It is altogether a most useful piece of work, and considerably more valuable than an entirely new edition would have been.

Selections from Valerius Maximus. By W. R. Inge. (*Rivingtons.*)—New ground is broken for the use of teachers in this reading-book. We think it is likely to be useful chiefly for *vivâ voce* practice. The matter and style of the author are hardly worth elaborate preparation, while boys of the age for which the matter is most suitable will find the style difficult without oral help. It would perhaps have been better to correct the most glaring of the many blunders into which Valerius falls, as when he makes Tanaquil the wife of Ancus Marcius.

GIFT BOOKS OF THE SEASON.

Cousin Geoffrey and I. By Caroline Austin. (*Blackie & Sons.*)—This is a pleasantly written story for girls (288 pages, cost 3*s.* 6*d.*). It tells of the only daughter of a country gentleman who finds herself left dependent on an unkind kinsman, the wrongful inheritor of the property. Life is kept from becoming entirely unbearable for her by her young cousin Geoffrey, who after a while meets with a serious accident, for which she is held responsible. She is then sent to other relatives still more unkind, and at last in despair runs away, and endeavours to support herself by joining a circus. The circus is burnt; the cousins meeting; the problem of the missing will is solved, and all ends happily. Simply and pleasantly as the story is written, and good as is the underlying moral of independence and forgiveness, it seems to us, nevertheless, somewhat commonplace; and this defect is only made the more prominent by the introduction of one or two melodramatic incidents. There are, however, several pretty bits in the story, and it is thoroughly wholesome.

The Story of a Queen, by Mary C. Rowsell (*Blackie & Son*), is the history of the good and beautiful Marie of Brabant, the second wife of Philippe III., King of France. Her story is well and faithfully told by Miss Rowsell, and its keynote seems given in the first scene, when the little Princess marvels whether, being innocent, *she* could ever bear to be "scorned, despised, and called traitor." We read how the King's affection for Marie roused the malignant jealousy of the King's "gossip," Pierre de la Brosse, once barber-surgeon to Louis IX., and how the Queen was accused by him of having poisoned her little step-son, whom she had loved with true mother's tenderness; how she was thrown into prison, and suffered long months of misery before her innocence was established—"suffered," but was "strong"; and how in the end right triumphed, and Marie was restored to love and happiness. The book is charmingly written; without any affectation of thirteenth century speech, it yet never jars upon the reader as unsuitably modern.

The Story of White Lilac, by Amy Walton (*Blackie & Son*), is an excellent one, and prettily told, except that we have a little too much of the conversation of those who simply speak bad grammar, without there being anything striking in their dialect; while, from a want of inverted commas, this defective grammar seems sometimes to creep into the narrative itself. The character of the little heroine has something of the sweet freshness of her namesake flower, and we like the book all the better that Lilac wins no great reward; we leave her pursuing the "common round" of her daily duties in loving unselfishness; satisfied, because feeling that she would be missed if she went away from her uncle's farm, where, almost unconsciously, she has acted the part of the good "brownie"; and because *all were glad* that she was "going to bide!"

New Editions.

A Glossary of Anatomical, Physiological, and Biological Terms. By the late Thomas Dunman. Edited by V. H. Wyatt Wingrave, M.R.C.S., L.S.A. (*Griffith, Farran, Okeden, & Welsh.*)—Mr. Wingrave has added some terms under the headings of physiology and morphology. The general idea or arrangement of the work is unaltered.

Watton's Historical Charts. (*Whittaker & Co.*)—The charts, which have reached the seventh edition, are arranged for aiding the memory.

German Conversation-Grammar. By Emil Otto, Ph.D. Revised by Franz Lange, Ph.D. (*David Nutt.*)—This, the twenty-fifth edition, has been revised and partly re-written by Professor Lange. The addition of a vocabulary to the English-German exercises supplies a long-felt want.

The Solution of Difficulties in Arithmetic. (*Moffatt & Paige.*)—The fact that a second edition of this work has been called for within three months of its publication is sufficient testimony to the success it has achieved.

Outlines of Geography. (*Moffatt & Paige.*)—In the new edition of this small and elementary work marks of revision are evident.

Handy Assurance Manual (1889–1890). *By William Bourne, F.S.S.* (*Philip & Son.*)—This new edition of the Manual has been revised to date, and additions and improvements have been made. It contains a mass of reliable information, and will certainly supply a great want.

Outlines of Geography. (*Moffatt & Paige.*)—This work has been carefully revised and partly re-written. Although of small dimensions, it abounds in useful information.

Ground, Light, and Heat. By Alfonzo Gardiner. (*John Heywood.*)—The sixteenth edition of this science manual is now published. Many additions have been made since the publication of the first edition in 1871, but the author still gives us a "note-book," with bare skeletons for lecturers, teachers, or students to clothe for themselves.

First Exercises in Latin Prose. By E. D. Mansfield, M.A., and First Steps in Latin. By F. Ritchie, M.A. (*Rivingtons.*)—A new edition of each of these books is announced. For a beginner the latter is especially adapted, the former taking the pupil much more deeply into the subject.

A Primer of Greek Accidence. By Evelyn Abbott, M.A., LL.D., and E. D. Mansfield, M.A. (*Rivingtons.*)—Another edition of this excellent and justly popular primer is before us. We do not notice that any material alterations have been made in its contents.

An Introduction to Chemical Science. By R. P. Williams, A.M. Revised by B. P. Lascelles, M.A., F.C.S. (*Ginn & Co.*)—Mr. Lascelles has adhered closely to the plan adopted by Mr. Williams in his Introduction to Chemistry. The alterations and emendations that he has made have suggested themselves to him during a year's class work with the American edition at Harrow.

The Teacher's Manual of Object Lessons. By A. Park, F.R.G.S. (*John Heywood.*)—A series of model lessons, suitable for the infant school, has been specially prepared for this, the sixth edition, and numerous structural alterations have been made upon many of the lessons. The entire work, in fact, has been rearranged. There is now a systematic sequence of gradation from standard to standard in the order of the lessons.

The Scholar's Geography, Part II. By J. S. Horn. (*John Heywood.*)—This is the twentieth edition of a book specially adapted for the use of elementary schools.

First Examinations in Mental Arithmetic. (*John Heywood.*)—In this, the third edition, a few corrections have been made and a modification of the rules for multiplying by 25, 125, and 250 added. There is also an Appendix of additional examples.

A Selection of English Synonyms. By E. Jane Whately. (*Longmans, Green & Co.*)—The ninth edition of this work has been carefully revised, and all the part which treats of derivation has been brought into accordance with the most recent discoveries. It is by far the best book on the subject.

Young Pupil's Historical Remembrancer. Fifth Edition. (*John Heywood.*)—A packet of twelve cards containing a chronological list of the Sovereigns of England, with the principal events in each reign chronologically arranged.

The Foreign Commercial Correspondent. By Conrad E. Baker. (*Crosby Lockwood & Son.*)—Mr. Baker's work, of which a second revised edition is now published, should be in the hands of all persons who wish to qualify themselves for corresponding in German, French, Italian, and Spanish.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending December 31st, 1889.

Abercromby's (Hon. J.) A Trip through the Eastern Caucasus, 8vo, 14s. cl.
Æschylus, The House of Atrius, translated into English Verse by E. D. A. Morshead, cr. 8vo, 5s. cl.
Alexander the Great, History of, edited by E. A. W. Budge, 8vo, 25s. cl.
American War Ballads and Lyrics, edited by G. C. Eggleston, 2 vols., 7s. cl.
Aristophanes, The Birds, with Introduction and Notes by W. W. Merry, 12mo, 3s. 6d. cl.
Aristotle (Ethics of): Nich. Eth., Bks. 1-4, and Bk. 10, ch. 6 to end, edited by S. H. Jeyes, 8vo, 6s. cl.
Arnold (Thos.) D.D., Life and Correspondence of, by A. P. Stanley, cr. 8vo, 2s. cl. (Minerva Library.)
Atlas de Ports Étrangers, Part 4, 7fr.
Barth (J.); Die Nominalbildung in den Semitischen Sprachen, Part 1, 10m.

Bellaigue (C.): L'Année Musicale, 5fr.
Birdwood's (A. R.) An Arabic Reading Book, 12mo, 5s. leather.
Browning's (E. B.) Poetical Works. Vol. 2, cr. 8vo, 5s. cl.
Bryce's (James) The American Commonwealth, 2 vols. 25s.
Buchheim (E. S.) German Poetry for Beginners. With Notes and Vocabulary, 8vo, cl. 2s.
Century Dictionary of the English Language, Part 2, 10s. 6d. cl.
Charles's (J. F.) Modern Thought and Modern Thinkers, 2s. 6d.
Colonies de l'Océan Pacifique, 3fr. 50.
Conder's (C. R.) Palestine, cr. 8vo, 3s. 6d. cl. (The World's Great Explorers and Explorations.)
Cradock's (Lieut.-Col.) Sporting Notes in the Far East, 6s. cl.
De Tunzelmann's (G. W.) Electricity in Modern Life, 3s. 6d. cl.
Donovan's (J.) Music and Action, Elective Affinity between Rhythm and Pitch, cr. 8vo, 3s. 6d. cl.
Duncan's (E.) Marine Painting, 4to, 5s. cl.
Euripides, The Iphigeneia at Aulis, with Introduction and Notes by C. E. S. Headlam, 12mo, 2s. 6d. cl. (Pitt Press.)
Eve (H. W.) and Zimmern's (A.) Exercises to accompany the School German Grammar, cr. 8vo, 2s. cl.
Ewen's (Rev. J.) India, Sketches and Stories of Native Life, cr. 8vo, 4s. 6d. cl.
Fischer (L.): Die Philosophie als Bestimmungslehre, 3m. 60.
Frey (Col.): Côte Occidentale d'Afrique, 10fr.
Gibb's (E. J.) England and South Africa, 8vo, 5s. cl.
Goldsmith's Vicar of Wakefield, The Traveller, and Thomson's Seasons with original Steel Engravings from Designs of R. Westall, 12mo, 8s. each, seal.
Grimm (H.): Fünfzehn Essays, Fourth Series, 6m.
Guettier (A.): Le Fondeur en Métaux, 12fr.
Halliday's (G.) Mechanical Graphics, 8vo, 6s. cl.
Harker's (A.) The Bala Volcanic Series of Caernarvonshire and Associated Rocks, Sedgwick Prize Essay, 1888, 7s. 6d.
Harper's (H. A.) The Bible and Modern Discoveries, 16s. cl.
Hartmann (J. J.): Analecta Xenophontea Nova, 10m.
Julleville (P. de): Le Théâtre en France, 3fr. 50.
King (J. E.) and Cookson's (C.) Introduction to the Comparative Grammar of Greek and Latin, cr. 8vo, 5s. 6d. cl.
Kingsley's (C.) Historical Lectures and Essays, Uniform Edition, cr. 8vo, 3s. 6d. cl,
Le Clerc (G.): Le Bestiaire, hrsg. v. R. Reinsch, 10m.
Letters of the Duke of Wellington to Miss J., 1834-51, edited by C. T. Herrick, cr. 8vo, 6s. bds.
Longfellow's (H. W.) Ballads, Lyrics, and Sonnets, 18mo, 4s. 6d. cl. (Golden Treasury Series.)
Luthardt's (Dr. C. E.) History of Christian Ethics, Vol. 1, 8vo, 10s. 6d. cl.
Meyer-Lübke (W.): Grammatik der Romanischen Sprachen, Vol. 1, 16m.
Middlemore's (S. G. C.) The Great Age of Italian Painting, 8vo, 5s. cl.
Müntz (E.): Les Archives des Arts, Series 1, 12fr.
New English Dictionary on Historical Principles, ed. by J. A. H. Murray, Part 5, 12s. 6d. paper.
Nisbet's (E.) Flower Painting for Beginners, 4to, 4s. cl.
Philips' Presentation Atlas for Young People, edited by J. F. Williams, royal 8vo, 2s. 6d. cl.
Picton's (H. W.) The Story of Chemistry, cr. 8vo, 3s. 6d. cl.
Riancey (H. de): Histoire du Monde, Vol. 12, 6fr.
Rivers of Great Britain, Descriptive, Historical, Pictorial; Rivers of the East Coast, royal 4to, 42s. cl.
Rochard (J.): L'Education de nos Fils, 3fr. 50.
Rubinstein (A.): a Biographical Sketch, by A. McArthur, cr. 8vo, 3s. 6d. cl.
Schmidt's (C. von) Heinrich von Eichenfels, with Notes, &c., by G. E. Fasnacht, 12mo, 2s. 6d. cl.
Shakespeare's Works, edited by H. Irving, Vol. 7, 10s. 6d. cl.
Siebs (T.): Zur Geschichte der Englisch-Friesischen Sprache, Part 1, 10m.
Tennyson's (Lord) Demeter, and other Poems, 12mo, 6s. cl.
Tolstoi's (Count L. N.) The Long Exile, and other Stories for Children, cr. 8vo. 2s. 6d. cl.
Vallat (G.): Etudes d'Histoire, 3fr. 50.
Wallace's (A. R.) A Narrative of Travels on the Amazon and Rio Negro, cr. 8vo, 2s. cl.

LANGUAGE AND LINGUISTIC METHOD IN THE SCHOOL.*

By S. S. Laurie, M.A., LL.D.,

Professor of the Institutes and History of Education in the University of Edinburgh.

Lecture VI.

Method in Teaching Foreign Languages—Latin as Type.

I have already shown you that the best culture which a man receives through language is to be obtained only through his mother-tongue. While he *seems* to be deriving culture from a foreign language, it is in fact from the comparisons, similarities, contrasts of the forms of thought and expression in that language with those with which he is already familiar, that he receives intellectual and moral benefit and a finer æsthetic perception. The foreign tongue will be of substantial advantage in his education only in so far as he, more or less consciously, transmutes its forms, its thought, its images, its delicacies into the familiar vernacular which is, and must always be, the vesture or expression of his own inner life. Language is a necessity for the growth of mind. Growth depends on finding fit utterance for those complex mental states which succeed each other in the history of the race and of the individual, and are ever deepening and widening their range. If the form or mould into which each man's mental life runs, and by means of which he feels and thinks as a self-conscious being, be (as I have maintained it is) his own vernacular, then Latin, Greek, or French or German, can never be a substitute for this, but only contribute to its richness, explicitness, fulness, and fitness.

Now, fortunately, it is impossible to learn any foreign tongue whatsoever without the constant discrimination of difference and recognition of likeness as between that tongue and the vernacular, thus foreing the latter into clear consciousness. The result is that native words, phrases, syntactical forms, metaphorical expressions are no longer known and used by the student in a merely rote or imitative way, but with due regard to their true significance. And although to be conscious of language is not to be conscious of thinking as such, it is the next thing to it: and thus a great step is made towards a thinking life of intelligence, as opposed to a rote and imitative life. Consciousness becomes self-consciousness. In brief, it is just because the conscious exercise of thought on the necessary vehicle of thought is the nearest approach to the exercising of thought on thought itself that it is so highly educative, both as a training and as a discipline.

I select Latin as type of foreign tongues for many reasons unnecessary to detail here. Our first question must always be, "*Why* do we teach this or that?"

(a) *Reasons for Teaching Latin.*

Other reasons than those which influenced the fourteenth, fifteenth, and sixteenth centuries must be sought for. And there must be valid reasons of another kind which have operated powerfully on the side of natural conservatism: for mere conservatism itself could scarcely have done all that some attribute to it. Other reasons, and, as I think, sufficient reasons, there are.

I have not time here to discuss the question whether a foreign language should be approached from the imitative or grammatical side. I must content myself with giving, dogmatically, my own conclusion, reached in the light of the objects we have in view in teaching a foreign tongue. That conclusion is, that every foreign tongue should be approached from the *grammatical*, or formal, side. The question remains, *How* is the grammar of the foreign tongue to be taught?. The general answer must be, Just as English grammar is taught. The method which I explained and illustrated in the teaching of English grammar can be applied by any one, without extraneous help, to Latin or French or German, if he will only think it out. There are certain differences, it is true, but these generally arise out of the *reasons* for teaching this or that foreign tongue. Accordingly, I ask you to go with me into the reasons for teaching Latin in these modern times. I would only further premise that, as we have to approach a foreign tongue formally or grammatically, it is impossible to separate the real from the formal in our instruction. These advance *pari passu*.

We teach Latin—

(1) Because as a formal and grammatical study it has peculiar advantages, and, more effectually than any other language (except Greek),* gives discipline to the intelligence, and the result of discipline, viz., intellectual power.

(2) The study of Latin gives (to an Englishman at least), more than any other language can do, a training in words—the relative values and the functions of words, and, consequently, training in the thought-things they denote. The shades of meaning in vocables are brought into high relief.

(3) The analysis and subsequent synthesis whereby we truly comprehend an English sentence, and which is a direct training of the processes of mind in knowing (in the scientific or any other field), are most effective as training when it is a foreign tongue that we are teaching; and, above all, when that foreign tongue is Latin. This because, in order to give the English translation, a pupil is forced, whether he will or not, deliberately and of set purpose to consider the mutual relations of the parts of a complete sentence; and, secondly, because of the exactness and

* A Course of Six Lectures delivered at the University of Cambridge and at the College of Preceptors, London, during the month of May, 1889.

* For *boys*, Greek is inferior to Latin, in my opinion, especially for British boys.

precision with which these logical relations are brought into prominence in a highly synthetic language.

(4) The working out of a translation from a foreign tongue is a training of the imagination, which has to bring itself into play in order to unite into a whole, in their true signification, the parts of a sentence. Latin in a special sense gives this training The imagination, moreover, is checked and kept within the wholesome bounds of truthfulness by comparing the result achieved with the original.

(5) Latin is, to a very large extent (to the extent of two-thirds at least), our own tongue. In studying Latin, therefore, we are studying our own tongue in its sources, and getting all the discipline and nutrition of mind which flows from the study of the origin and *history* of words. Latin enables us to revivify our own tongue for ourselves. Nay, we are studying our own language in much of its syntactical mould also, as may be seen by reading our early prose writers, and even those of the eighteenth century.

(6) It follows from the preceding reason that, in studying Latin, we are brought face to face with modern conceptions as to moral duties, social relations, and legal obligations *in their origins*, and that we thus undergo a kind of unconscious philosophical training suited to the, as yet, immature mind, and moulding its conceptions from the foundation. My friend, Dr. W. T. Harris, Education Commissioner for the United States, may perhaps be held to exaggerate when he says:—

"One may say that of a hundred boys, fifty of whom had studied Latin for a period of six months, while the other fifty had not studied Latin at all, the fifty with a smattering of Latin would possess some slight impulse towards analysing the legal and political view of human life, and surpass the other fifty in this direction. Placed on a distant frontier with the task of building a new civilization, the fifty with the smattering of Latin would furnish law-makers and political rulers, legislators, and builders of the State."—

(7) In studying Latin we are taking possession of the key of the Romance languages, shortening the time needed for acquiring these by at least one-half.

(8) The study of Latin introduces the pupil in its later stages to a conscious discernment of Art in language—the artistic or beautiful in expression. And this to a degree which no modern tongue can do, because, first, of its chaste severity of form; and secondly, because being so far removed from our own time we can look it at as a fresh and alien object. Thus, by contrast, our implicit feelings regarding literary form in our own tongue are brought into explicit consciousness—raised, in short, from mere feeling into knowledge.

(9) The study of Latin, as a dead tongue, especially in its later stages, when it is accompanied by the study of the life, art, and literature of the Roman, has a remarkable influence on the tone of thought and character. It has this influence by connecting us in a living way with what seems, but truly is not, a dead past, and thereby expanding our intellectual and moral sympathies so as to embrace that past as part of our own life. It makes us members of a larger human society. Modern cotemporary language and life is too near to our own to have this cultivating influence to the same extent, and does not teach us to see things in a true perspective; they may be said to broaden our lives, but they do not lengthen them. Neither the Hindu nor the Chinese languages and life could do this, because these are not *our* past. The ancient life, by thus stimulating the historical imagination and carrying it out of the present, tends to give balance of mind, checks sciolism of opinion and crudeness of judgment based on a narrow induction of things, which, as being close at hand, are apt to assume undue importance. The true humanity of the growing boy is thus deepened and strengthened.

I do not here speak of the large culture which Latin, as literature and as the embodiment of the attitude of the Roman mind to life and social order, gives to the university scholar who has mastered these. The education of the people is not to be regulated in the interest of either literary or linguistic or historical experts. I have to think of boys and the school only. All else can take care of itself.

It might be said, and has been said by certain arid utilitarians, that the study of the history of Rome would do much that I attribute to the study of the language of Rome. But this, I think, is a mistake. The true history of a country is the thought and literature and art of that country; and I know very little of any people if I know it merely in its annals of events, even if I also exhibit in bold and effective relief its great characters (which is not always done). I *know* a people only by living contact of mind with mind, of humanity with humanity, and this is alone possible by contact with its language. This is to know its true history, its true significance as a factor in the world's progress, because this alone is to know its inner life.

The reasons for the study of Latin which I have given might be very much amplified and elaborated; but I am not here defending against opponents the importance of this special kind of linguistic instruction. My sole object is, by bringing before you the reasons *why* we learn Latin, to introduce you in a *rational* way to the question *how* we should teach and learn Latin. Each one of the reasons which I have above assigned has a direct bearing on *method*, because method is a *way*, a road to certain ends. Think, then, of these ends, and try to inquire the road to them for yourselves, and you will, so far as these ends at least are concerned, have constructed for yourselves a *method of teaching Latin.*

(*b*) *Method of Procedure.*

In teaching Latin, we have to keep the above reasons for teaching it always in mind. They yield rules and directions for procedure peculiar to the teaching of Latin. But we have also to keep in mind that the majority of our pupils must leave us for the business of life before they have acquired, even fairly well, the language or languages we teach them. Consequently, the rule which is applicable to every subject is specially applicable here—viz., that our *method be such as to give to every pupil the full benefit of the training and discipline which the language gives and which the pupil's age admits of, at whatever point he may cease* to study it. Herein lies one of the claims which all method permanently makes on the teacher—that it secures this admirable result.

Those of you who remember the first lecture of this course will see that the functions of Language as an instrument of education, as giving food and training, as giving discipline, and as giving cultivation of the artistic perceptions, are all included in the above reasons for teaching Latin, and, in due degree, any other foreign tongue.

Were there time and space I should here introduce all the rules of method, as I have deduced these (elsewhere) from the facts of psychology, and apply them to the teaching of Latin. I content myself with the more important.

Application of Rules.

1. *Teach one thing on the basis of another which is already known; for the mind advances to new knowledge on the basis of what it already knows. Knowledge is an organic growth, not a mechanical one.*

The old knowledge out of which the new language must grow is the knowledge of the vernacular.

As regards vocables, this is clear enough. *Musa* and *dominus* have no meaning to anybody except in so far as a "song," or "muse," or a "lord" are already known. We must know the "thing," whatever it may be, in our own tongue before we seek to know it in another.

If the new is to grow out of the old, *Latin* grammar, no less than Latin vocables, ought to grow out of *English* grammar. A boy should be able to parse fairly well, and to see the simple relations of clauses in English sentences, before he begins Latin.

I hear the sound of the usual stock objections, from a certain type of classical teacher, when I say this—*e.g.*, "There is no English grammar, properly speaking"; "Boys never learn English grammar thoroughly till they know Latin grammar"; "Boys, in fact, cannot do it." In brief, English grammar is Latin grammar: for I suppose that is what it all amounts to.

I deny this *in toto*. That the boy who knows German will thereby know English grammar better than the boy who does not know German, is true; still more certain is it that the boy who knows Latin will know English grammar better than the boy who does not know Latin. Everybody will admit this; but it is an absurd inference that the knowledge of English grammar *depends* on a knowledge of German or Latin. All that it means at bottom is, to use the words of Goethe: "A man who knows *only* his own language does not know even that."

Enough on this point. I stand by the Rule; and maintain that the new should grow out of the old, and that, therefore, a boy should not be introduced to Latin at all until he has a firm hold of English accidence and parsing and general analysis. I am convinced that we should find boys in this way make much more rapid, certainly surer, and always more intelligent, progress with Latin.

In connexion with this, let me say that the arrangement of tenses and moods in the conjugation of English verbs should, as much as possible, correspond with that adopted in the Latin

grammar. I think that the Latin ought to meet the English here half-way, and that, for example, the subjunctive mood should always be called "Potential *and* Subjunctive." In this way it would be seen clearly that it was used both for the English Potential, "I may be," and the English Subjunctive, "If I be," and so forth.

[Parallel Grammars recently published try to give effect to this idea. I have not examined them, but they are well spoken of.]

In syntax a good deal more in the way of preparing the way for Latin can be done than is generally admitted. Thorough English parsing, in which the relations of the predicative verb to subject and object, &c., &c., are fully brought out, would do very much to promote a clearer and quicker conception of Latin syntax as being not something altogether alien to English, but only different. Remember, too, that if we forfeit the discipline obtained by contrasting English and Latin, we imperil the teaching of Latin altogether, for we thus abolish one of its chief uses for boys.

It follows from what we have said that quite the earliest age for beginning Latin should be the second year of the upper-primary period, viz., the twelfth year; and this quite irrespective of other educational considerations.

2. *The real, or concrete, should precede the abstract, as this accords with the natural growth of mind.*

As regards vocables, for example; these should be supplied in connexion with every declension and conjugation as they are acquired, but they should, in the first instance, be restricted to things of sense: *e.g.*, the names of the more common animals should be given, and in connexion with these, the parts of the animals. You give *taurus* and *vacca*; give next *cornu, pes, os, cauda*, and so forth. Then bring in those adjectives which are fitly and usually applied to these things. Thereby also you fulfil the rule which requires that you "associate teachings," and so aid the memory. No Latin words should be given in the earliest stages, except those which denote things already familiar.

3. "*Teach generalizations as generalizations.*"

That is to say, we are to base all generalization on the particular and concrete, which alone gives it any meaning. Rules of syntax are generalizations, and they are to be constructed out of the initiatory reading-lessons by the pupil with the help of the master. As the pupil gradually acquires them he will write them down as the teacher has formulated them on the blackboard, and enter them at home in a Grammar note-book. Here again the association with concrete instances will help the memory. And still again (for all sound rules of method help each other), you evoke the will of the pupil, and by giving him a sense of power in construction, you elicit intellectual interest.

I know it will be said that if the boys are told to learn the generalizations by heart at once, and apply them as occasion arises, they will learn them sooner. But this is not true. Very few ever learn them at all so as to see their true bearing on the concrete. By the inductive method they *must* see this; their memory is helped by the rationality of the connexion and by association with particulars, and they thus learn *more quickly*. Besides, quickness of acquisition is not everything: the course of instruction must be *solid* and *sure*, as well as quick. Then, there is the question of intellectual training and discipline, one of our chief reasons for teaching Latin at all. The inductive method gives these in addition to all its other advantages. Is it to be supposed that the method of teaching any subject which is the most educative is the most ineffective? This would be a strange contradiction in nature. Let the teacher always remember that he is teaching a *mind*, not this or that subject.

I do not, of course, mean that the boy is to wait till he sees a very large number of "instances" before he completes his induction. He is not a grammatical investigator, save in a boy sense. The rules of the art of education provide for this. The boy, if his will is to be evoked, must be self-instructing; but the teacher is to be his guide and co-operator, and so lead him to a result which, left to himself alone, he would never reach.

4. *Turn to Use.*

We never truly know even a word or form, much less a linguistic rule, until we have used them. If I recollect rightly, Aristotle's words are, "By playing on the lyre we become lyre-players." Every acquisition in the shape of words or generalizations, accordingly, must be turned to use *from the very beginning* for the making of Latin. No lesson in Latin is a complete lesson which does not embrace this. Oral composition, and composition by the help of the blackboard, must be a part of every lesson from the first. Give the boy *est* and *sunt* and *non*, and you can begin before the end of the first week. Masters who wisely do this are apt to trust books. Now books, especially good ones, are very useful in their own way and place. But teachers will never understand teaching till they learn to regard books as merely subsidiary, and as necessary evils. No man certainly has a right to teach any subject whatsoever until he is independent of books. It must all be *in him*. He must be saturated (as I think Huxley says) with his subject. I am well aware that such teaching as I refer to is more laborious for the teacher, and, as a matter of course, we have his indolence finding arguments against us. One thing is certain, that such teaching attains its end; that the other way, which, under more or less of disguise, is the rote-way, has failed, requires no evidence. *Circumspice.* Prize pigs from Belfast are unsatisfactory evidence that all, or even the majority, of the pigs in Ireland take fat at all.

The boy, remember, has learnt, or is daily learning, the more common Latin vocables under each declension and conjugation which have reference to things of the *sensible world and of ordinary life*, and these can now be utilized. The making of Latin will advance with the growing knowledge and growing intelligence of the boy, just as English does or ought to do. All the vocables acquired should be turned to use by being thrown into living connexion one with another, and not left in columnar isolation. If our aim were simply to fit boys to make acquaintance with Latin literature in the original, it would, perhaps, be difficult to maintain the imperativeness of this early necessity of Latin composition; but this is not our sole, or even our chief, aim. These early exercises should be oral in the first instance, and embrace gradually some of the common concerns of life. If a proper selection of vocables to be learned by heart is given, and if a few verbs are early thrown in, this practice of oral composition is quite feasible. Only simple sentences are to be attempted, to begin with. In training to synthetic and imitative composition in the vernacular, I pointed out the importance of requiring the boy to answer questions in complete sentences, and this rule might perhaps be attended to also in Latin with advantage.

5. *Present to Sense.—The eye should be appealed to whenever practicable.*

It is long since Horace wrote—

> "Segnius irritant animos demissa per aurem
> Quam quae sunt oculis subjecta fidelibus, et quae
> Ipse sibi tradit spectator." (A.P. 180).

Strange that men should have been so slow in applying a precept so obvious. A Latin class without the use of a blackboard, on which every new word and sentence and rule may be written distinctly, is an anachronism. You have not taught anything capable of being presented to the *eye* until you have taught it *through* the eye as well as through the ear. Were it possible to smell it and taste it and touch it, you should also teach it through the nose, the mouth, and the skin. The senses thus establish their own associations, and aid memory.

Before leaving this rule of method, I would, by way of subsidiary suggestion, say that it would be well were the Latin declensions and conjugations exhibited in black letters on wall-maps, so as to catch the eye, and be taught in school from these maps, after they have been first constructively taught on the blackboard. In exercising the boys in elementary composition, oral or written, and in parsing, an indication of any error made, by simply pointing with the rod to such a wall-map, would be very efficacious. The correction of the error would be thus associated with locality, and with the eye, as well as ear.

In reading Cæsar, or any other historian, graphic maps of the country should be constantly present and constantly referred to. In battles, the master should draw on the blackboard the position of the opposing forces. In other reading, antiquities should be represented by drawings wherever possible—not by words.

In conclusion, nothing *new* should be taught which is not presented to the eye on the board. How foolish is a master to give for the first time *scindo*, and merely *tell* the conjugation of it, and yet how universal the practice!

6. *Step by step: step after step.* The teacher of Latin should set down in his school diary (which should be a kind of appendix to his Lehrplan of the school) the curriculum through which he means to carry the boy and the definite amount to be taught in

successive months, terms, and years. Little, and that little well, should be his motto. Any other mode of procedure is loose and vague, and there is a want of genuine earnestness about it.

(*To be continued.*)

THE SCHOOLMASTER ABROAD.

(*From Murray's Magazine.*)

I AM personally an enthusiast for my profession; I find myself counting the weeks in the holidays; and my schoolroom and study at G—— are the only places in the world where I am quite certain of never being bored; but in spite of that, when I go to stay in a new house with a new lot of people, I am glad (in a shamefaced sort of way) if my profession does not transpire till I have won my way into the confidence of the household on my general merits. The young lady whom I take down to dinner, if she is an intelligent person, will soon begin to talk about my profession. Out it comes. "A schoolmaster! are you really? well! I'm sure I should never have guessed it" (this encouragingly, as if I had said that I was a shoeblack); "and do you really like it? I'm sure I should never have the patience to teach all those horrid little boys grammar. I should always be wanting to box their ears." And then I am aware that a subtle veil has fallen between us, unless my fair neighbour is an unusually intelligent girl, or (which may the Fates avert!) has been to Newnham. I feel that I have gone down a step or two, whereas if I had been merely a dangling dog with a competence, I should have kept my level; and then my little jokes and criticisms begin to go for nothing; the trail of the profession is over them all. And the tone of genial intimacy into which we were beginning to slide so naturally, suddenly stiffens—and I am aware that the first thing that mademoiselle will say to my hostess, when I have closed the door behind their shimmering trains, will be, "Oh Lucy! why didn't you tell me that Mr. Smith was a schoolmaster! what a very odd thing it is for him to be! what a mercy I happened to ask him, or I might have said something which would have hurt his feelings!" and so forth. And then it requires an extra day and extra exertions, until I have got back the status with which I should naturally have been credited.

The other day I went to lunch with an old schoolfellow in London. There was a large family party; his grandmother, the Countess, a benevolent old tyrant, like a fairy godmother, presided; I sat between Lady Mary and Lady Jane. Lady Jane begins to talk about a young *protégée* of her own, who, to her great disgust, left the tranquil post of companion to her ladyship to teach in a High School, and, to make matters worse, actually fell in love with a private schoolmaster and married him.

"It really is too much," says Lady Jane; "those teaching people are tiresome enough by themselves, without going and being doubly tiresome together. I suppose I shall never see Margaret again. I don't want a heavy usher creeping about my house."

I see from this that my profession is at present unsuspected, and only fervently hope for every one's sake that this will pass unnoticed; but the friend of my youth cannot let slip such a chance of making every one uncomfortable. "Well, my dear Aunt Jane," he says, "you *have* put your foot nicely into it by saying that to Mr. Smith." Lady Jane, whose one article of faith is not to hurt any one's feelings, especially those in a dependent position, looks sharply round at me, makes a rapid inference, and says with her most ingratiating smile, "Oh, Mr. Smith, of course I don't mean University tutors, they are *quite* different, it's only schoolmasters:" at which that brutal Jack bursts out into a loud laugh and says, "Worse and worse; why, didn't I tell you that he was a master at G——?" Poor Lady Jane flushes up all over and says meekly that she is very sorry. I murmur something about its being a high compliment to me; that my profession evidently has not set its trade-mark hopelessly on me—and so forth; but epigrams of this kind sound better in the recording than when fresh from the mint, and really the whole thing is a very painful social crisis. The dear ladies won't be persuaded that I haven't been hurt in my mind, and Jack gets a severe lecture afterwards for not telling them all about me first—at least so he says; whereas I more than suspect that the Countess warned him against bringing persons of that nature to the house at all.

But it is quite unnecessary to amass instances to prove a point which is incontestable. The world at large can hardly bring themselves to believe that a man can take up the profession from pure love of it. They insist on thinking that it is only with a view to making money. They could not conceive a schoolmaster being left a fortune and not instantly retiring. They would call a man of means who adopted it by choice as a profession, eccentric to the verge of madness.

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But such an ideal, however worthily fulfilled, has its compensating dangers; it is not an easy task for a man to be absolutely supreme week after week, hour after hour, in a circle of inadequate minds, and to emerge from these petty triumphs unspoilt and humble-minded. The man who has been accustomed to have his way in things small and great, with no resistance worthy of the name to encounter, will be apt to carry this supremacy into social circles, where he does not deserve it and will not get it. His jokes will go for a good deal in a market where the supply is entirely his own and there is a great demand—and yet when he goes out into the world, unless he is content to tyrannize over a small domestic circle, he must prepare to have his fun unnoticed or snubbed like other people. In his school room he may be as long-winded as he pleases; he has probably mistaken this quality for clearness many a time; but he must not be prolix in a country house, or people will say it is just what they would expect. The successful schoolmaster, indeed, who carries the habits of the class-room into the world at large, may generally be known by the fact that he is unwilling to let you off anything; you must have the whole of a story, and an explanation in its entirety; yet every one knows that conversational supremacy is obtained quite as much by knowing what to leave unsaid as by knowing what to say. Your schoolmaster will never have done with his period; he is loth to leave it: he turns it out as he would turn out Latin prose; and he forgets that the *aposiopesis*, or the art of breaking off, is the most brilliant of all conversational *friandises*.

The fact is that a schoolmaster, whose duty is above all things the study of humanity, should beware of solitary travelling, or still more of limiting himself to the society of his colleagues. Instead of accentuating his own peculiarities and exalting his caprices into laws, he should be learning in the holidays how to become like other people; he should endeavour to regain in ordinary home-abiding society a little of that common nature which he is so apt to lose.

And therefore the holidays ought to be a time for the silent imbibing of new facts and new ideas, not a time for lengthy and wearisome iteration of facts already acquired. A philosophical trainer of youth may be doing his duty by observing and studying the needs of humanity at dinner-tables or in the smoking-room; he will probably be serving good ends if he is slowly ploughing through volume after volume of standard or contemporary literature. But he is neither fulfilling his own ideal nor any one else's if he is laying down the law on very insufficient premises, or intent upon dinning into the ears of weary auditors threadbare facts expressed in elaborate and epigrammatical language. Above all let him avoid the subtle approaches of egotism; his personal peculiarities and individual tastes are to a certain extent a matter of interest and amusement to his pupils; but the larger world is absolutely indifferent to them. As a schoolmaster he is probably even less interesting to an ordinary circle than he would be if he was a member of any other profession, and thus of all topics which it is his duty to avoid, there is none which is so fatal as the interest which he may feel, and is often not slow to express, in his own identity and his own peculiar idiosyncrasies.

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Well, if he is a philosopher, the schoolmaster will reflect that the world does not crown those by whose humble and self-sacrificing exertions it has rolled so contentedly along; if he is an imaginative man, he may believe that some day the craft, like actors, from holding a position despised of all men, will rise to social prominence and become the pets of society; who knows? Will the day ever come when an heir-apparent will surround himself with retired ushers; it does not, it is true, seem probable, considering what heirs-apparent and what ushers are. If he wants statistics, let him reflect that about ten per cent. of deaneries and bishoprics are held by ex-headmasters, and that it is believed by some that Lord Sherbrooke, an indeterminate number of years ago, taught the rudiments of mathematics. Let him aspire to a viscount's coronet; he will then take precedence of those humbler clerical brethren who have won their way to the Bench and spiritual peerages.

But meanwhile, for his consolation let him turn his eyes upon his task and see how fair and noble a one it is. Day after day to be brought into close contact with all that is most innocent and generous and pure in humanity; to live in the presence of creatures whom our Saviour Himself selected as an example for devoted men; to be surrounded with high hopes and pretty imaginings, and dowered with affection, if a man will but hold out his hand for it, which is ardent and unstained as few of the passions of human beings, one for another, are. To have soul after soul, in its freshest, most impressionable age, with all the grace of eternity, all the infinite possibilities of the future carved out in gentle faces, and lying half-hidden in loving eyes, placed in your hands so freely, so confidingly, "Do with it what you will." To feel that a few words, a touch, affectionate interest, a question now and then, a syllable of encouragement, a little self-repression, a look, a sigh, may wake a sacred sleeping impulse, or draw a life from a shadow cast by the very spirit of despair.

If a man is not sometimes touched, as it were, on the shoulder by such thoughts as these as he looks at the childish faces upon which life is preparing to write strange histories, if he is not haunted, in some halting-place of his busy life, by some sense of responsibility, some shuddering fancies of neglect, he can be hardly human. "It takes a poet to see these things," said a friend half-contemptuously to me when I tried to give him a glimpse of the thoughts that press insistently even into such a life as ours. It is not so; even if in common work-a-day moments, when we are shouting questions or supplying answers, steeped to the ears in dulness, irritability and inkiness, they hang too high above our heads, let a man be brought face to face, as all must be, with one of the tragedies of school life, a glimpse into a boy's soul, a home made desolate by some careless, shameless act dragged to light, and they will not escape then.

Any one who lives such a life truly and with passion will be apt to be misunderstood by the world; he will leave the best of himself behind him, shut up in dusty schoolrooms, and barred and shuttered studies, and take a mere phantom away. If the world could realise how much—

I say it in all humility, in no spirit of exaltation, for it is a spontaneous necessity of giving which cannot be denied—we really give to our boys, they would not blame us for having so little to bring abroad.

SCHOLASTICUS.

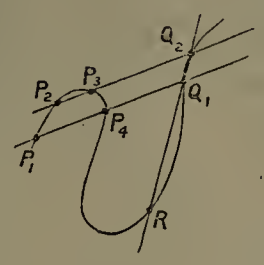
MATHEMATICS.

2853. (Professor SYLVESTER.)—1. Let P be a given point in a cubic. Show that, in general, three conics may be drawn having contact of the 3rd order with the cubic at P and ordinary contact with it at some other point; but that no such conics (or only two) can be drawn when P is a pluperfect point of the 1st (and 2nd or 4th) order.

2. Also that, in general, twelve conics may be drawn having ordinary contact with the cubic at T, and contact of the 3rd order with it at some other point; but that only ten such conics can be drawn when T is a pluperfect point of the 2nd order.

Solution by Professor SCHOUTE.

1. Let P_1, P_2, P_3, P_4 be four points of the cubic, and let the lines P_1P_4, P_2P_3, Q_1Q_2 meet the curve in the third points Q_1, Q_2, R. Then R is the point opposite to $P_1P_2P_3P_4$, in other words the conics through these four points meet the cubic in couples of points, the joins of which pass through R. And when the four points P_1, P_2, P_3, P_4 coincide in P and the two points Q_1, Q_2 in Q, Q and R are the first and second tangential point of P.



This proves the first part of the theorem.

[The rest in Volume.]

3707. (J. B. SAUNDERS.)—A spherical air-bubble, having risen from a depth of 1000 feet in water, was one inch in diameter when it reached the surface; find its diameter at the bottom.

Solution by D. BIDDLE.

Ignoring any change in temperature, and assuming that, to the extent demanded, Boyle's law holds good, namely, that the volume of a given mass of air, kept at a given temperature, is inversely as the pressure, the required diameter $= (p/q)^{\frac{1}{3}}$, where $p \equiv$ the pressure per square inch on the bubble as it emerges at the surface, and $q \equiv$ the pressure per inch on the bubble at the bottom of the 1000 feet of water. If the volume were inversely as the *total* pressure on the spherical superficies, the diameter would be $(p/q)^{\frac{1}{5}}$, which is greater than $(p/q)^{\frac{1}{3}}$; but such is not the case. The pressure in a fluid being the same in all directions at a given point, it is easy to see that equilibrium can only be produced when the pressure inside and outside the bubble at any part of its surface is the same; and this, according to Boyle's law, can only occur when the diameter of the bubble is $(p/q)^{\frac{1}{3}}$, unless there be change of temperature.

[The rest in Volume.]

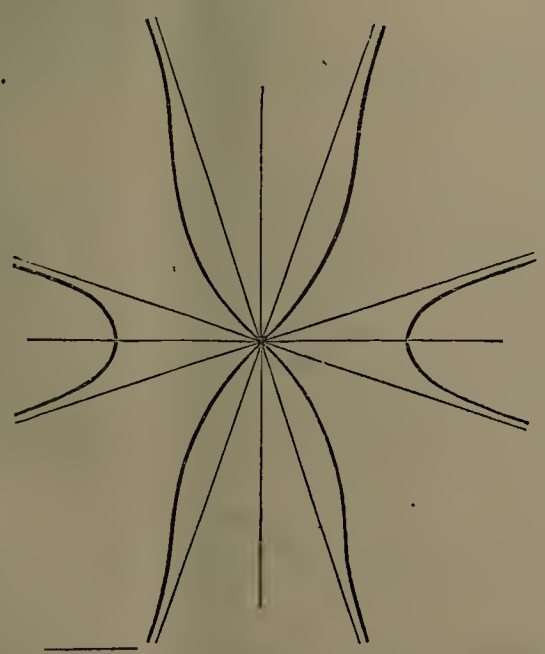
7850. (ASPARAGUS.) — An equilateral triangle is inscribed in the rectangular hyperbola $x^2-y^2=a^2$; prove that the locus of the middle points of its sides is the quartic $3(x^2+y^2)^2 = 4(x^2-y^2)(x^2-y^2-a^2)$, or in polar coordinates $r^2 = \dfrac{a^2\cos 2\theta}{1+2\sin 2\theta}$; and trace the curve.

Solution by Professor WOLSTENHOLME, M.A., Sc.D.

A very rough tracing. Asymptotes all pass through centre of hyperbola, and are inclined at angles

$$\pm\frac{\pi}{12},\quad \pm\frac{5\pi}{12}$$

to the transverse axis. The two former contain two hyperbolic branches, vertices at distance $2a$ from the centre; while the latter touch at ∞ two sinuous branches which have inflexions at the centre, the tangents at the inflexions being the asymptotes of the hyperbola.

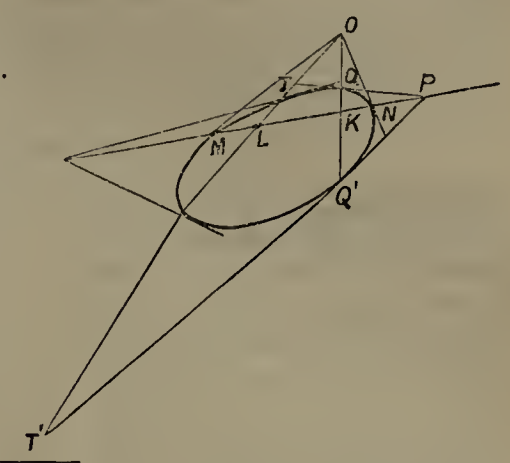


10237. (D. T. GRIFFITHS.)—The pairs of tangents to a conic from points on a straight line determine an involution on any transversal through its pole, or on any tangent to the conic.

Solution by EMILY PERRIN; G. G. STORR, M.A.; *and others.*

Let MN be a fixed line, OL any line through its pole O, P any point on MN, and let PQ, PQ′, the tangents from P, meet OL in T, T′.

The pencil P {OQNQ′} is harmonic, therefore {OTLT′} is harmonic; and the points O, L are fixed, therefore the pairs of points L, L′ determine an involution on OL.



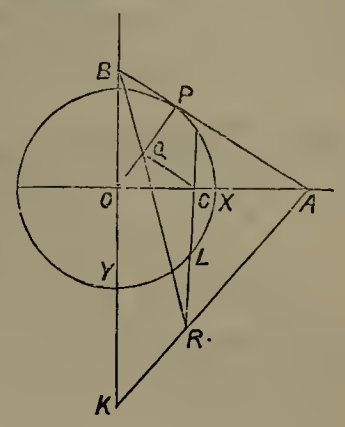
10226. (Professor MANDART.)—On donne un cercle O, deux diamètres rectangulaires OX, OY, et une perpendiculaire CL en un point C de OX. La tangente menée au point P de la circonférence rencontre OX en A, OY en B; la perpendiculaire élevée en A sur AB coupe CL en R. Démontrer que le lieu géométrique du point d'intersection des droites OP, BR est la circonférence décrite sur OC comme diamètre.

Solution by G. G. MORRICE, M.A., M.B.; H. J. WOODALL; *and others.*

Let AR, OY intersect in K, OP, RB in Q. Then CR is parallel to OY, and OQ to RK, therefore

$$OQ : OP = KR : KA = OC : OA,$$

therefore QC is parallel to AP, and therefore $\angle OQC$ is a right angle.



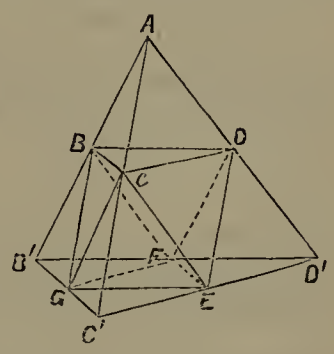
7856. (W. J. C. SHARP, M.A.)—Construct an octahedron such that it shall have two parallel faces equal and similar to each of the faces of a given tetrahedron, and show that its volume is four times that of the tetrahedron.

Solution by Professor SCHOUTE.

Let ABCD be the given tetrahedron. Prolong AB, AC, AD and make

$$BB' = AB,\quad CC' = AC,$$
$$DD' = AD.$$

Then the joins of the mid-points B, C, D, E, F, G of the edges of the tetrahedron AB′C′D′ are the edges and diagonals of the octahedron in question, &c.



[The volume of the whole tetrahedron AB′C′D′ is eight times that of ABCD, and each of the four tetrahedra which must be cut from it to leave the octahedron is equal to ABCD, therefore the volume of the octahedron is four times that of ABCD.]

10017. (R. KNOWLES, B.A.)—The circle of curvature is drawn at a point P of a conic, M is the mid-point of the common chord; the diameter of the conic through M meets the normal at P in Q; the normal meets the transverse axis in N; O is the centre of curvature at P. Prove that QN : NP = OQ : OM.

Solution by W. S. FOSTER; G. G. STORR, M.A.; *and others.*

Let OM meet the axis in R. Since PM, PT are equally inclined to the axis; and the tangent at the extremity of CM is parallel to PM, therefore CM, CP are equally inclined to the axis, therefore CN bisects the angle PCQ,

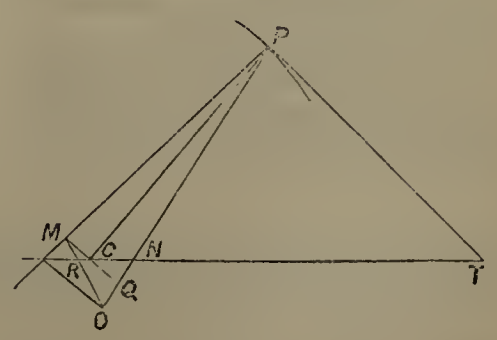
$$\therefore\quad QN : NP = CQ : CP.$$

Also OM, OP are equally inclined to the axis, *i.e.*,

$$ONR = ORN,$$

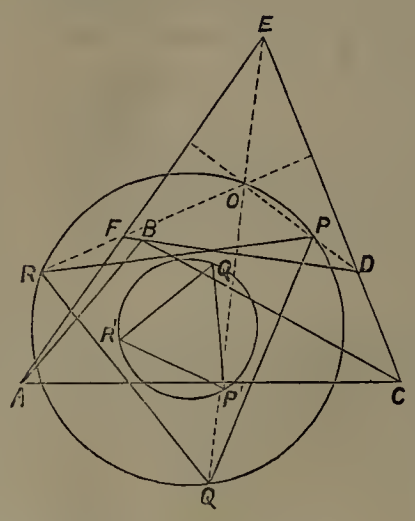
therefore $\quad OMQ = ORN - MCR = ONR - NCP = CPQ,$

therefore $\quad OQ : OM = CQ : CP = QN : NP.$



10263. (Professor MORLEY.)—Equilateral triangles have sides passing through given points; prove that the centre locus is two concentric circles, coincident when points collinear.

Solution by Professor SCHOUTE.



When the sides FD and DE of the equilateral triangle DEF pass respectively through B and C, the bissectrix DO of the angle D passes through the points P that bisect the minor arc BC of the circle BCD. As there are two circles through B and C, that contain an angle of 60°, there are two points P that may be distinguished as P and P′; these points lie symmetrically with respect to BC, and are the vertices of two isosceles triangles with the base BC and a vertical angle of 120°.

When the points Q and Q′ have the same significance with respect to CA as P and P′ have with respect to BC, it is immediately evident that the sides of the angle DOE measuring 120° pass respectively through one point of the pairs P, P′ and Q, Q′.

[The rest in Volume.]

7668. (Professor SYLVESTER.)—If m be any positive integer, and a, b, c any real quantities whatever, prove that the equation

$$a\left(1+x+\frac{x^2}{1.2}+\frac{x^3}{1.2.3}+\ldots+\frac{x^m}{1.2.3\ldots m}\right)$$
$$+b\left(1+x+\frac{x^2}{1.2}-\frac{x^3}{1.2.3}+\ldots\pm\frac{x^m}{1.2.3\ldots m}\right)+c=0$$

can never have more than two real roots.

Solution by Professor SCHOUTE.

The equation can be thrown into the form

$$(a+b)\left(1+\frac{x^2}{1.2}+\frac{x^4}{.2.3.4}+\ldots\right)+(a-b)\left(\frac{x}{1}+\frac{x^3}{1.2.3}+\ldots\right)+c=0,$$

which may be represented by

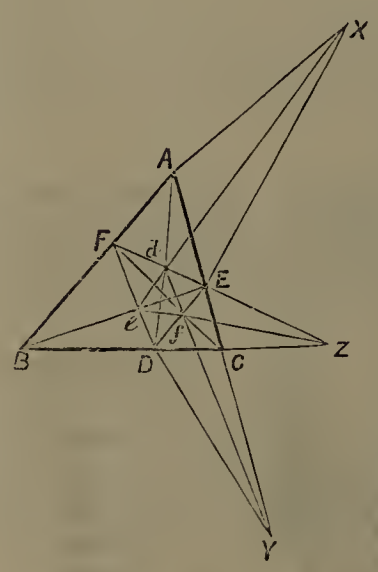
$$pU_m+qV_{m-1}+c=0,\ m \text{ even},\qquad pU_{m-1}+qV_m+c=0,\ m \text{ odd}.$$

Now we suppose the problem to be true for m, and prove it for $m+1$. Then, as it is true for $m=2$, it will be true in general. But at that end we consider the two cases, m even and m odd, apart from one another.

[The rest in Volume.]

10275. (D. T. GRIFFITHS.)—The perpendiculars from the vertices on the sides of the triangle ABC meet the sides of the pedal triangle DEF at the points d, e, f. If AB and DE, AC and FD, BC and FE intersect at the points X, Y, Z respectively, prove that each side of triangle def passes through one of three points X, Y, Z.

Solution by A. J. PRESSLAND, M.A.; R. KNOWLES, B.A.; *and others.*



Since the angles FED, DEZ are bisected by Ee, EC; therefore

$$\frac{Fe}{eD}=\frac{FE}{ED},$$

and

$$\frac{DC}{CZ}=\frac{DE}{EZ};$$

therefore

$$\frac{Fe}{eD}=\frac{FE.CZ}{EZ.CD};$$

hence, by the converse of CEVA's theorem, FC, DE, Ze are concurrent, therefore ef passes through Z.

In the same way it may be shown that ed and df pass through points X and Y respectively; hence, each side of triangle def passes through one of the three points X, Y, Z.

10356. (BENJAMIN WILLIAMSON, F.R.S.)—Given an elementary proof of STOKES' theorem, viz.—If a portion of a surface S be bounded by a closed curve s, and if u, v, w be continuous functions of x, y, z, then

$$\left\{\iint l\left(\frac{dw}{dy}-\frac{dv}{dz}\right)+m\left(\frac{du}{dz}-\frac{dw}{dx}\right)+n\left(\frac{dv}{dx}-\frac{du}{dy}\right)\right\}dS=\int(udx+vdy+wdz),$$

where l, m, n are the direction cosines of the normal to the surface at the point xyz, and the double integral is taken over the surface, and the single integral along its boundary in the positive direction.

Solution by W. J. JOHNSTON, M.A.

z and w are evidently functions of x and y; hence, round curve

$$\int w\,dz=\int dw\,dz \text{ over portion of surface included } =\iint\frac{d(z,w)}{d(x,y)}dx\,dy$$
$$=\iint\left(p\frac{dw}{dy}-q\frac{dw}{dx}\right)dx\,dy$$
$$=\iint\left(\frac{p}{(1+p^2+q^2)^{\frac12}}\frac{dw}{dy}-\frac{q}{(1+p^2+q^2)^{\frac12}}\frac{dw}{dx}\right)(1+p^2+q^2)^{\frac12}dx\,dy$$
$$=\iint\left(l\frac{dw}{dy}-m\frac{dw}{dx}\right)dS.$$

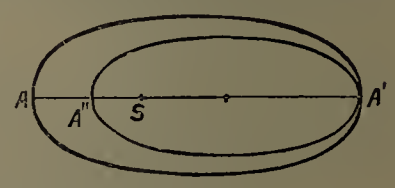
The theorem is proved by adding to this similar equations for u, v.

8892. (Professor ASÛTOSH MUKHOPÂDHYÂY, B.A., F.R.A.S.)—Two imperfectly elastic particles, whose coefficient of elasticity is λ, are projected with equal velocities in opposite directions, at right angles to the line of force at the point of projection; assuming the force to vary inversely as the square of the distance, and the second impact to take place midway between the point of projection and the centre of force, show that

$$(1)\ e_1=\pm(2-3\lambda^2)/\lambda^2;\quad (2)\ e_2=\pm(3-4\lambda^2),$$

where e_1 is the eccentricity of the first orbit, and e_2 that of the orbit between the first and second impacts. Hence, determine when the eccentricity is unaltered by the impact.

Solution by Rev. T. GALLIERS, M.A.; G. G. STORR, M.A.; *and others.*



Let S be the centre of force; A, A′, A″ the points of projection first and second impact respectively; and $2a_1$, $2a_2$ major axes of first and second orbits.

Consider the case in which

$$SA=a_1(1-e_1),$$

and $\therefore$ $SA'=a(1+e_1)$,

and $SA'=a_2(1+e_2)$, and therefore $SA''=a_2(1-e_2)$.

[The rest in Volume.]

10345. (Professor DE LONGCHAMPS.)—Une ellipse étant rapportée à ses axes, démontrer que les coordonnées d'un point quelconque de la normale à l'ellipse, en un point dont les coordonnées sont $a\cos\phi$, $b\sin\phi$, peuvent être représentées (λ étant paramètre variable) par les formules

$$x=\frac{c^2\cos\phi}{a}\cdot\frac{\sin\lambda\sin\frac12(\lambda+\phi)}{\cos\frac12(\lambda-\phi)},\quad y=-\frac{c^2\sin\phi}{a}\cdot\frac{\cos\lambda\cos\frac12(\lambda+\phi)}{\cos\frac12(\lambda-\phi)}.$$

Solution by J. J. BARNIVILLE; R. WHAPHAM, B.A.; *and others.*

We have

$$\frac{ax}{\cos\phi}=\frac{c^2\sin\lambda\sin\frac12(\lambda+\phi)}{\cos\frac12(\lambda-\phi)},\quad \frac{by}{\sin\phi}=c^2\frac{\cos\lambda\cos\frac12(\lambda+\phi)}{\cos\frac12(\lambda-\phi)};$$

therefore

$$\frac{ax}{\cos\phi}-\frac{by}{\sin\phi}=c^2;$$

i.e., the equation of the normal, c^2 being $=a^2-b^2$.

10354. (G. F. HOWSE, M.A.)—Evaluate the determinant

$$\begin{vmatrix} c & a & a & a & a & \ldots \\ b & c & a & a & a & \ldots \\ b & b & c & a & a & \ldots \\ b & b & b & c & a & \ldots \\ \ldots & \ldots & \ldots & \ldots & \ldots & \\ \ldots & \ldots & \ldots & \ldots & \ldots & \end{vmatrix}$$

of the nth order, all the terms in the diagonal being c, those to the right being a, those to the left b.

Solution by F. R. J. HERVEY; Prof. CURTIS; *and others.*

Subtract each row from the next; the minor corresponding to any constituent of the first row then reduces to its first element. For, either we have on one side of the diagonal cyphers only; or, if not, at the point where they fail on the left, the same condition is supplied on the right, in the manner shown. Hence the value of the determinant is

$$\begin{vmatrix} \ldots & b-c & c-a & 0 & 0 & \ldots \\ \ldots & 0 & b-c & 0 & 0 & \ldots \\ \ldots & 0 & 0 & c-a & 0 & \ldots \\ \ldots & 0 & 0 & b-c & c-a & \ldots \end{vmatrix}$$

$$c(c-a)^{n-1}-a\left\{(b-c)(c-a)^{n-2}-(b-c)^2(c-a)^{n-3}+\ldots\pm(b-c)^{n-1}\right\}$$
$$=\left\{b(c-a)^n-a(c-b)^n\right\}/(b-a)$$
$$=c^n-ab\left\{C_{n,2}c^{n-2}-C_{n,3}c^{n-3}(b+a)+C_{n,4}c^{n-4}\frac{b^3-a^3}{b-a}-\ldots\pm\frac{b^{n-1}-a^{n-1}}{b-a}\right\}.$$

9480. (A. R. JOHNSON, M.A.)—Show that, if O = 0 be the condition that a pair of the lines $f(x,y)\equiv(a_0,a_1,a_2\ldots a_n)(x,y)^n$, should be at right angles, and R denote the resultant of $f(x,y)$ and $f(-y,x)$, then

$$O=\left[R/\left\{f[1,(-1)^{\frac12}]f[1,-(-1)^{\frac12}]\right\}\right]^{\frac12},$$

so that O is of order $n-1$ in the coefficients. [The axes are supposed to be rectangular.]

Solution by Professor SEBASTIAN SIRCOM, M.A.

Forming the resultant in the usual way, we shall have, since the roots of $f(-y, x)$ are the reciprocals with their signs changed of those of $f(x,y)$,

$$\begin{aligned} R &= a_0^n a_n^n \left(\alpha+\frac{1}{\alpha}\right)\left(\alpha+\frac{1}{\beta}\right)\dots\left(\beta+\frac{1}{\alpha}\right)\left(\beta+\frac{1}{\beta}\right)\dots \\ &= a_0^{2n}(1+\alpha^2)(1+\beta^2)\dots(\alpha\beta+1)^2\dots \\ &= a_0\left\{1-(-1^{\frac12})\alpha\right\}\dots a_0\left\{1+(-1)^{\frac12}\alpha\right\}\dots a_0^{2n-2}O^2 \\ &= f\left\{1, (-1)^{\frac12}\right\} f\left\{1, -(-1)^{\frac12}\right\} a^{2n-2}O^2, \end{aligned}$$

which gives the result.

10144. (Professor NASH.)—Assuming that a knight's tour is completely determined when the first and last squares are given; show that there are 136 distinct tours, no one of which is the reflected image of another, or can be derived from another by rotating the board. In 21 of these tours the terminal squares are a knight's move apart; if these squares be joined, show that a tour can be constructed from which each of the remaining 20 re-entrant tours can be derived either by rotation of the board or by reflection. Hence the 136 tours are reduced to 116.

Solution by the PROPOSER.

It is clear that any square and its image with respect to either diagonal are of the same colour, and that a square and its image with respect to either of the lines bisecting the board, and parallel to its sides, are of opposite colours. There are altogether 32^2 tours commencing on a white square. In the first diagram the 32 possible initial squares are divided into three groups, indicated by the letters P, Q, R. Those marked Q are the images of those marked P with respect to the diagonal BD, and the R's are the images of the P's and Q's with respect to the diagonal AC. [The rest in Volume.]

QUESTIONS FOR SOLUTION.

10408. (Professor SYLVESTER.)—Solve the Algebraical Conundrum to find a generating function in t, u, such that the coefficient of $t^m . u^n$ when $m+n$ is odd shall be zero, and when $m+n$ is even shall be the half of the root greater of the two numbers $m+1$, $n+1$. [Professor SYLVESTER remarks that the solution of this conundrum is wanted to complete a theory of his relating to Hilbert's proof of Gordan's theorem applied to a pair of binary quantics, and that it is called a conundrum because its solution seems to depend on intuition, and cannot, without much difficulty, be made to depend on a general method.]

—409. (Professor SIRCOM.)—Required a simple method of approximating to the imaginary roots of numerical equations.

—410. (Professor CURTIS, M.A.)—Prove that there holds among any four points on an equilateral hyperbola the relation (analogous to Ptolemy's theorem) that if the points be 1, 2, 3, 4,

$$(12 . 34)^{\frac12} \pm (23 . 14)^{\frac12} \pm (31 . 24)^{\frac12} = 0,$$

where 12 = the area of a right-angled triangle whose base is the line joining 1 and 2, and the sides of which are parallel to the asymptotes of the hyperbola.

—411. (Professor WOLSTENHOLME, M.A., Sc.D.)—On a side BC of a given triangle ABC are described two equilateral triangles aBC, a'BC; a, A being on the same side of BC; prove that Aa is three times the difference, Aa' three times the sum of the semi-axes of the maximum ellipse inscribed in the triangle ABC, and that the axes of this ellipse are parallel to the bisectors of the angles between Aa, Aa'.

—412. (Professor NEUBERG.)—Etant donnés un tétraèdre ABCD et un point P, on mène par P un plan coupant l'angle solide A suivant un triangle T_1, ayant pour centre de gravité P. Soient, de même, T_2, T_3, T_4 des triangles ayant pour centre de gravité P et leurs sommets sur les arêtes des trièdres B, C, D du tétraèdre. Démontrer que les quatre triangles T_1, T_2, T_3, T_4 sont inscrits à une même surface du second ordre.

—413. (Professor SCHOUTE.)—Given a system of three rectangular coordinate axes OX, OY, OZ, and a line l (any plane through l meets the axes in A, B, C): show that the locus of the ellipse of Steiner described in the triangle ABC is a surface of the fourth order, and discuss its character according to double line, nodal points, and right lines. [See SALMON's "Analytical Geometry of Three Dimensions," ed. 4, Art. 557.]

—414. (Professor DE LONGCHAMPS.)—Soient OX, OY deux rayons rectangulaires dans un cercle Δ. Par O, on trace deux rayons OA, OB, symétriques par rapport à la bissectrice de YOX. Par B, on mène des parallèles aux droites OX, OY; elles rencontrent OA aux points I, J. Démontrer que la polaire de I, relativement à Δ, passe par J.

10415. (Professor STEINER.)—Soient M, M′ les extrémités de deux diamètres conjugués OM, OM′ d'une ellipse. Démontrer que la somme $\tan^2\frac12 FMF' + \tan^2\frac12 FM'F'$ est constante.

—416. (Professor G. B. MATHEWS.)—Prove that (1) the conditions that $10x^3-8g_2x-5g_3=0$, $315x^4-231g_2x^2+90g_3x+25g_2^2=0$ may be satisfied by the same value of x, is

$$t^2-2 . 5^3 . 79t-5^3 . 11^3 = 0, \text{ where } t = 27g_2^3/(g_2^3-27g_3^2);$$

and (2) that $t = 5^3 . 79 \pm 2^2 . 5 . 13 . 17\sqrt{5} = \pm 5\sqrt{5}(4\mp\sqrt{5})^3(\sqrt{5}\pm 2)^4$, where the upper or lower sign is to be taken throughout; and if we put $t = 4(1-y^2)^3/y^4$, one value of y is $\frac{1}{16}(\sqrt{5}-1)^3$.

—417. (Professor LANGHORNE ORCHARD, M.A.)—A series of right-angled isosceles triangles, each of base a, are placed continuously along the positive side of the axis of x. Show how to express the locus consisting of their sides as a periodic function of x.

—418. (Professor SYAMADAS MUKHOPÂDHYÂY.)—ABC is a triangle having the angle at A not less than 120°. P is any point. Prove that the arithmetical sum of PA, PB, PC is least when P is taken at A.

—419. (Professor CESÁRO.)—Soit $S_{n,p}$ la somme des produits p à p des n premiers nombres entiers. Démontrer la relation

$$\sum_{i=0}^{i=p} C_{n+1,\,a+i-1,\,i} S_{n-a-i,\,p-1} = C_{n-p+1,\,a} S_{n,p}.$$

—420. (The EDITOR.)—Draw (1) through a given point, or (2) in a given direction, a chord PQ of a circle on diameter AB such that the quadrilateral APQB may be given or a maximum.

—421. (Colonel CLARKE, C.B., F.R.S.)—The compound eye of the various species of fly, of the Dytiscus, &c., is formed of thousands of hexagons—each presenting a single lens—arranged on a convex surface. Sometimes this surface approximates to a hemisphere, or is even more than a hemisphere, and it is exceedingly interesting to study the manner in which the hexagons are arranged on the quasi-spherical surface. We have thus suggested the following geometrical problem: To describe on a sphere a continuous series of hexagons, the side of any hexagon being very small with respect to the radius of the sphere.

—422. (ARTEMAS MARTIN, LL.D.)—Square B, side b, is laid on square A, side a; find the probability that the centre (intersection of diagonals) of square B is on square A.

—423. (D. BIDDLE.)—As a wheel, of radius r, proceeds in a straight line on a level road, at a uniform velocity v, on a still day, a particle of mud is detached from the tire by centrifugal force, and again impinges upon it under the influence of gravity. Disregarding the resistance of the air, find (1) the arc of revolution within which the said particle leaves the wheel in the first instance, (2) the maximum time occupied in the flight, (3) the maximum distance actually traversed (in a terrestrial sense).

—424. (W. J. BARTON, M.A.)—Show that, if the sum of two integers is a square, and the sum of their squares a square, (1) the sum of their cubes is the sum of two squares; (2) their product is always divisible by 12; (3) if they are both even, their product is divisible by 192.

—425. (M. TARRY.)—Quatre trains se meuvent sur des voies rectilignes avec des vitesses uniformes. On donne leurs positions à deux instants différents. Construire une voie rectiligne qui puisse être parcourue par un train avec un vitesse uniforme telle que les quatre premiers trains paraissent immobiles au conducteur du cinquième.

—426. (M. MOUREAU.)—Sur une droite OA de longueur $2d$, on prend des points qui la partagent en $2n$ parties égales. Aux points de division, on applique des forces parallèles, mesurées par les distances de leurs points d'application au point O. Ces forces ont même direction, mais sont alternativement dirigées dans un sens et dans l'autre. Trouver (1) l'intensité de la résultante, et (2) la distance de son point d'application au point O.

—427. (W. J. C. SHARP, M.A.)—Prove that a nodal cubic is crunodal or acnodal according as the invariant T is negative or positive.

—428. (J. J. BARNIVILLE.)—Two parallel lines Δ are traced on paper, with a circle inscribed between them; the paper having been bent into the form of a circular cylinder so that the parallels coincide, find the equation of the projection of the curve (a) on the plane through Δ and the axis, and (b) on the axial plane at right angles to the former. Discuss the corresponding case where the lines make an angle, and a cone is formed.

—429. (A. E. JOLLIFFE.)—A parabola touches the sides of a triangle at A′, B′, C′; prove that AA′, BB′, CC′ meet on the minimum ellipse circumscribing the triangle.

—430. (R. W. D. CHRISTIE.)—Resolve n squares into n other squares in $n+1$ different ways (all integers and $n > 2$); *e.g.*,

$$5^2+13^2+34^2 = 10^2+17^2+31^2 = 14^2+23^2+25^2$$
$$= 3^2+21^2+30^2 = 6^2+15^2+33^2.$$

10431. (W. J. Greenstreet, M.A.)—A spherical raindrop, radius a, falls for t'', when its radius is found to be b. Supposing the increase of mass be proportional to the surface, find its velocity at the end of the t''.

—432. (R. Knowles.)—Tangents TP, TQ are drawn to meet a conic in P and Q; a second conic, centre O, through TPQ cuts the first again in CD; T′ is the pole of CD with respect to the first conic; the chords PQ, CD meet in E; prove that EO bisects TT′.

—433. (H. J. Read, M.A.)—Trace the curve

$$(x+y)(x-y)^2-4(x^2+y^2)+5y=0.$$

—434. (E. Lemoine.)—M et M′ sont deux points qui, dans le plan du triangle ABC, ont pour coordonnées tripolaires respectivement m, n, l et n, l, m; trouver le lieu de M et le lieu de M′.

—435. (Maurice d'Ocagne.)—Soient F le point où la symédiane issue de A du triangle ABC coupe le cercle circonscrit à ce triangle, $F\beta$ et $F\gamma$ les perpendiculaires abaissées de ce point sur AB et sur AC. Si par les sommets B et C on mène deux antiparallèles quelconques BB′ et CC′ relativement à l'angle BAC, et que ces droites coupent respectivement $F\beta$ et $F\gamma$ en B_1 et en C_1, la parallèle à AB menée par B_1 et la parallèle à AC menée par C_1 se coupent sur la tangente en A du cercle ABC.

—436. (G. Delahaye.)—Mener par les sommets d'un triangle trois droites concourantes déterminant sur les côtés trois segments non consécutifs égaux entre aux.

—437. (H. M. Taylor.)—Démontrer qu'on peut décomposer un polygone de $m=(p-2)n+2$ côtés, en n polygones de p côtés de $(np-n)(np-n-1)\ldots(np-2n+2)/1.2.3\ldots n$ manières différentes.

—438. (Colonel Servais.)—Si en un point quelconque A d'une conique, on mène un cercle tangent dont le rayon soit double du rayon de courbure en ce point: démontrer que (1) le pôle P, par rapport au cercle, de la corde d'intersection BC de la conique et du cercle est sur la conique; (2) les deux droites BC et PA sont conjuguées harmoniques par rapport à la conique.

NOTICE TO CORRESPONDENTS.

Correspondents should be careful (*a*) to write each Question and each Solution on a *separate* paper (otherwise, when used for printing, the Editor has the labour of entirely *re-writing* such articles); (*b*) to make their Solutions as short as possible; (*c*) to send all Questions *early in the month*, but not to send Solutions till their Questions have been published; (*d*) to write their names at the *top* of *each* paper; (*e*) to *prepay* the postage in *full*; and (*f*) to send all communications to

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THE LONDON MATHEMATICAL SOCIETY.

Thursday, Dec. 12th, 1889.—J. J. Walker, F.R.S., President, in the chair. Bhuban M. Banerji, B.A., F.R. Hist. Society, Professor of Mathematics, Christian College, Lucknow; R. A. Sampson, B.A., Senior Mathematical Lecturer, King's College, London; Professor J. MacMahon, B.A., Cornell University, Ithaca, U.S.A., and A. L. Selby, M.A., Fellow of Merton College, Oxford, were elected members. Professor W. Burnside, M.A., was admitted into the Society.

Mr. A. B. Basset, F.R.S, read a paper "On the Radial Vibrations of a Cylindrical Elastic Shell"; and Dr. Morrice, M.A., a "Note on the 51840 Group." Mr. E. B. Elliott, M.A., having taken the chair vacated by the President, Professor Greenhill, F.R.S., communicated a paper by Professor G. B. Mathews, M.A., on "Complex Multiplication Moduli of Elliptic Functions for the Determinants —53 and —61." Mr. R. Tucker, M.A. (Hon. Sec.), communicated portions of papers by Professor H. Lamb, F.R.S., on "The Flexure of an Elastic Plate," and by R. A. Roberts, M.A., "Notes on a Plane Cubic and a Conic." Dr. J. Larmor and Mr. W. J. C. Sharp, M.A., made short impromptu communications.

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16366. Sen. Gov. Eng. subj., Lit., Math., Lat., Fr., Ger. Age 25 to 30. Res.

16367. Jun. Master. Math., jun. Class., Eng., Bh., Shorthd. 20*l.* (about). Ample time for study.

16369. Young lady as Articled Pupil—very light duties—prep. for Exams. Small premium.

16370. Gov. student. Prep. for all Locals or Lond. Matric. Mus. (theory and prac.). Ger. and Fr. (conver.). Premium 10*l.*

16371. (i.) Gov. (age 25), Cert., able to prepare for Oxf. and Camb. Locals. 30*l.* res.
(ii.) A Gov. to take charge of Branch Sch. at the seaside. Must be well educated, well connected, and fond of children.

16372. (i.) Jun. Fr. Gov. Able to teach Fr. and some Ger. and Sing. 27*l.* res.
(ii.) Governess Pupil. Premium 21*l.*

16373. Daily Gov. Good Mus. (cert.), Ger. (convers.). Age about 28. 40*l.* to 45*l.* and partial board.

16374. Classical Mistress who can also take some Math. Able to prepare girls for degree. For High School.

16375. Jun. Master. Mutual terms.

16376. Gov. Eng. and Fr. (good), Arith., Alg., Mus. (theory). To prepare for Local Exams., 1st Cl. C.P. 25*l.*

16377. Master. Eng., Lat., Fr., Math., Sing. Res. 20*l.* to 25*l.*

16378. Gov. Cert., Lond. Matric. or Sen. Camb. or 1st Cl. C.P., Eng., Cert., good Geog., Draw. (freehd.), Calist.

16379. (i.) A Gov. to take entire charge of about 15 girls, Eng., Arith., Fr., Draw., Help in certain studies. 15*l.* to 20*l.* to commence. Res.
(ii.) Jun. Master in Boys' Sch., Board Laundry, Assistance in studies.

16380. Master. Read., Writ., Arith., Eng., Gram., Hist., Geog., Lat., Fr., Draw. (freehd.) and Shorthd., Sports. Res. 30*l.* to 35*l.*

16381. Foreign Gov. Fr. and Ger. (convers. and gram.), must have had some experience, Protest. prefd. Res. Sal. to be arranged.

16382. Master. Genl. Eng. subjs., Draw. and Piano desirable. Res. 18*l.* to 20*l.*

16383. Two Jun. Governesses required. Good Eng., Fr., Ger., Draw.

16385. Gov. for a girl, age 7. Eng. (all branches), Mus., Sing., Draw., rudiments of Lat. and convers. Fr., Ch. of Eng. Res. 25*l.* to 30*l.*

16386. Foreign Gov., able to prepare for C.P. Exams. in Fr. and also Ger., must be Protest. 30*l.*

16387. Gov. for 3 children, ages 12, 10, and 6. Eng. (good), Mus., Lat., and either Fr. or Ger. (conv.). Res. 30*l.*

16389. Gov. Draw, Swedish Exercises, Eng. (elem.), Lat. and Ger. (according to exp. for sal.).

16390. Master for the Jun. Classes. Eng. subj., Lat. (elem.), Fr. (elem.), Draw (mod. and freehd.). Res. 60*l.*

16391. Master. To prepare boys for the Camb. Local and C.P. Exams., and to assist generally. Math., Bk., Fr., Science, Shorthd. a recommendation. Res. 36*l.* to 40*l.*

16392. French Pupil Gov. to have lessons in Eng., Draw., and Paint., in return for convers. Fr., &c. Time allowed for Mus. Practice. Mutual terms.

16393. Jun. Gov. to receive Eng. lessons and accomplishments in return for a few hours' teaching to juniors.

16394. Two Jun. Governesses, who have passed Sen. Oxf. or Camb. prefd. Mutual terms, or a small salary.

16395. Foreign Gov. Fr., Ger., knowledge of Mus. and Sing. Res. 25*l.* to 30*l.*

16396. Master. Jun. Eng. subjs. and Math., Shorthd. Non-res. 65*l.*

16397. Gov. Thoroughly competent for the Kindergarden, to take entire charge and train students and teach Mus. to jun.

16398. Gov. Good Eng., Ger. and Fr. (gram. and convs.), Draw., Calis., some Mus. desirable. Res. from 20*l.* to 27*l.*

16401. Gov. Adv. Eng. and Arith., with Fr. desirable, Ger., Alg., Draw. or Paint. Res. 35*l.*

16402. Master. Eng. subjs. (ordinary), Draw. (good). Res. 25*l.* to 30*l.*

16403. Master (jun.). For Jun. Eng. subjs., Lat., Sports. Mutual terms.

16405. Master wanted who is working for a degree. Lat., Fr., Euc., Alg. Res. 10*l.* About 3 hours a day.

16406. Pupil. One wishing to study for the Lond. Matric. Mutual terms.

16407. Jun. Master. Eng. subjs., Mus. Harmony for School Service. Mutual terms.

16408. Gov. Draw., Paint. (good), Prep. for Public Exam. in Freehd., Mod. Geom., and Pensp., Paint (oils and w.-col.). 30*l.*

16409. Master. Ger. and Fr., Geom., Draw.

16410. Gov. Eng. (thoro.), Arith., Fr., and Mus. Res. 30*l.*

16411. Jun. Master. Lat., Fr., Sports. Res. 25*l.*

16413. Gov. Eng. (thoro.), Fr., Ger., Draw., Class Sing., Mus., Calis. 25*l.* to 30*l.*

16415. Jun. Teacher for jun. boys. 10*l.*

16416. Eng. Master to teach Eng. subjs. (gen.), Bkkeep., Shorthd., Lat., and Fr. to juns. 35*l.* to 45*l.* Mus. a consideration.

16417. Eng., Fr. (elem.), Lat., Math. Mutual terms.

16418. Master (for Camb. L.). Also to one or two advanced Pupils, subsidiary. Adv. Piano, Class Sing. 35*l.* to 60*l.*

16419. Master. Mus., Piano, and, if possible, Violin also.; Gen. Eng. subjs. 30*l.* about.
16420. (i.) Gov. (good). Fr., Ger., and Mus. (ii.) Gov. Pupil. Prem. 18*l.* 18*s.*
16421. Gov. to prepare for the 1st Cl. C.P., &c.
16422. Two Governesses for a Technical School. Usual High Sch. subjs., Bkkeep., Shorthd. (desirable). To help with work in the evening at the Technical classes. 40*l.* to 45*l.*

II.—ASSISTANTS.

No. in Register.

MASTERS.

21646. Class., Math., Eng. (lit., &c.), Fr., Sci. (thoro.). Age 26. B.A. and 1st B.Sc. Lond., &c. Non-res. about 150*l.*
21647. Eng., good Fr., Lat., and Math., elem. Ger., Piano, Organ, Sing., Violin, Shorthd., Bkkeep. Age 23. Lond. Matric. Non-res. preferred.
21648. Fr., Ger., Draw., Paint., Math., Nat. Sci., for Army, &c. Age 38. B.-ès-Sc. Non-res. 150*l.*
21650. Eng. (thoro., lit., &c.), Bkkeep., Math., Mens., elem. Fr., Lat. and Ger., Geom. Draw. (for Army). Age 55. L.A. Trin. Coll. Res. 80*l.* to 100*l.*, or non-res.
21651. Eng. subj., Fr., Lat., Math., Shorthd., Sports. Age 20. Lond. Matric. Res. 40*l.*
21652. Class., Math., Eng. (lit., &c.), Fr., elem. Ger., and Draw. Age 26. Inter. Arts. Lond. Non-res. 200*l.*
21653. Lat., elem. Gk., Fr., Eng., Shorthd. Age 26. B.A. Lond. Res. 70*l.* to 100*l.*; non-res. 90*l.* to 120*l.*
21654. Lat., Fr., elem. Gk. and Ger., Eng. subj., Math., Chem., Shorthd. Age 20. 1st B.A. Lond., &c. Res. 40*l.*; non-res. 80*l.*
21655. Mod. Langs., Chem., Geol., Bot., Physiog., Draw., Paint. Age 45. Ph.D. (Univ. Gottingen), Sc. Medallist S.K.
21656. Eng. subj., Lat., Grk., Fr., elem. Ger., Math., elem. Sc. Age 25 B.A. Lond. Non-res. 140*l.*
21657. Eng. subj., Class., elem. Math. (good), Fr., elem. Ger. and Ital., Draw (good), Mech. Age 31. B.A. Lond. Res. 45*l.*; non-res. 90*l.*
21658. Eng. Lat., Gk., Fr., Math., Physics (adv.), Chem. (adv.), Biol., Phys., Geol. Age 28. B.A. Lond. Res. 80*l.*
21660. Fr., Ger., Class., Math., elem. Ital. and Span. Age 38. B.A. Oxf. Non-res. preferred.
21661. Fr., Ger., Draw. Age 26. Univ. Ghent. Res. 40*l.*; non-res. 80*l.*
21662. Fr., Math. Age 18. B.-ès-Sci. Res., mod. salary.
21663. Lat., Fr., elem. Gk. and Ger., Eng. subj., Math. Age 23. Lond. Matric. Res. 50*l.*; non-res. 90*l.*
21664. Eng. subj., Lat., Math., Shorthd., Mech. Age 22. Res. 30*l.*
21667. Eng. subj., Math., elem. Fr. and Draw., Lat. Age 27. A.C.P. Res. 45*l.*; non-res. 90*l.*
21668. Lat., Math., elem. Sci. (Chem., &c.), Eng., Fr., Ger. (elem.), Sports. Age 20. 27*l.* Cert. S.K.
21669. Fr., Ger., Eng., Class. (elem.). 80*l.*
21673. Eng. subj., elem. Class., Fr. and Math. Age 19. 30*l.* Sen. Oxf.
21674. Eng. subj. (higher branches of exams.), Mus., Athletics. Age 21. 60*l.* Lond. Matric., Inter. Arts., Eng. Hon. Res.
21675. Class., Math. (elem.), Hist., Eng. Non-res. 150*l.* to 200*l.* B.A. Oxon.
21676. Eng., Lat., Fr., Gk., Math., Trig., Sci., Draw., 100*l.* to 150*l.* non-res.; 60*l.* to 100*l.* res. 1st B.A. Lond.
21677. Eng. subj., Arith., Alg., Euc., Fr., Lat., Shorthd., Phil. Res. 50*l.*; non-res. 110*l.*
21678. Eng., Lat., Gk., Fr., Math., Draw., Sports. Res. 120*l.*; non-res. 180*l.* 1st Div. Lond. Matric.
21679. Lat. (elem.), Fr., Math., elem. Draw., Shorthd., Phil., Chem. (fair), Sports. Jun. Oxf. Res. 25*l.*; non-res. 60*l.*
21681. Fr., Ger. and Spanish (convs.), Lat. (elem.), Bookkpg., Shorthd. (Pitman's). 1st Cl. S.A. Non-res. 250*l.* Tutorship.
21683. Class., Fr., Eng. (thoro.), Math., Eloc., Pol. Econ., Theol., Divinity, Ger. Non-res. M.A. Oxf. Age 36.
21684. Eng. subj., Fr., Arith., Alg., Euc., Script., Hist., Bookkpg., Draw. Res. 35*l.*; non-res. 70*l.* 2nd Cl. C.P., S.K. 1st Cl. freehd. Draw., 2nd Cl. 2nd Grade. Age 19.
21685. Eng. (thoro.), Lat., Fr., Euc. (good), Alg., Draw. (freehd.), Mus. (piano, organ, sing., cul.). Non-res. 70*l.* to 80*l.* Age 36.
21686. Class., Eng., Math., Theo., Chem., Fr. (elem.), Sing. Non-res. preferred, or res. 40*l.* Age 22.
21687. Class., Math., Sci. (elem.), Eng., Fr., Mus., Piano. Res. or non-res. Age 26. Hon. in Fr.
21688. Eng., Lat., Fr., Math., Drill, Sports, Shorthd. Res. 40*l.* or non-res. Age 26.
21689. Math., Lat., Gk. (elem.), Fr., Chem., Phys., Eng., Draw. Age 22. B.A. Hon. Exhib., Math., Logic, St. John's Coll. Camb.
21690. Eng. subj., Arith., Alg., Euc., Lat., Fr. (to army prelim.), Draw., Piano (jun.). Age 17. Res. 20*l.* Jun. Master.
21691. Math. (high), Phy. Sci., Eng. subj., Draw., Lat., Gk., Ger. Non-res. 200*l.* to 250*l.* M.A. Camb., Math. Hon. As Head Math. Master.
21692. Eng., Fr., Ger., Lat., Arith., Alg., Euc., Shorthd., Bookkpg., Mus. (jun.), Mech. Res. Moderate salary. 2nd Cl. Camb. Locals, S.K. Sci. Age 17.
21693. Eng. subj., Lat., Fr., Draw. (2nd grade). Age 28. Non-res. 60*l.* to 70*l.*
21694. Eng. subj., Math., Arith., Alg., Euc., Trig., Lat. (elem.), Fr., Sing., Mag. and Elec., Phys., Eloc. 60*l.*; or 100*l.* non-res. B.A. Royal Univ. Ireland. Age 22.
21695. Fr., Ger., Mus. (piano and violin), Sing., Draw., Eng. subj., Lat., Chem. Res. or non-res. Age 38.
21696. Fr. and Draw. (thoro.), Ger. (elem.). Used to prepare pupils for exams. Non-res. 150*l.* Age 45.
21697. Fr. (Paris), Ger. (thoro.), Draw. Non-res. 100*l.* to 150*l.* Age 26. Stuttgart Univ.
21698. Eng. (good), Fr. (good), Lat. and Math. (fair), Gk. (elem.), Phys., Chem., Nat. Phil. 60*l.* to 80*l.* res.; 100*l.* non-res. Age 28. A.C.P.
21699. Class., jun. Ger. and Fr., Math. (good), Writ., Draw., Lectures. Non-res. or Visiting. School preferred.
21700. Fr., Math. (elem.), Mus. (good). Res. 25*l.* to 30*l.*, or non-res. Age 23. Certs.
21701. Math., Lat., Gk., Fr., Chem., &c., Bookkpg., Draw., Eng. Res. preferred, 70*l.* to 100*l.*; non-res. 100*l.* to 150*l.* Sen. Oxf. A.A. Age 25.
21702. Class., Math., Eng. subj., Sci. (elem.). Res. 100*l.*; non-res. 120*l.* Age 25. B.A. Lond., 1st M.B. Camb.
21703. Eng. (good), Lat. (elem.), Fr., Arith., Mus. (piano and violin), Shorthd. 4*l.* or 5*l.* per term. Age 19.
21704. Class., Math., Fr., Mech., Phys. and Chem., Drill (join in games). Good discip. and very good prep. for exams. Age 28. B.A. Lond.
21705. Arith. (good), Trig., Geom., Alg., Class., Fr., Ger. (elem.), Eng. subj., Phil. and Chem., Draw. (freehd. and geom.). Non-res. 100*l.* Age 28. B.A. Lond.
21706. Eng. subj., Math., Fr. (gram. and convs.), Ger. (gram.), Gk., Draw. (free. and model). Res. 60*l.*; non-res. 100*l.* Age 29. 1st B.A. Lond.
21707. Ger. and Fr. (good), Eng. subj., Lat., Gk., Span., Ital., Draw., Paint. Age 25. Res. about 30*l.*; non-res. 80*l.*
21708. Eng. subj., Math., Class., Fr., Scrip. Age 26. Res. 50*l.*; non-res. 100*l.* M.A. Aberdeen.
21709. Eng. subj., Fr. (gram. and con.), Lat., Gk., Ger. (elem.), Draw. (freehd., mod., geom.), Shrthd., Phys., Chem., Bot., Zoo., Sci., Mus. (elem.). Non-res. 90*l.* to 100*l.*; res. 60*l.* to 70*l.* Age 22. Lond. Matric., 1st C. P., and S. and A. Dept.
21710. Fr. (all). Age 18. Public Exam. France Tutor. Mutual terms.
21711. Eng. (thoro.), Math., Statics, &c., Fr., Lat., Gk. (elem.), Bookkp., Piano, Draw., Paint (oil and water). Res. 40*l.*
21712. Lat., Fr., Gk., Euc., Alg., Arith., Eng. subj. Res. 30*l.*; non-res. 60*l.* Age 21
21713. Fr., Ger., Chem. (theo. and prac.), Eng. subj. Res. 50*l.* to 60*l.*; non-res. 100*l.* to 120*l.* Age 28. Matric. Lond.
21714. Eng. subj., Lat., Fr., Math., Mech., Trig. Res. 20*l.*; non-res. 70*l.* Age 18. 1st Cl. Lond. Matric., 1st Cl. and Sen. Camb., S. and A. Mech., &c.
21715. Eng., Fr. (jun.), Math., Drill. Non-res. 120*l.* Age 53. Or visiting.
21716. Fr. (thoro.), Lat., Ger., Sci., Poetry, Arith., Eng. subj. Prefer Army Tutor. Res. 40*l.*; non-res. 100*l.* B.Sc.
21717. Fr. (all), Lat., Eng. subj. (good), Sci. (pol. econ.), Arith., Draw. (good), Gk. and Alg., Sports. Res. small salary; non-res. prefd. Age 30.
21718. Eng. subj., Arith., Euc., Alg. (elem.), Elocution, Writ., Bookkp., Shorthd. (Pitman's), Draw. (adv.) Lat. Gk., Fr. Res. 70*l.* to 90*l.*
21719. Eng. subj., Fr., Lat., Class., Ger., Jun. Math., Chem. Mech., and Gk. (elem.). Non-res. 60*l.* Age 35. A. A. Oxf., 1st Cl. C.P. 1st div.
21720. Gk., Lat., Eng. subj., Fr. (elem.), Comp. Non-res. or Private Tuition. Age 30.
21721. Eng. subj., Ger., and Fr. (gram. and conv.), Span., Gram., Lat. and Chem. (elem.). Non-res. 60*l.*; res. 12*l.*, in or near London. Age 26.
21722. Fr., Ger. Res. 40*l.*; non-res. 80*l.* Exam. of Civil Engineers Certs. Age 28.
21723. Eng. subj. (thoro.), Lat., Gk., Math. (mixed), Fr., Ger., Draw., Writing. B.A. Lond., Certs. S. and A. Dept. Non-res. in Lond. 150*l.* to 200*l.* Age 30.
21724. Fr., Lat., Gk. (if desired). Res. or non res. Res. 80*l.*; non-res. 120*l.* Age 29. Certs.
21725. Fr., Ger., Class., Arith., Eng. (gen.), Ital. and Span. (elem.). Res. 20*l.* to 25*l.*; or non.-res. Age 28.
21726. Class. and Math. (good), Eng., Fr. (elem.), Chem. Res. from 40*l.*, or non-res. and holidays. B.A. Trin. Coll., Dublin. Age 31.
21727. Lat., Gk., Math., Statics, Eng. subj., Bookkp., Fr. (fair). Res. 70*l.*; non-res. 120*l.*; or Visiting Age 26.
21728. Dutch, Fr. and Ger. (gram.), Class. (good) for Lond. B.A., Math., Nat. Phil. (elem.), Sound, Light, Heat, Eng. subj., Athletics, Res. 25*l.*, and for holidays.
21729. Lat., Gk., Fr., Math., Euc., Alg., Arith. Eng. subj. Non-res. from 90*l.*, pref.; res. 50*l.* B.A. Oxf. Age 23.
21730. Eng. (subj.), Lat., Gk., Fr., Math., Mus. (piano and harp, elem.). 20*l.* to 25*l.* Age 19.
21731. Ger., Fr., Lat., Mus. (piano, sing., violin, and organ), Draw., Eng. (subj.). Res. 50*l.*, or non-res.
21732. Eng., Lat., Fr., Ger., Math., Nat. Phil., Shorthd. (Pitman's), Mus. (piano). Camb. Jun.
21733. Phys., Chem., Biol., Lat., Fr., Eng. and Math. for Matrics. Res. 30*l.* to 40*l.*; non-res. 80*l.* to 90*l.* Private tutorship preferred. Lond. Matrics.
21734. Eng. (subj.), Fr., Class., Math., Mech., Chem., Shorthd., Mus. Age 20. 25*l.* to 30*l.*

No. in Register.

GOVERNESSES.

9471. Eng., thoro. Mus., Draw. (freehd., con. and gram.), Ndlwk. Age 22. Sen. Oxford. Res. 40*l.*; non-res. 70*l.*
9473. Thoro. Lat., Eng., and Math., Fr., Ger., elem. Gk., and Sci. Age 25. Inter. Arts. Lond. 1st Cl. Res. 45*l.* to 60*l.*; non-res. 80*l.* to 100*l.*
9474. Eng. subj., Fr., Lat., Mus. (theor., violin, piano). Age 23. 2nd Cl. Coll. P., Jun. Camb. Res. 30*l.*
9475. Eng. (thoro.), Arith., Fr., Ger. (elem.), Bot., Physiol., Mus. (good, with har.), Draw. (freehd.). Age 27. 1st Cl. Coll. P. Res. 30*l.* to 40*l.*
9476. Eng., Fr., elem. Mus., Ger., Draw. Age 30. Sen. Oxford. S.K. 2nd Grade Cert., freehd., mod. geom. Visiting in S.W. district. 25*l.* to 33*l.*
9477. Math. (trig.), Fr., Eng., Draw. (from flat), Paint., Mus. (jun.), Calisth. Age 21. Camb. II. Local. Arith., Math., Fr., Eng. Lit. Res. 30*l.* to 40*l.*
9478. Eng. (thoro.), Fr. (elem.), Draw. (freehd.), Paint., Phys., Physiog., Ndlwk. Age 23. S.K. Sc. Certs. Res. Sch. 12*l.*; Fam. 18*l.*
9479. Mus. (piano, theory, elem. violin). Age 24. Teachers' Cert. R.A.M. Res., non-res., or visiting.
9480. Math., Class., Fr. (good), Eng. subj., Phys., Chem. (elem.). Inter. Arts, 1st Cl. Hon. Fr., 2nd Stage Math. Res. 70*l.*; non-res. 120*l.*
9481. Fr. (all branches), Cert. fin d'études secondaires, &c. Age 19. Res. Small salary, time for study.
9482. Eng., Fr., Mus., Ger. (elem.), Draw., Paint. Age 20. Sen Camb. Res. 25*l.* to 28*l.*
9483. Eng., Fr., Ger. (adv.), Piano, Sing., Needlwk., Draw., Lat. Age 24. Res. from 30*l.*; non-res. 60*l.*
9484. Class., Math., Eng. Lit., &c., elem. Fr. and Ger. Age 22. Class. Tripos Camb. Higher Local, Matric. Hons. Sen. Camb. Res. from 50*l.*; non-res. 90*l.*
9485. Eng., Fr., Arith., Mus., Draw. Age 30. Higher Camb. Afternoon.
9486. Eng. Lit., &c., Sci., Fr., Math. (jun.), Mus. (pract., theor.), Sing. (class), Draw., Drill. Age 22. Camb. Sen., 1st Cl. Coll. P., Trin. Coll. Mus. (theor. and prac.). S.K. Bot. and Draw Res. from 30*l.*
9487. Eng. (all branches), Arith., Fr. (acq. in Paris) Ger. (U. Ger.), Mus., Har., Needlwk., Draw. (mod. freehd.). 2nd Cl. Coll. P. Age 21. Res. 40*l.* to 50*l.*
9488. Sci., Eng. subj., Fr. (Paris), Math. (good), Ger. (2½ yrs. in Ger.), Mus. Age 39. 1st B.Sc. Lond. Higher Camb. Local. Non-res. Visiting.

9489. Piano (thoro.), Har., Sing. (class). Age 36. Cert. R.A.M., S.A. Hon. Assoc. Pianist Trin. Coll. Res. from 25*l.*

9491. Eng. (lit., &c.), Math. (jun.), Fr., Mus. (piano and theory). Age 30. Sen. Local Univ. St. Andrews Eng., Geog., and Hist. Non-res. 45*l.*

9493. Lat. Fr., Math. (jun.), Eng. (all branches), Nat. Phil., Logic, Hist. of Phil., Pol. Econ. Age 24. B.A., R.I.U. Res.

9495. Eng. (thoro.), Arith., Phys., Sci., Fr. (elem.), Mus. (piano and vocal), Draw. (freehd. and mod.), Paint. (w.-col.), Kinderg. Age 38. Nat. Froebel Union, Art. 3 S.K. Non-res.

9496. Eng. (lit., &c.), Math., Phys., Sci., Fr. (gram.). Draw., Paint. (oils), Piano, Violin. Age 25. Jun. Camb. Univ. Exb. Lit., Art Teacher's Cert. S.K., &c. Non-res.

9497. Eng. (lit., &c.), Arith. (adv.), Alg. (elem.), Phys. Sci., Bkkeep., Fr. (gram.). Age 27. Camb. Jun. Hon. Univ. Ext. Non-res.

9498. Eng. subj., Arith., Mus. (with theory), Fr. Age 20. 3rd Cl. Coll. P., Trin. Coll. Jun. Hon. Local Prize. Res. 15*l.*

9499. Fr., Ger., Draw., Writing, Math. Age 27. Res. 20*l.*

9500. Ger., Fr., Heb., Sc., elem. Mus. and Draw., K.G. Age 33. Cert. K.G., Berlin. Res. 30*l.* to 40*l.*

9501. Eng. (lit., &c.), Math., Draw., Paint. (oil and w.-col.), Mus. (theor. and prac.). Age 26. Higher Camb., S.K. 3rd Grade. Res. 40*l.*

9502. Eng. subj. (adv.), Arith., elem. Lat., Gk., and Ger., Fr. Age 23. Higher Camb. (part), 1st Cl. C.P. Daily. 60*l.*

9503. Eng. (lit., &c.), Fr., Ger., Mus., Sing., Draw., Bot., Phys. Age 38. Higher Camb., &c. Visiting.

9504. Eng. and Math. (adv.), elem. Fr. and Draw., Ndlwk. Age 25. 2nd Cl. C. P. Non-res. 40*l.*, or res.

9505. Subj. for Lond. Matric., &c., Lat., Math., Eng., Fr. Age 22. Lond. Matric. Res. from 20*l.*, or non-res.

9506. Eng. subj., Bh., Math., Fr., Piano, Organ, Sing. Age 20. Sen. Oxf., &c. Res. 20*l.* to 25*l.*

9507. Eng. subj., Fr., jun. Violin. Age 23. Sen. Camb., &c. Res. 35*l.*

9508. Mus. and Sing (thoro., Diplomée, Leipzic Conserv.), fluent Ger. (lit., &c.). Res. or non-res.

9509. Eng. (all branches), Arith., Fr., Lat., Mus., Draw. Age 34. 1st Cl. C. P. Non-res. or visiting.

9510. Eng., adv. Arith. Fr., Mus. Age 22. 2nd Cl. C. P. Res. 18*l.*; non-res. 25*l.*

9511. Piano, Organ, Theory, Cl. Sing., Eng. subj., Arith. Age 19. R.A.M. Sen. Res. 20*l.*

9512. Eng., Fr., Mus., Draw. Age 27. Res. 20*l.*; Non-res. 30*l.*

9513. Piano, Har. Counterpt., Cl. Sing. Age 25. Student R.A.M. Res. or non-res.

9514. Eng. subj., Arith., Ndlwk., jun. Mus. and Draw. Age 29. Trained C.M. Res. 20*l.*

9515. Har., Counterpt., Piano, Organ, Sing. Age 26. R.A.M., Locals, Student G.S.M. Res. 35*l.*; non-res. 70*l.*

9516. Eng. (thoro.), Fr., Draw., Mus., Ger., elem Lat. Age 20. Home and Col., Trin. Coll. Res. For Holidays.

9517. Eng. and Music. Age 18. In foreign school or family.

9519. Draw. (all styles), Paint. (oil and w.-col.), Eng., Mus., and Sing. Age 24. 2nd Grade Art Student S.K. Res. 30*l.* to 40*l.*

9520. Eng. (thoro.), Fr. (convers.), Ger., Piano, Har., Sing., Draw. Age 27. L.A.M. (Medallist), 1st Cl. C.P. Non-res. 60*l.* to 70*l.*

9521. Eng. subj., Arith., Fr., Ger., Mus. Age 19. Sen. Oxf., Camb. Higher (part). Res. 20*l.*

9523. Eng. subj., Mus. Fr., Draw. Age 20. 2nd Cl. C.P. Res. 20*l.*

9524. Eng. and Arith. (adv.), Fr. (acq. abrd.), Mus. (good), Bkkeep. Age 22. 1st Cl. C. P., R. Acad. Mus. Sen. Res. 30*l.* to 40*l.* Also for Holidays.

9525. Eng., Fr., Ger. (elem.), Mus., Sing. (good), Draw., Paint. (o. and w.-col.). Morning or Daily.

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PHARMACEUTICAL SOCIETY OF GREAT BRITAIN

THE

EDUCATIONAL TIMES,

AND

Journal of the College of Preceptors.

Vol. XLIII.] New Series, No. 346. FEBRUARY 1, 1890. { Registered for Transmission Abroad } *Price to Non-Members, 6d. By Post, 7d.*

COLLEGE OF PRECEPTORS.—

EXAMINATIONS FOR 1890.

1. DIPLOMAS.—The Midsummer Examination of Teachers for the Diplomas of the College will commence on the 1st of July, and the Christmas Examination on the 30th of December.

2. CERTIFICATE EXAMINATIONS.—The Midsummer Examination for Certificates will commence on the 17th of June, and the Christmas Examination on the 9th of December.

N.B.—The Higher Certificates of the College are recognised by Her Majesty's Judges, and by the General Medical Council, as guarantees of good general education; and consequently the holders of them, who may be intended for the Legal and Medical Professions, are exempted from the necessity of submitting to the Preliminary Literary Examinations held by the Incorporated Law Society, and by the various Medical Corporations of the United Kingdom. The Lords of the Committee of Council on Education admit the holders of the same Certificates, without further examination, to the Competition for allowances granted to Students of the Junior Training Class of the National Art Training School. All the College Certificates above the Third Class, the holders of which have passed an Examination in Latin, are also recognised by the Pharmaceutical Society and the Royal Veterinary College.

3. EXAMINATIONS FOR CERTIFICATES OF PROFICIENCY IN MERCANTILE SUBJECTS.—The next Examination will take place on the 16th of June.

4. PROFESSIONAL PRELIMINARY EXAMINATIONS.—These Examinations are held in March and September. The next Examination will commence on the 4th of March.

5. INSPECTION OF SCHOOLS.—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

PRIZES.

Diploma Examination.—In addition to the Doreck Scholarship of £20, the following Prizes will be competed for: Theory and Practice of Education, £10; Classics (Greek and Latin), £5; Mathematics, £5; Physical Science, £5.

Certificate Examination.—The "Isbister Prize" will be awarded to the Candidate who stands First, and the "Pinches Memorial Prize" to the Candidate who stands Second in General Proficiency. Prizes of Books will also be awarded to the Third and Fourth in General Proficiency, and to the First and Second in the following subjects:—Classics, Mathematics, Modern Languages, Natural Science, English Subjects. The "Taylor Jones Memorial Prize" will be awarded to the best Candidate in Scripture History.

The Regulations of the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

PRELIMINARY EXAMINATION of MEDICAL STUDENTS.—The COLLEGE of PRECEPTORS will hold an Examination for Certificates recognised by the General Medical Council as qualifying for Registration as a Medical Student, on the 4th, 5th, and 6th of March, 1890.

The Examination will take place in London, and at the following Local Centres:—Birmingham, Bristol, Leeds, Liverpool.

Examination Fee, 25s.

Regulations and Entry Forms may be obtained on application to the Secretary of the College of Preceptors, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—

(Bloomsbury Square, W.C.)

The next Monthly Evening Meeting of the Members will take place on Wednesday, the 12th of February, when the Rev. CANON DANIEL, M.A., will read a Paper on "Educational Metaphors."

The Chair will be taken at 7.30 p.m., and a discussion will follow the reading of the Paper.

Members have the privilege of introducing their friends.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—

SCHOLARSHIPS FOR INTENDING TEACHERS.

With the view of encouraging the systematic training of teachers for their profession, the Council have established four Scholarships (two for male and two for female candidates), which will be offered for competition at the Certificate Examination in June, 1890.

The value of each of these Scholarships is £45 for a single year, or £30 a year for two years, if the candidate should determine to extend the period of training over more than one year.

The Scholarships are tenable

(*a*) At any Training College for Teachers in Secondary Schools, either at home or abroad, that may be approved by the Council; or

(*b*) At any school of established reputation, approved by the Council, which is prepared to offer such facilities for training as may be satisfactory to the Council; it being open to the Council to require the attendance of the scholar at such lectures on the Theory and Practice of Education, and to require him or her to pass such examinations in the Science and Art of Teaching, as the Council may determine.

Candidates (who must not be under 18 or over 24 years of age at the date of the Examination) are required to declare their intention of competing for these Scholarships prior to the Examination, and to submit such testimonials of character as may be considered satisfactory by the Council. [After June, 1890, the limit of age will be from 17 to 21 years.]

The Scholarships will be awarded to those candidates who, having fulfilled the above conditions, obtain the highest places in the Honours Division of the First Class.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—

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SEVENTEENTH SESSION.

The First Course of Lectures (Seventeenth Annual Series), by JAMES SULLY, M.A., LL.D., late Examiner in Mental and Moral Science in the University of London, on "The Theory of Education," will commence on Thursday, February 13th, at 7 p.m.

In these Lectures the scientific principles underlying the Teacher's Art will be fully dealt with, and always in their direct bearing on the practical work of teaching. Important questions, as the proper way of estimating knowledge, and the right order of studies, will be explained and discussed, and the whole subject illustrated as far as possible by historical references to views of leading writers on Education. Pains will be taken to make the various points handled as simple as possible, and students will be aided by the setting of written exercises upon the subjects of the lectures, by directions as to reading, and, so far as time allows, by oral explanation of difficult points.

For Syllabus see page 52.

The Fee for the Course is Half-a-guinea.

The Lectures will be delivered on Thursday Evenings, at 7 o'clock, at the College, Bloomsbury Square, W.C.—Members of the College have Free admission to all the Courses of Lectures.

C. R. HODGSON, B.A., *Secretary.*

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The Calendar (price 1s.), containing the Regulations, Copies of Examination Papers, Lists of Graduates, &c., is published by Mr. J. E. CORNISH, Manchester, and by Messrs. MACMILLAN & Co., London.

NOTICE.—The "EDUCATIONAL TIMES."—The Volume for 1889 may now be had, bound in cloth, price 7s. 6d. Cases for binding the Volume may also be had, price 1s. 6d.; by post, 1s. 8d.

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For particulars of the above, see page 52.

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H. CALDERWOOD, LL.D., } *Joint*
S. S. LAURIE, LL.D., } *Secretaries.*
W. MITCHELL, M.A., *Assist. Secretary.*

Edinburgh University, November, 1889.

SOCIETY OF APOTHECARIES OF LONDON.—The next EXAMINATION in ARTS will be held at their Hall, Blackfriars, E.C., on Friday and Saturday, the 7th and 8th March, 1890.

This Examination will qualify Candidates for registration as Medical Students.

A Syllabus of the subjects, which, according to the regulations of the General Medical Council, may be passed at one or more examinations, can be had on application. An Examination in Arts will again be held on the 6th and 7th June, 1890.

T. PEREGRINE, M.D.,
Secretary to the Board of Examiners.

THE SOCIETY of ARTS PRACTICAL EXAMINATION in VOCAL and INSTRUMENTAL MUSIC will this year be held in London during the week commencing Monday, the 2nd of June.

The Society's Bronze Medal will be given to any Candidate obtaining full marks in this Examination.

A limited number of the Society's Silver Medals will be awarded to those Candidates (taking a First Class) whom the examiner shall certify as having acquitted themselves best in the Honours portion of the Examination.

Full particulars may be obtained on application.

Society's House, John Street, Adelphi, London, W.C. H. TRUEMAN WOOD, M.A., *Secretary.*

COMMERCIAL EDUCATION. EXAMINATION, 1890.—Under its Commercial Education Scheme, the London Chamber of Commerce will hold an Examination for JUNIOR COMMERCIAL CERTIFICATES at the College of Preceptors in March. Entries close 11th February. The Syllabus and Forms of Entry may be obtained at the Offices of the Chamber, Botolph House, Eastcheap.

KENRIC B. MURRAY, Secretary.

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LONDON MATRICULATION.

AT THE JUNE EXAM., 1889,

78

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The Educational Times.

COLLEGE OF PRECEPTORS.—HALF-YEARLY GENERAL MEETING.

The Half-yearly General Meeting of the members of the Corporation was held at the College, Bloomsbury Square, on Wednesday, the 22nd January.

The Secretary having read the advertisement convening the meeting, Dr. R. Wormell, Vice-President, was appointed Chairman.

The Report of the Council was laid before the meeting, and was taken as read, a copy having been sent to every member. It was as follows:—

Report of the Council.

The Council beg leave to lay the following Report of the proceedings of the past half-year before the Members of the Corporation:—

1. They have the satisfaction of reporting that the number of candidates (9,653) entered for the Christmas Certificate Examination shows an advance, if but a small one, on the number of entries for the last Christmas Examination, while the accession of a considerable number of new schools is of good augury for the stability and further extension of this important department of the work of the College. The increased number of candidates for the Mercantile Certificates also indicates that the practical utility of this special Examination is beginning to be recognised; and the successful working of the oral examination in modern foreign languages, which forms a part of the Mercantile Examination, encourages the expectation that when the same principle comes to be applied, as it will be at the next Midsummer Examination, to test the aptitude of the general candidate in using a foreign language for the purposes of intercourse as well as for literary study, a fresh impetus will be imparted to the study of living languages in schools. The Public Distribution of Prizes and Certificates to the successful candidates at the last Midsummer Examination took place in the College Lecture Hall on the 24th of July, when the chair was taken by the Rev. Dr. Wace, Principal of King's College, London. Due notice will be given of the time and place of the forthcoming Distribution.

2. In addition to the general Examination for Certificates, the usual Preliminary Examination, for intending medical students and others, was held in September last, and was attended by 230 candidates.

3. For the Christmas Examination of Teachers for the College Diplomas, 122 candidates have entered their names, being a larger number than has entered for this Examination for several years past. The Examination will be held in London, and at four local Centres: Birmingham, Bristol, Leeds, and Manchester.

4. In addition to their own Examinations of Pupils and Teachers, and the Examination of a number of Schools by visiting Examiners, the Council have conducted, as usual, during the past half-year, the Preliminary Examinations of the Royal Veterinary College and of the Pharmaceutical Society of Great Britain.

5. The Sixteenth Annual Series of Lectures to Teachers on the Science and Art of Education, which commenced in February last with a Course on "Mental Science in relation to Education," by Dr. James Sully, was brought to a close on the 19th of December by the last of a Course of Twelve Lectures on the Practice of Education, by the Rev. Canon Daniel. In addition to these Lectures on the Theory and Practice of Education, a supplementary Course of four Lectures on the Teaching of Geography has been delivered at the College by Mr. H. J. Mackinder, M.A., Reader in Geography in the University of Oxford. The Council propose to make arrangements for similar short Courses of Lectures on other school subjects during the coming year.

6. The usual Monthly Evening Meetings of the Members have been held during the past half-year, at which the following Papers have been read:—

October 16*th*.—"On the Teaching of Economic Science in Schools," by G. Armitage Smith, Esq., M.A.

November 13*th*.—"On Examinations considered with regard to their Special Objects," by G. Heppel, Esq., M.A.

December 18*th*.—"On Class-Teaching of Phonetics as a Preparation for the Pronunciation of Foreign Languages," by W. A. Widgery, Esq., M.A.

The Papers, and the discussions on them, have been published, as usual, in the *Educational Times*.

7. The Council have much pleasure in announcing that they have made arrangements for holding a Conversazione of members of the College and their friends on the 14th of January next. The Conversazione will take place at University College, London, which has been kindly granted for the purpose by the Council of that College.

8. In compliance with numerous requests, the Council have decided, after careful consideration, to give members residing at a distance the opportunity, under suitable regulations, of taking out books from the College Library for inspection at home; and, as a necessary preliminary, they have decided to have a new catalogue prepared and distributed among the members. They have also recently made considerable additions to the Library, by the purchase of a number of important historical works, and of books on the Theory and Practice of Education, which will, they believe, be highly appreciated by teachers, for whom such works are, in very many cases, inaccessible; and they hope, by careful attention to order and arrangement, and by judicious expenditure of the necessary funds, to make the Library more generally useful and worthy of the College and of the building in which it is housed.

9. In their last Report the Council expressed their intention of taking steps for the re-introduction of the Teachers' Organisation and Registration Bill. With this object, they have placed themselves in communication with the original sponsors of the Bill and with other Members of Parliament, and, in default of a definite promise on the part of the Government to deal with the question, the Bill will be brought forward, backed by well-known names on both sides of the House, early in the next session of Parliament.

10. The Council have much satisfaction in congratulating the members on the financial prosperity of the College, as shown in the accompanying statement of accounts. They have been enabled during the year, not only to make the above-mentioned purchase of books, to award scholarships for intending teachers, to place a sum of £300 to the credit of the Benevolent Fund (out of which grants have been made to the amount of £80), and to carry a further sum of £500 to the credit of the Teachers' Training Fund (which now amounts to £1,500), but they have also been enabled to considerably increase the cash balance, in order to provide for the necessary outlay, during the coming year, for completing the interior decoration of the College Building, which it had been decided to leave till after the first three years of their tenancy had expired.

11. During the past half-year the Diploma of Licentiate has been conferred on two candidates, and that of Associate on twenty-three, who had passed the required Examinations. Twenty-two new members have been elected, while notice has been received of the withdrawal of eight. The Council regret to have to report the death of one of their colleagues, Dr. Francis Cuthbertson, and of the following members of the College: Mr. H. H. Davis, L.C.P., Mr. F. Ewen, L.C.P., Rev. A. G. Gayfer, L.C.P., Mr. E. Loreille, the Rev. W. H. Seggins, and Mr. W. Taylor.

With reference to paragraph 7, Dr. Bell expressed his regret that the Council had not found it practicable to hold the Conversazione in their own building, which he considered to be specially adapted for the purpose.

Mr. Southee said that he had been one of the many who were present at University College on the 14th, and he took this opportunity of expressing his own, and he believed the general, satisfaction with the arrangements that had been made for the entertainment of the visitors.

The Report of the Council and the accompanying Abstract of Accounts were adopted unanimously.

The meeting then proceeded to the election of twelve members of Council to fill the places of the twelve retiring by rotation, and three auditors.

The Chairman having appointed Mr. Heppel and Mr. Greenhill to act as scrutators, the voting papers were distributed, and the election was proceeded with. On the scrutators presenting

their report, the Chairman announced that the following had been duly elected:—

MEMBERS OF THE COUNCIL.

Rev. J. O. Bevan, M.A., Vowchurch Vicarage, Hereford.
H. C. Bowen, M.A., 3 York Street, Portman Square, W.
W. Brown, B.A., Tollington Park College, N.
Dr. C. A. Buchheim, 47 Leamington Road Villas, W.
Rev. Canon Daniel, M.A., St. John's College, Battersea.
Dr. J. H. Gladstone, F.R.S., 17 Pembridge Square, W.
T. Kimber, M.A., 152 Alexandra Road, South Hampstead.
F. C. Maxwell, M.A., LL.M., Manor House School, Clapham.
G. W. Robinson, M.A., 27 Sutherland Avenue, W.
Rev. J. H. Robson, M.A., LL.D., Edgeborough, Guildford.
Rev. D. L. Scott, M.A., LL.D., Mercers' School, E.C.
W. White, M.A., Chiswick Coll. School, Turnham Green.

AUDITORS.

J. Bell, Esq., M.A., LL.D., 31 Caversham Road, N.W.
Rev. T. Mitcheson, B.A., L.C.P., Clairville, Pelham Road, Wimbledon.
Jas. Swift, Esq., 229 New Cross Road, S.E.

The CHAIRMAN regretted to have to inform the meeting that the Dean was unable to be present on account of an attack of the prevailing epidemic of influenza, and that his Report, which had been printed and distributed among the members present, would have to be submitted to the meeting in his absence. The report was as follows:—

THE DEAN'S REPORT.

A general statement of the Examination work of the College during the past half-year has been given in the report of the Council, and I have now to submit to you, in detail, the statistics and the results of the various examinations.

The Christmas Examination of Pupils took place on the 3rd to 6th December, and was held at 126 Local Centres, and 125 Schools, in all parts of the country. In London there were nine Sub-centres—two for boys, and seven for girls. The Provincial Centres were Aberystwith, Axminster, Aylesbury, Barnstaple, Bath, Blackpool, Blandford, Biggleswade, Birmingham, Bodmin, Bognor, Bolton, Boston, Bournemouth, Brighton, Bristol, Burnley, Bury St. Edmunds, Buxton, Cardiff, Carmarthen, Cheltenham, Chester, Chesterfield, Clacton, Colchester, Crewe, Croydon, Darlington, Derby, Durham, Devizes, Deal, Ealing, Eastbourne, Exeter, Farnham, Folkestone, Gillingham, Grimsby, Guildford, Goole, Halifax, Harrogate, Hastings, Haverfordwest, Hereford, Honiton, Hornsea, Huddersfield, Hull, Ilfracombe, Ipswich, Isle of Man, Isle of Wight, Jersey, Keighley, Kidderminster, King's Lynn, Leamington, Leeds, Leek, Leicester, Lincoln, Liskeard, Liverpool, Llanelly, Maidstone, Malvern, Manchester, Margate, Midhurst, Newbury, Newcastle-on-Tyne, Newcastle-under-Lyme, Newport (Mon.), Northampton, Norwich, Nottingham, Ongar, Oswestry, Paignton, Plymouth, Portsea, Portsmouth, Ramsgate, Reading, Redruth, Retford, Richmond (Surrey), Salisbury, Saltburn, Scarborough, Sheffield, Shrewsbury, Snettisham, Southampton, Southend, Southport, South Shields, St. Anne's, St. Asaph, Stockton, Sudbury, Sunderland, Swindon, Taunton, Torquay, Totnes, Tregoney, Tunbridge Wells, Wellingborough, Weston-super-Mare, Weymouth, Whitstable, Wincanton, Windsor, Wolverhampton, Worcester, Wrexham, Yarm, Yarmouth, and York.

The total number of candidates examined was 9,511, of whom 4,711 were boys and 4,800 girls. Of these there were examined:—

	Boys.	Girls.
At the London Centres	620	847
At the Provincial Centres ...	2,778	3,065
At their own Schools	1,313	888
	4,711	4,800

Taking the Midsummer and Christmas Examinations together, the total number of candidates examined for Certificates during the year (not including those who presented themselves at the Professional Preliminary Examinations in March and September), was 14,640.

The following table shows the proportion of candidates who have obtained certificates at the Pupils' Examinations held during the past five years:—

Year ending	Entered.	Passed.	Percentage.
Christmas, 1885	13,895	10,477	75·4
,, 1886	14,513	11,638	80·2
,, 1887	14,961	11,265	75·3
,, 1888	14,748	11,209	76·0
,, 1889	14,640	11,341	77·5

The proportion of passes, as given above, is increased by a large number of candidates who "dropped" from a higher to a lower class according to our rules. The actual proportion of passes to entries, in the case of boys and girls respectively, *in the class for which the candidates were entered*, at the last Christmas Examination is as follows:—

Boys.	Entered.	Passed.	Percentage.
Entered for First Class	234	128	55
Entered for Second Class	1914	883	46
Entered for Third Class	2563	1971	77
GIRLS.			
Entered for First Class	287	119	42
Entered for Second Class	1624	916	56
Entered for Third Class	2892	2223	77

These results do not show any material difference, except in regard to the smaller number of First Class girl candidates, as compared with the statement of results of the Examination in December, 1888; the percentage of passes being about the same.

The number of candidates who presented themselves at the Christmas Examination for Certificates of Proficiency in Mercantile Subjects was 27, of whom 13 have obtained Certificates.

At the Supplementary Examination for First and Second Class Certificates, which was held on the 4th to 6th September, in London and at four Provincial Centres—Birmingham, Bristol, Leeds, and Liverpool,—240 candidates presented themselves. The number of candidates examined at these Supplementary Examinations during the year was 491.

The Christmas Examination of Teachers for the College Diplomas took place on the 31st of December and four following days, and was attended by 108 candidates, of whom 62 were men and 46 women. The subjects of examination included the Theory and Practice of Education, Scripture History, English Language, English History, Geography, Arithmetic, Algebra, Euclid, Trigonometry, Analytical Geometry, Differential and Integral Calculus, Latin, Greek, French, German, Natural Philosophy, Experimental Physics, Animal Physiology, Zoology, Botany, Geology, Chemistry, Drawing, and Music. On the results of this examination, one candidate obtained the Diploma of Fellow, one that of Licentiate, and 35 that of Associate. The following prizes have been awarded:—£10 for the best candidate in Theory and Practice of Education, £5 for Mathematics, and £5 for Natural Science.

The Preliminary Literary Examinations of the Royal Veterinary College and of the Pharmaceutical Society have been held, as usual, at the times appointed by those bodies. For the Royal Veterinary College 35 candidates have been examined during the past year, and for the Pharmaceutical Society 1,351.

Mr. STEWART thought that it would be advisable, in printing the Class Lists, that a distinction should be made between over-age candidates and *bonâ fide* pupils in schools, who were competing with each other under unequal conditions.

Mr. PINCHES pointed out that the regulations did not recognize any limit of age for the different classes, and that, in the absence of any such restriction, a classification of the successful candidates according to age would not be practicable. As it was, candidates over eighteen years of age were not allowed to receive prizes.

The Report of the Dean was then adopted.

Mr. BAYLEY then moved the following resolution standing in his name on the Agenda Paper:—

> "That inasmuch as the Council of the College of Preceptors have refused J. G. Hamlet the Scholarship he honestly won last June, this Meeting is of opinion that the Council have dealt unjustly with Hamlet, and earnestly desires the Council to reconsider their decision."

He said it was not his intention to ask the meeting to pass a vote of censure on the Council. He was simply going to state the plain facts of the case, and to draw the attention of country teachers especially to the action of the governing body of the College with regard to the scholarships to which his resolution referred. In the regulations respecting these scholarships which were supplied to the schools, there was a statement to the effect that the scholarships might be held "at any school of established reputation approved by the Council, which was prepared to offer such facilities for training as might be satisfactory to the Council," and the whole controversy turned on that one statement, upon which he anticipated the Council would take their stand, and which he should endeavour to combat. A young teacher in his school named Hamlet had spent some months in preparing for the examination last June, and came out second in England. It was naturally thought that he had won the scholarship; but after he had passed, the Secretary of the College wrote to say that it would only be awarded to him on certain conditions. These conditions, which it must be remembered were not stated in the regulations, involved, first, the giving of some forty criticism lessons within the two years during which the scholarship was tenable; secondly, the passing of the College examinations in the Theory and Practice of Education at the end of each year; and, thirdly, that the holder of the scholarship should have an hour a day allowed him out of his school time in order that he might devote it to the study of the science and art of education. The first two of these conditions he (Mr. Bayley)

was willing to accede to, but not to the third; and he would ask the meeting what they thought of a stipulation of the kind when they considered that Hamlet had already passed the examination for the Intermediate B.A. at the University of London, that he was twenty years of age, and that he had already been for some years engaged in the practice of teaching. It was stated that another candidate from a country school, who had sat for the Scholarship Examination at the same time, had come up to a London school of well-earned reputation, and had been received there on similar conditions to those on which the Council had insisted in Hamlet's case; but he contended that the cases were not parallel. Hamlet was a poor lad who was obliged to live by his teaching, and could not afford to give up any advantages that he at present enjoyed, in order to come up to London and enter on an engagement on terms which would satisfy the Council's requirements. He would ask any members of the Council who might be present to put themselves in his place on a request of the kind being made, and would like to know whether any principals of London schools, who might be willing to receive brilliant lads from the country into their schools, would be agreeable to let Hamlet come up to London, and, after having trained him for some years, allow him to carry away the credit which belonged to his school and to the boy himself. He maintained that the Council had been unfair to Hamlet. He was aware that it was not a prize in the ordinary sense that Hamlet had won, but it was a scholarship — it was money which he had won by passing that examination, and he was willing to meet the Council half-way by proposing that they should give Hamlet the sum of £30 and let it be passed over, but this offer was declined. He then referred to a correspondence which had passed between the Secretary and himself on the subject, and concluded by saying that he only wished the matter to be considered on its merits; and, whether the vote was in favour of or adverse to Hamlet, he maintained that it was a cruel thing for the Council to take from him the full value of the scholarship he had won by imposing such a condition as that to which he had objected.

Mr. Southee, as a member of the Council, and himself a country schoolmaster, said that, as far as he could see, there was only one point of difference between the Council and Mr. Bayley. The Council were quite willing to give the scholarship upon certain conditions, one only of which was objected to; and the question at issue was whether Mr. Bayley or the Council were to dictate the terms on which the scholarships should be awarded. There was a general desire on the part of the Council that Hamlet should have the scholarship, but as he could not comply with the conditions, the Council could not do otherwise than withhold it. It was necessary for those present to bear in mind that they were quite at the initial stage of this matter, and that, if the regulations had not been published in more precise detail, it was simply because the matter was gradually evolving itself. He called the attention of the meeting to the words "such facilities as may be satisfactory to the Council." Hamlet was stated to be working for other and no doubt most praiseworthy objects, but the Council were looking to the right use of the funds which they intended to devote to these scholarships, and if their action had been more severe than it had been, he thought that no one would be justified in blaming them. Had they enunciated to one candidate one condition, and to another another, there might have been some ground for the complaint of injustice; but they had done precisely the same in the case of both candidates, and one of them had complied with their conditions, while the other had not. The Council would have been very pleased to help on a deserving young man, but they could not be influenced in the action they deemed to be just and expedient, by having regard to the want of pecuniary resources, which might preclude any individual from complying with their conditions. He could not deprecate too strongly the insinuation that there was an atom of jealousy between London and country schoolmasters. The Council had been most anxious to arrive at a just and fair decision in the case, and he did not think that the slightest blame attached to the action they had taken.

Mrs. Bryant thought it would conduce to clearness of ideas on the subject under discussion if the meeting would consider what was the nature of the alternative combinations laid down in the regulations for the tenure of these scholarships. She was not present at the meeting of the Council when the decision impugned by Mr. Bayley was arrived at, but she had taken part in the framing of the conditions which were laid down when it was decided to establish these scholarships, and she had a very vivid remembrance, not only of the particular conditions, which were, of course, published, but also of the clear and definite expression of the motives by which the Council were actuated in coming to their decision. Their intention was to grant these scholarships to persons who were to attend a training college; and she would remind Mr. Bayley that at a training college not one hour a day, but the whole time of the student, was required for the purpose to which he was objecting. They did not intend these scholarships as rewards for merit, but as aids which would enable young teachers to give up their time, to desist from the work of teaching and earning money by teaching, in order the better to prepare themselves for the profession of teaching. Now there were four training colleges in existence for women, and none at all for men; and the question which arose was, whether these scholarships be granted to women only, seeing that they only could fulfil the conditions which the Council desired to have fulfilled. She was glad to say that the lady members of the Council were unanimously of opinion that this would not be advisable, and that the young men should also have an opportunity of competing for the scholarships. It was then necessary to find out some way in which it would be possible to grant the scholarships to young men, which was a very difficult task indeed; but she thought the meeting would agree with her in holding that the Council could do no less than lay down in the most stringent way possible the conditions to be satisfied by the male candidates, and that they should be such conditions as the Council might think satisfactory. She considered that no statement could be stronger than the one which had been read by Mr. Bayley as to those conditions. The Council had clearly constituted itself the sole judge, and she contended that the Council could have done nothing else. If it had done anything else, it might have been exposed to claims from time to time of a very unreasonable and undesirable character. She thought Mr. Bayley must admit that by his contention he was really constituting himself judge of the conditions on which these scholarships should be held. She contended that the Council being judge, the meeting must confirm their action, or else constitute itself judge, as to what conditions were reasonable and desirable from time to time.

The Rev. Dr. Dawes hoped the time would shortly come when these scholarships would not be granted under the existing conditions, but that they would only be granted in order to be held in training colleges. He agreed with the views which had been expressed with regard to the position of the Council on matters of examination and scholarships. The only question they had to consider was whether the gentleman in whose behalf the motion was made had fulfilled the conditions which were printed in the calendar, or had had an opportunity of doing so; because, whatever might be the motives and intentions of the Council, when it came to a public competition it was desirable that there should be no doubt that they were following the strict letter of the law. He was however of opinion that, in this point of view, there could be no doubt whatever as to the matter in dispute.

Mr. Pinches was sure that he expressed the feeling of all present in saying how much he regretted that the Dean was prevented by illness from attending the meeting, as he would have been the best exponent of the views of the Council on the subject under discussion, and of the motives of their action. The matter had been carefully considered by the Council in the first instance, had been referred by them to a Committee, when it was again gone into in detail, and on the report being brought up it was adopted unanimously. He would further remind them that at the first general meeting of the members held in that room, the necessity of a special training for teachers was unanimously recognised, and it was decided that, after certain sums had been allocated for the improvement of the library, and for placing the Benevolent Fund on a better footing, the whole of the surplus income of the College should be devoted to making provision for such training. The Council came ultimately to the conclusion that the best way for promoting this object, whilst the necessary funds were accumulating for starting a training college, would be to offer scholarships for the purpose of providing young persons who were entering the profession with the means of obtaining that training which it was thought desirable they should have. The intention was not to award prizes for knowledge already acquired, and the first notion was to insist upon all candidates attaching themselves to a training college for secondary education. There was no difficulty in that respect as to the ladies, but for the men they had to try as nearly as they could to frame equivalent conditions, which conditions had already been stated to the meeting. Mr. Bayley had said that, because Hamlet was second in the examination, he was entitled

to the scholarship; but the Council maintained that he was not entitled to it until he had agreed either to enter a training college, or to undergo a training which should as nearly as possible be an equivalent. They were told that this candidate was equal to taking his B.A. degree, and had for years been a teacher. If that were so, he could only say that this was not the kind of candidate that the Council had in view in establishing these "scholarships for intending teachers." Had they contemplated awarding these scholarships to acting teachers, they would assuredly have made them dependent on the results of the Teachers' Examinations, instead of offering them to be competed for at the Examinations for pupils in schools. He hoped that Mr. Bayley would withdraw his resolution; and if he would not do so, he confidently looked to the members of the College to support the Council in their earnest endeavours to afford to young teachers the means of securing that professional training which would, they hoped, eventually be held to be as necessary to the equipment of the teacher, as it was considered to be in the case of the other learned professions.

The Rev. C. Brooke thought that the arguments used by Mrs. Bryant and Mr. Pinches had rather strengthened than weakened Mr. Bayley's case. He was not previously aware of the fact that there were no training colleges for men, and, if that were so, surely the stipulations in reference to the examinations to be passed in the theory and practice of education ought to be sufficient to safeguard the proper use of the scholarships. What was the use of men going in for examinations for scholarships when they knew that if they were successful the scholarships would not keep them in London? He thought it would be better for the work of the College of Preceptors if scholarship examinations were abolished, so far as male teachers were concerned, unless other stipulations in reference to the theory and practice of education could be made. He admitted indeed that justice in the matter had been done, but considered that it was only scant justice.

Mr. Baumann said that he had himself never objected to any regulations and conditions imposed when he had the good fortune to gain a scholarship. This was a question of business; and in order to appreciate the justice or otherwise of the case, they must consider it in all its bearings. It was impossible to say that the matter was discussed in any than the most moderate way, and without the slightest animus or feeling towards Mr. Bayley or the person more immediately concerned.

Mr. Rule contended that the meeting had no power to reverse or modify the conditions laid down by the Council, whose sole desire was to act justly in the interests of the young man in question, and, what was of still greater importance, in the interests of education.

Mr. Brown said that it was in his school that the young man had been placed, who had won the second of the two scholarships in question. It was by no desire of his own that he had taken him, but solely in order to help the College, and to give the system of training at a school a fair trial. The young teacher was not attached to any one class in the school; he had a very large portion of his time free for studying the principles of education, and for witnessing skilled teaching in different departments of instruction, and he received from himself personally, or from his second master, a regular criticism lesson once a week. He paid the young man a fair salary as a resident assistant, and it would easily be understood that his undertaking the work of training the "scholar" involved not only a great deal of trouble and responsibility, but no small pecuniary loss. He mentioned these facts to show how different were the motives of the London schoolmaster in the matter from those which had been suggested by Mr. Bayley.

Mr. Heppel said that, as he understood the charge formulated by Mr. Bayley, it was that the printed regulations did not cover the requirements which the Council demanded. To this it was very properly replied that the Council made such regulations as they thought proper and desirable, and the real question at issue was whether the requirements demanded were in excess of what they were entitled to make. He confessed he did not think that they were such as to justify any candidate in saying he had been treated unfairly, and he should certainly support the action of the Council. At the same time, he thought it would be wise, in any future regulations, that great care should be taken to specify as clearly as possible the conditions upon which the scholarships would be allowed to be held.

Mr. Bayley, in reply, insisted that the Council had, in substance, departed from the printed regulations, and had imposed upon him a stipulation which those regulations did not impose. He pointed out that Hamlet had sat for the examination as a student between the ages of eighteen and twenty-four years, and that he (Mr. Bayley) had agreed to abide by all the conditions imposed except one. He had not asked the meeting to reverse the decision of the Council, but only that the Council should be requested to reconsider their decision. If they wished him to alter the word "unjustly" to "unwisely" he would be quite willing to do so.

The Chairman said that could not be done: the resolution might be accepted or rejected, but no alteration could be made in it without due notice. The discussion had gone over a wider range than might have been anticipated, but he thought that it had not been without its uses. The Council had for a long time been considering how they could secure the continuous training of secondary teachers, and they hoped in time to be able to establish a training college of their own. There was one in existence at the time when this matter was first introduced,—he referred to the Finsbury Training College,—but after three years it fell through, and at present there was no institution of the kind available for male teachers. He thought they ought not to depart from the strict letter of the regulations that had been made public, and he recalled the attention of the meeting to the phrase which it contained—"to the satisfaction of the Council."

The resolution was then put to the meeting, and was rejected by a very large majority.

A vote of thanks to the Chairman concluded the proceedings.

After the meeting, the following members and officials dined together at the Holborn Restaurant under the presidency of the Rev. Canon Daniel: Mr. Barlet, Mr. Baumann, Mr. Bayley, Dr. Bell, Mr. Beuzemaker, Rev. C. Brooke, Mr. G. Brown, Mr. G. Bruce, Mr. Carr, Mr. Charles, Mr. Chegwyn, Rev. Dr. Collis, Mr. Crichton, Miss Crombie, Rev. Dr. Dawes, Mr. Dupuis, Dr. Dillon, Mr. Heppel, Mr. Hodgson, Mr. Kimber, Mr. Langler, Sir Philip Magnus, Mr. Maxwell, Rev. T. Mitcheson, Mr. Morgan, Mr. Nasmith, Mr. E. Pinches, Mr. W. B. Pinches, Mr. Reynolds, Mr. Ridgway, Mr. Robinson, Mr. Spence, Mr. Southee, Mr. Stewart, Mr. Swift, Mr. Thomas, Mr. Tidy, Dr. Wormell. Several friends of members, ladies and gentlemen, were also among the guests. The proceedings were, as usual, of the most genial character, and music and recitations by several of those present alternated with the toasts that were given and responded to.

COLLEGE OF PRECEPTORS.

CONVERSAZIONE AT UNIVERSITY COLLEGE, LONDON.

A Conversazione of members of the College of Preceptors and their friends took place at University College, London, by the kind permission of the Council of that College, on Tuesday, the 14th of January.

This was the first time that a Conversazione had been given by the College, and care had been taken by the Committee appointed for the purpose to make the programme as varied and attractive as possible. The visitors were received by the officers of the Council at the entrance to the Flaxman Gallery, whence they distributed themselves over the extensive buildings of the College, according as their respective tastes led them to prefer science, or music, or the seeking out of friends and acquaintances, for which such a gathering affords opportunity.

The principal assembly room was the handsome and spacious General Library, which was abundantly provided for the occasion with objects of scientific interest, in the shape of microscopes, graphoscopes, &c., as well as a large collection of autotypes of celebrated pictures.

In a neighbouring room was exhibited a collection of pictures supplied by the Art for Schools Association, a society recently founded for the purpose of awakening and cultivating the artistic faculty in the young by the selection and publication of copies of suitable pictures and engravings for the adornment of the too frequently bare walls of the schoolroom.

In the Botanical Theatre, a room possessing excellent acoustic properties, there was a concert of vocal and instrumental music, under the direction of Mr. Sidney Hann, consisting chiefly of shorter pieces selected from the works of some of the best known composers of chamber music, interspersed with songs, which were admirably rendered by Mrs. Helen Trust. The performance, both instrumental and vocal, was much appreciated and heartily applauded. The programme was divided into two parts, with a sufficient interval between them to admit of the audience attending an entertainment of another character in the Physical Theatre, which is situated immediately over the Botanical Theatre.

In the Physical Theatre a very interesting lecture on the

Moon was delivered by Dr. A. H. Fison, illustrated by very striking and beautiful selenographs, and photographs of Nasmith's models of lunar mountains, shown by the lime-light lantern. The theatre was crowded before the time fixed for the lecture; and many who were unable to obtain admittance, consoled themselves by listening to the phonograph, which was exhibited continuously throughout the evening in the Ladies' Reading Room.

This latter part of the programme excited the most lively interest. The phonograph used was one of the most recent type, with Edison's latest improvements, and the wonderful powers of the instrument were skilfully exhibited by Mr. Steytler. The "loud records" were exhibited alternately with the "low tone" records, the former comprising specimens of instrumental music, barking of dogs, spoken dialogue, and phonograms made on the spot by the operator. One of the most popular "records" was the performance of a village band in Edison's laboratory a year ago, followed by the cheers and clapping of hands of the boys of the factory, the whole being heard by every person in the room with the greatest distinctness, though it had been repeated by the same instrument several thousand times. The "low tone" records were still more extraordinary, as showing the power of the instrument to reproduce the most varied shades of inflection of the human voice.

Of more practical value, from an educational point of view, was the Engineering Laboratory of University College, which was exhibited by Professor Beare and his assistants, and attracted a good deal of attention, in face of the competition of the more popular forms of entertainment provided.

About seven hundred ladies and gentlemen were present during the evening, not a few of whom came from distant parts of the country, and had it not been for the prevailing influenza epidemic, which kept many away, the attendance would have been much larger. There was a general expression of satisfaction with the arrangements made by the Committee, and it was hoped that the Conversazione might become a regular institution.

ADJOURNED MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

An adjourned meeting of the Council was held at the College on Wednesday, the 22nd ult. Present:—Dr. Wormell, Vice-President, in the chair; Rev. J. O. Bevan, Mrs. Bryant, the Rev. Canon Daniel, Dr. Dillon, Mr. Kimber, Mr. Pinches, Mr. Reynolds, Mr. Rule, Rev. W. J. Savell, and Mr. Stewart.

Votes of thanks were passed to the Council of University College for granting the use of their rooms for holding the Conversazione on the 14th of January; to Professor Beare for exhibiting the Engineering Laboratory; and to Dr. A. H. Fison for his lecture on Lunar Mountains, on the same occasion.

Diplomas were granted to the following, who had completed their subjects at the Christmas Examination of Teachers:—*Fellowship*—Miss A. S. Bull; *Licentiateship*—H. G. Wells; *Associateship*—F. W. Ball, J. S. Bartlett, Miss E. A. Barton, Miss K. E. Belk, Miss K. Black, J. T. Branson, H. G. Brew, S. L. Clarke, C. J. H. Cowdroy, E. E. Denney, Miss J. Dunlop, Miss B. M. Emerson, J. B. W. Foster, Miss A. A. Garrod, A. H. Grant, Miss M. E. George, Mrs. A. M. Gilley, Miss M. C. Gillie, H. Harvey, M. Harvey, Miss E. Hebbelthwaite, Miss L. Hinchliffe, J. Holford, Miss A. M. Kent, S. Leigh, Miss B. H. Nelson, H. D. Riddelsdell, F. G. Sharpe, G. H. Southern, F. L. H. Sparrow, W. Simms, J. H. J. Stringer, G. Welch, A. H. Williams, H. Young.

The prize of £10 for Theory and Practice of Education, the prize of £5 for Mathematics, and the prize of £5 for Natural Science, were awarded to Mr. H. G. Wells.

TEACHERS' DIPLOMA EXAMINATION.—PASS LIST.

JANUARY, 1890.

Theory and Practice of Education.

FELLOWSHIP.

Bull, Miss A. S.

LICENTIATESHIP.

Brown, A. J. H.
Tipson, O. C.
Wells, H. G. (*hon.*).
Wild, M. H.

ASSOCIATESHIP.

Ball, F. W.
Bartlett, J. S.
Barton, Miss E. A.
Belk, Miss K. E.
Black, Miss K.
Blizard, Miss C. J.
Borland, F. J.
Branson, J. T.
Brew, H. G.
Butler, S.
Clarke, S. L.
Cowdroy, Miss C. J. H. (*hon.*)
Denney, E. E.
Emerson, Miss B. M.
Fillingham, A. L.
Foster, J. B. W.
Gardner, C. G.
George, Miss M. E.
Grant, Miss A. H.
Harvey, H.
Harvey, M.
Hebbelthwaite, Miss E.
Hinchliffe, Miss L.
Holt, H.
Holford, J.
Ikin, A. E.
Jarvis, Miss R.
Kent, Miss A. M.
King, Miss A. J.
Knowles, J. H.
Leigh, S.
Mushet, Miss E.
Nelson, Miss B. H.
Polito, Miss E. J.
Riley, Miss L.
Riddelsdell, H. D.
Sharp, F. G.
Simms, W.
Southern, G. H.
Sparrow, F. L. H.
Stringer, J. H. J.
Welch, G.
Williams, A. W.
Young, H.

English Language.

Barton, Miss E. A.
Black, Miss K. (*hon.*)
Blackburn, J.
Blizard, Miss C. J.
Borland, F. J.
Branson, J. T.
Brown, A. J. H.
Capes, Miss E. B.
Earle, Miss C. P.
Edwardes-Jenkins, J.
Fillingham, A. L.
Gardner, C. G.
Gillings, Miss A. L.
Greaves, Miss J. L.
Harvey, M.
Heath, C.
Hendry, Miss M. H.
Meadows, H.
Mills, Miss I. C.
Mummery, T. F. J.
Nelson, Miss B. H.
Pile, H. G.
Riley, Miss L.
Staines, Miss E. M.
Seaborne, E.
Southern, G. H. (*hon.*)
Warne, Miss E. G.
Wells, H. G. (*hon.*)
Wild, M. H.

History.

Barton, Miss E. A.
Blizard, Miss C. J.
Branson, J. T.
Brown, A. J. H.
Burgess, A.
Bury, Miss J. B.
Cohen, Miss R.
Douthwaite, A.
Earle, Miss C. P.
Edwardes-Jenkins, J,
Fillingham, A. L.
Gardner, C. G.
Garrod, Miss A. A.
Gillings, Miss A. L.
Heath, C.
Hendry, Miss M. H.
Lane, A.
Mills, Miss I. C.
Mushet, Miss E.
Nelson, Miss B. H.
Seaborne, E.
Staines, Miss E. M.
Southern, G. H.
Sutton, Miss S. H.
Warne, Miss E. G.
Webber, A. W.
Wells, H. G.
Wild, M. H.

Geography.

Barton, Miss E. A.
Branson, J. T.
Blizard, Miss C. J.
Brown, A. J. H.
Bury, Miss J. B.
Hendry, Miss M. H.
Mills, Miss I. C.
Nelson, Miss B. H.
Prentice, Miss S. B. G.
Seaborne, E.
Southern, G. H.
Wells, H. G. (*hon.*).
Wild, M. H.

Arithmetic.

Barton, Miss E. A.
Beecroft, J. H.
Borland, F. J.
Branson, J. T.
Brown, A. J. H. (*hon.*)
Dunlop, Miss J.
Earle, Miss C. P.
Edwardes-Jenkins, J.
Fillingham, A. L.
Gardner, C. G.
Ikin, A. E. (*hon.*)
King, Miss A. J.
Nelson, Miss B. H.
Newton, W. D.
Osborn, S. T.
Prentice, Miss S. B. G.
Seaborne, E. (*hon.*)
Southern, G. H.
Warne, Miss E. G.
Wells, H. G. (*hon.*)
Wild, M. H. (*hon.*)

Algebra.

LICENTIATESHIP.

Battle, G. E.
Brown, A. J. H. (*hon.*)
Tipson, O. C.
Wells, H. G. (*hon.*)

ASSOCIATESHIP.

Borland, F. J.
Branson, J. T.
Earle, Miss C. P.
Fillingham, A. L.
Hendry, Miss M. H.
Ikin, A. E.
King, Miss A. J.
Oliver, F. J.
Warne, Miss E. G.

Euclid. LICENTIATESHIP.

Brown, A. J. H.
Wells, H. G. (*hon.*)

ASSOCIATESHIP.

Borland, F. J.
Branson, J. T.
Earle, Miss C. P.
Fillingham, A. L.
Gardner, C. G.
Harvey, M.
Hendry, Miss M. H.
Ikin, A. E.
King, Miss A. J.
Osborn, S. T.
Warne, Miss E. G.

Trigonometry.

FELLOWSHIP.

Lockey, J.

LICENTIATESHIP.

Battle, G. E.
Brown, A. J. H.
Spellman, J. J.
Wells, H. G.

Analytical Geometry.

FELLOWSHIP.

Lockey, J.

LICENTIATESHIP.

Spellman, J. J.
Wells, H. G.
Wild, M. H.

Differential and Integral Calculus.

Lockey, J. (*hon.*).

French. FELLOWSHIP.

Lockey, J.

LICENTIATESHIP.

Scithers, Miss F.
Seaborne, E.

ASSOCIATESHIP.

Barton, E. A.
Birkin, Miss M. A.
Black, Miss K.
Blackburn, J.
Blizard, Miss C. J.
Branson, J. T.
Burrows, Miss S.
Earle, Miss C. P.
Gibbs, G. F.
Gillings, Miss A. L.
Greaves, Miss J. L.
Hendry, Miss M. H.
Mills, Miss I. C.
Mushet, Miss E.
Nelson, Miss B. H.
Norris, Miss A.
Prentice, Miss S. B. G.
Staines, Miss E. M.
Warne, Miss E. G.

German. LICENTIATESHIP.

Nichols, Miss H.
Seaborne, E. (*hon.*)

Latin. FELLOWSHIP.

Lockey, J.

LICENTIATESHIP.

Battle, G. E.
Miles, G. C.
Seaborne, E.

ASSOCIATESHIP.

Beecroft, J. H.
Blackburn, J.
Borland, F. J.
Branson, J. T.
Southern, G. H.

Greek. FELLOWSHIP.

Lockey, J.

LICENTIATESHIP.

Seaborne, E.

ASSOCIATESHIP.

Branson, J. T.

Natural Philosophy.

LICENTIATESHIP.

Brown, A. J. H.
Wells, H. G. (*hon.*)

ASSOCIATESHIP.

Borland, F. J.
Fillingham, A. L.

Animal Physiology.

LICENTIATESHIP.

Spellman, J. J.
Wells, H. G.

Animal Physiology.
ASSOCIATESHIP.
Dunlop, Miss J.

Zoology. LICENTIATESHIP.
Wells, H. G. (*hon.*)

Botany. ASSOCIATESHIP.
Dunlop, Miss J.

Geology. LICENTIATESHIP.
Wells, H. G.

Chemistry. LICENTIATESHIP.
Brown, A. J. H.
Spellman, J. J.
Wells, H. G. (*hon.*)
ASSOCIATESHIP.
Gilley, Mrs. A. M.
Gillie, Miss M. C.

Experimental Physics.
LICENTIATESHIP.
Wells, H. G.

Scripture.
Barton, Miss E. A.
Branson, J. T.
Blizard, Miss C. J.
Earle, Miss C. P.
Fillingham, A. L. (*hon.*)
Hendry, Miss M. H.
Mills, Miss I. C.
Prentice, Miss S. B. G.

Drawing.
Burgess, A.
Gardner, C. G.
Hendry, Miss M. H.
Mills, Miss I. C.
Newton, W. D.
Prentice, Miss S. B. G.
Starling, A. C.
Wells, H. G. (*hon.*)

Music.

UNIVERSITY EXTENSION.

MANY will have read with interest an article in the *Nineteenth Century* not very long ago entitled, "The Universities in Contact with the People," written by Mr. J. Churton Collins. For those who have not been identified from the first with the interests of the University Extension Movement, the article in question contains much new information as to its rise and progress.

Reflecting on the conclusions drawn and the suggestions made by the writer, we ask whether we agree with his opinions concerning the present results, and whether we share his hopes for the future prospects of the movement. And, first of all, we pause, as we try to take in the full meaning of the significant words expressing the goal towards which we are tending, viz.: that the system of higher education should be made "a system co-extensive with the population of England." By this higher education, is meant an education in literature, in science, in history, and in art, which is to be imparted by University students, who, as such, have had all the advantages of a special training, to which they have devoted several years of concentrated study. It is wonderful that such a result can be described not only as possible, but as probably on the way of realization —so wonderful, indeed, that those may be excused who venture to think that Mr. Churton Collins is somewhat too sanguine in his conjectures as to the full extent of the educating and training influence of the system in question. For instance, he goes so far as to maintain that the work done at certain centres was, on an average, considerably higher than that of undergraduates who pass the University examinations, while "several papers were distinctly better than those of the candidates for the fellowship," this being the report of an examiner who had just examined for the Oxford B.A. degree in political economy, and in the same subject for a Fellowship examination. This sounds not a little surprising, and even alarming; but when we come to analyse the statement, and to inquire more closely into the facts, the true explanation is at once evident, and the apparent anomaly vanishes. The lectures in question were on Political Economy, and the standard of the answers obtained was compared with that of the papers on this subject in an examination at Oxford. Now, in the University examination political economy is only a by-subject, on which one paper is set, and for which the candidates read up one good handbook, or at most, perhaps, two, simply in order to be able to pass on this paper. On the other hand, in connexion with the lectures, we have a number of eager readers devoting all their leisure hours, and some of them have a good many, to reading up all the best books on political economy which they can lay hold of, and spending much trouble and time over answering the questions put on each separate lecture, before they present themselves for examination. It is evident, therefore, that the two cases are in no respect parallel. This is one exception that may be taken to Mr. Churton Collins' view of the present results; there are others, but space does not admit of our enlarging on this point. Nevertheless, we do not wish to underrate in any way the immense work that is being done, or to detract from its character as being thorough and the best of its kind. We only wish to observe that we can hardly expect the same calibre of work to result from the system of the Extension scheme lectures, as that which is attained to by several years of exclusive study at the Universities. At the same time we quite agree with Mr. Churton Collins in the belief that this great movement of bringing the higher education within the reach of the people is likely to react on the Universities in such a way as to bring fresh life and a more liberal interpretation to bear upon the studies there pursued. And this consideration brings us to another, viz., that of the interpretation of classical literature, and the suggestion made on this point by Mr. Churton Collins. We fail to see that anything but good could arise from making ancient classical literature one of the subjects of the University Extension curriculum, and we do not hesitate to believe that audiences who can appreciate the *Novum Organum* and the *Ecclesiastical Polity* would profit from the study of Plato's *Dialogues* and Aristotle's *Ethics*, and that an appreciation of Shakespeare and Milton ensures the power of appreciating Sophocles and Homer in translations. We possess good translations of the chief works of ancient classical literature, and all in this literature bearing on general culture is to be obtained from such translations, where the spirit, as well as the substance, of the original is retained. As to the results, we also share here the sanguine views of Mr. Churton Collins, when he professes to think that such a course of reading would lead to the formation of classes, in which the original language would itself be studied. Another suggestion bearing on the nature of study at the Universities is with regard to English literature. Mr. Churton Collins maintains that there should be a special training in literary criticism to qualify the lecturers, just as they receive a special training in any other subject before they undertake to lecture on it. At first sight this demand seems to be perfectly justifiable, and indeed necessary; but on consideration we are inclined to question its importance. The classical, the science, and the history student would most likely each look at literature from a different point of view, *i.e.*, from the literary or technical, the scientific, and the historical aspect respectively. This may be so, but we must also bear in mind that it is only those who are by nature and disposition of a literary turn who are likely to offer themselves as lecturers on English literature, and, this being the case, any additional special culture ought, far from hampering or narrowing, to throw more light on their treatment of English literature. Mr. Churton Collins' objection, however, is that the specialist criticises English literature too much from a one-sided point of view. But we may ask whether it is ever possible to obtain a uniform opinion in the criticism of literature, and not only if it is possible, but, if possible, whether it is desirable. Whatever previous training a man may have had, his peculiar bent of mind will still influence him in his appreciation of the literature of his country. And, moreover, it seems to us that the literature of our own language is not exactly a parallel subject with the literatures of foreign countries, in so far as every individual of any intelligence or education grows up with some greater or lesser acquaintance with the literature of his country; and, as he grows, so do his opinions concerning it develop; and, as he becomes more cultivated in other respects, so is his judgment of it modified and corrected. We do not wish to maintain that a special training would be superfluous, nor that it would not be advisable to improve somewhat on the method of studying our own language adopted at the Universities; but we urge that the present state of affairs is not so bad as it may at first sight appear to be. On the other hand, we may quote Prof. S. S. Laurie's words with regard to literature, in answer to the question: Can literature be taught?—"It certainly can be taught—taught in the infant school, and in the high school, and in the University, and all through life. Nor should any curriculum for an Arts degree be held to be adequate which does not include attendance in a course of literary history and criticism, as is the case in the Scottish Universities."

But, to pass from the older Universities to London, Mr. Churton Collins says that whether a Teaching University for London be formed by a reform of the London University, or by the establishment of a new University, with King's College and University College as its basis, there is in Gresham College the nucleus of a central institution, which would become, so to say, a popular Teaching University. And, developing this idea, he suggests that those who can only be evening students should have their course of study so arranged for them that in six or seven years they could take the degrees which day students take after three years' study. We see no actual objection to this plan, if it be feasible, but we see considerable danger of its abuse in the direction of too much zeal. In other words, we would plead that, if such arrangements as suggested were actually made, there should be no urging towards the goal of a degree on the part of the lecturers, but that the impulse to attain that object should be the entirely spontaneous

desire of the student. And, considering the already sadly overcrowded state of the "professions," we would even go further than this, and advocate that there should not only be no kind of additional incitement, but that students should even be dissuaded from being candidates for the degrees, unless an exceptional aptitude or qualification distinguishes them to a considerable extent from the average applicant. At the same time, knowing from experience the years of study required, *e.g.*, to attain any degree of familiarity with the classical languages, we cannot help feeling sceptical as to the success that would follow the efforts of most of those who could only devote the evenings to study. The difficulty of time, however, might be obviated by extending still further the number of years allowed for preparation.

There is one more suggestion, which is important, and that is when Mr. Churton Collins asks for help from the State in the shape of a small grant, and for co-operation from the Universities. We have in part an answer to this in a paragraph which appeared in the *Standard* of November 1st, telling us that a statement has just been issued, wherein the Cambridge Syndicate, after having received a communication from a Committee formed for the purpose of obtaining a grant of money to help Local Committees to meet the expense of the University Lectures, states that they cannot take part in the application, nor are they able to offer any assistance, although they are aware of the frequent difficulty to collect the necessary funds, because they have already fixed the lecture fees at the lowest possible amount. At the same time they express their sympathy with the effort which is being made to obtain assistance from the public funds, and, if it be successful, their willingness to co-operate with the Government in seeing that the grant is "properly apportioned and advantageously spent." It is noticeable that the Syndicate refer, in conclusion, to "the considerable difference of standard which exists in the amount of work included in *a course of lectures*," and express their opinion that a Government grant should only be used for such work as does not fall short of the standard, viz., the longer course of twelve lectures a term, with its accompanying classes, papers, and examinations. As to the Government grant, we question whether it would be advisable that the State should assist with a grant a system of education, which, however excellent and fraught with good it may be, is still decidedly a luxury, and the demand for which is not so urgent as that of many other calls on the State funds.

In the above short review of Mr. Churton Collins' most interesting article, we have refrained from quoting any of the statistics, but we may conclude our notice with one quotation, viz., that of the average attendance in the Michaelmas and Lent terms at the lectures of the different branches, the following astounding numbers are revealed:—For the Cambridge branch, 9,509; for the London, 4,193; and for the Oxford, 13,116; giving us the remarkable total of 26,818 outside the Universities now enjoying the advantages of higher education. This is a grand result, and we admire Mr. Churton Collins' enthusiasm in the cause, and believe that this system of education has had in very many cases a refining and educating influence; at the same time, however, we cannot think that the same result is to be obtained from a system of occasional lectures, and study to which spare time only can be devoted, as is to be gained from a continuous course of study at the Universities, provided always that the advantages there accessible to the student are by him carefully secured and properly used.

MARY C. DAWES.

UNIVERSITY AND COLLEGE INTELLIGENCE.

UNIVERSITY OF LONDON.

OF the January group of examinations—Intermediate Laws Pass and Honours, LL.B. Pass and Honours, LL.D., Matriculation, Preliminary M.B., and Intermediate Medicine—none of the Pass-lists have yet appeared, except two in Laws. At the Intermediate Examination in that faculty only 28 candidates out of 57 have passed; but at the LL.B. Examination 23 have passed out of 37.

The usual January meeting of Convocation was held on the 21st inst. A great part of the time was occupied, somewhat amusingly, in active attempts on the part of some of the graduates to get a chance of bowling at the Scheme of University Reorganisation known to have been provisionally adopted by the Senate, and in equally active but more successful efforts on the part of Sir Philip Magnus to run in and stop the ball. It was natural that the graduates should be eager to discuss a document which, as they were well aware, deeply affected their interests; but hardly wise to make the attempt when the Scheme was not before them—and, indeed, hardly could be; for it would seem from the opening statement of Dr. Wood that the Scheme, as it at present stands, is really intended as a basis of discussion with the London colleges and learned bodies interested in it; and from such discussion it may emerge in a considerably modified form. However, Convocation was bent, at any rate, on seeing the Scheme, and, on the motion of Dr. W. J. Collins, the Clerk of Convocation was directed to send a copy to every member.

The meeting finally turned its attention to the Report of the University for London Commission and, on the motion of Mr. Thomas Tyler, M.A., unanimously passed a resolution condemnatory of the proposal of the Commission to confer special powers and privileges on certain institutions in and near London, as being unfair to the provincial colleges, and detrimental to the interests alike of these colleges and of the University itself.

CAMBRIDGE.

The Rev. Robert Phelps, D.D., who for forty-seven years has been Master of Sidney Sussex College, Cambridge, died on Saturday, the 11th of January, in his eighty-fifth year. The deceased, who was brother of the tragedian of that name, was formerly a student at Trinity College, and graduated Fifth Wrangler in 1843.

The prize given by the representatives in Parliament of the University for an English essay, open to the competition of all students not of sufficient standing to be created M.A. or LL.M., has been awarded to Charles George Todhunter, of King's College. The subject of the essay is, "The Scope and Methods of History as conceived by British Writers between 1750 and the Present Time." The value of the prize is thirty guineas.

The Bishop of Durham has left his valuable library to the University of Dublin and to the Selwyn Divinity School, Cambridge, the division of the books to be at the discretion of his executors, who are Archdeacon Watkins, the Rev. G. R. Eden, and the Rev. J. R. Harmer. The copyright of his works and the residue of his estate, including his MSS., he has left in trust for church and school building and spiritual agencies in the diocese of Durham.

At a congregation on the afternoon of January 16th, Dr. Jackson was appointed a member of the General Board of Studies; Mr. R. A. Neil, Pembroke, and Mr. W. Bateson, St. John's, were appointed members of the University Press Syndicate; Professor Macalister, a member of the Museums and Lecture Rooms Syndicate; and Mr. G. B. Atkinson, Trinity Hall, a member of the Mechanical Workshops Syndicate.

The Hulsean Prize, 1889, and the Burney Prize, 1889, are not awarded, no essays having been sent in.

Mr. W. B. Ransom, M.A., Fellow of Trinity College, has been appointed a Governor of the High School, Nottingham, for a period of five years.

Dr. Sidgwick has been appointed Chairman of the Examiners for the Moral Sciences Tripos.

The Non-Collegiate Students' Board announce that they are about to elect a Censor. The duties are generally similar in kind to the duties of a college tutor. The stipend will be in the first instance £250 a year. Candidates must be graduates of the University of M.A. standing at least, and are requested to send their names to the Rev. the Provost of King's College on or before January 31st. The appointment will be in the first instance till December 31st, 1890, and may be renewed from year to year. The person elected will enter on his duties not later than the end of the present term.

The following Course of Lectures on the "History of Education" will be delivered during the term by Mr. Bass Mullinger, M.A., of St. John's College, in the Literary Schools, on Wednesdays and Saturdays, at 2.15, commencing January 29th. 1. The Renaissance in its relations to Classical Antiquity and to Mediævalism. 2. England and the Renaissance. 3. The Reformation on the Continent and its chief Educators. 4. England and the Reformation. 5. The Counter-Reformation. 6. Comenius. 7. Milton as a Reformer of Education. 8. Realism in England and in France. 9. Pestalozzi. 10. English Reformers of the present Century. 11. English Reformers of the present Century (continued). 12. Main questions in the Education of to-day, as illustrated by past experience. The lectures will be open to members of the University free of charge. Other persons will be required to pay a fee of One Guinea, payable at Messrs. Macmillan & Bowes', of whom tickets and syllabuses may be obtained.

OXFORD.

The appointment to the living of Shaldon, near Teignmouth, has lapsed to the University of Oxford, owing to the fact that the patron, Lord Clifford of Chudleigh, is a Roman Catholic. The election will take place on February 13th.

The examiners for the Mathematical Scholarship and Exhibition, 1890, have elected—to the senior scholarship, Mr. J. S. Tucker, B.A., Balliol College; *proxime accessit* Mr. A. L. Dixon, B.A., Worcester College Lady Herschell's book is awarded to Mr. Dixon. To the junior scholarship, Mr. P. J. Kirby, scholar of Hertford College; and to the exhibition, Mr. R. P. Dewhurst, scholar of Balliol College; *proxime accessit* Mr. E. A. White, scholar of Hertford College.

The following elections have been made at New College:—To Open

Scholarships.—Mr. Arthur Synge Owen, Cheltenham College; Henry Filson Morgan, Bath College. To Exhibitions.—Mr. William Edward O'Reilly, Harrow School; Herbert Barton Groves, Leeds Grammar School; Joseph L. Shaw Smith, Clifton College.

The following gentlemen have been elected to Classical Scholarships at Corpus Christi College, the names being arranged alphabetically:—Mr. Arthur H. B. Allen, of Marlborough College; Mr. Roger James Cholmeley, of St. Edward's School, Oxford; Mr. Arthur George Cooke, of Bath College; and Mr. William Malcolm Hailey, of Merchant Taylors' School, London. The following gentlemen have been elected to Classical Exhibitions:—Mr. James Arthur William Bell, of Winchester College; and Mr. Ernest Bennett Sinclair Shepherd, of Clifton College.

The following have been elected to Demyships in Classics at Magdalen College:—Mr. Arthur William Kiddle, of Manchester Grammar School; Mr. Herbert Otto Wildman Goodwyn Brooke, of Cheltenham College; Mr. William Montagu Harrison, of Wellington College. Exhibitions have been awarded to Mr. Arthur Ogle, of Merchant Taylors' School, Crosby; Mr. Kenneth John Marmaduke Teesdale, of Winchester College; and Mr. Frederick Samuel Philip Swann, of Berkhampstead School.

The following gentlemen have been elected to Postmasterships at Merton College:—Mr. Conrad James Naef, of the City of London School; and Mr. Robert Ernest Sperling Hart, of Marlborough College. The election to an exhibition at the same college will be announced later.

The following have been elected to Classical Scholarships at Worcester College:—Mr. H. E. Wilson, of Clifton College, to an Open Scholarship; Mr. W. L. Donaldson, of St. John's Foundation School, Leatherhead, to the Barnes Open Scholarship; and Mr. L. G. Moore, of Cheltenham College, to an Open Scholarship. Mr. R. B. Disney, of Rossall School, has been elected to a Mathematical Scholarship on the Eton Foundation. Exhibitions have been offered to the following:—Mr. L. C. Swifte, of Eton College; Mr. A. E. Sich, of St. Paul's School; Mr. A. Hutchinson, of Bedford School; and Mr. J. C. Faunthorpe, of Rossall School.

Other Universities, Colleges, and Schools.

During the past year the total number of matriculated students in the University of Edinburgh was 3,602. Of this total 981 were enrolled in the Faculty of Arts, 124 in the Faculty of Divinity, 472 in the Faculty of Law, and 2,025 in the Faculty of Medicine.

From the graduation lists of 1889 it appears that 116 students took the degree of Master of Arts (M.A.), two the degree of Doctor of Science (D.Sc.), 34 the degree of Bachelor of Science (B.Sc.), and 11 that of Bachelor of Divinity (B.D.). In the Faculty of Law there were 18 Bachelors of Laws (LL.B.), and five Bachelors of Law (B.L.); and in the Faculty of Medicine 60 candidates took the degree of Doctor of Medicine (M.D.), and 210 the conjoined degrees of Bachelor of Medicine and Master in Surgery (M.B. and C.M.).

The aggregate value of the University fellowships, scholarships, bursaries, and prizes (the usual awards of which have been made during the year) now amounts to about £8,300, while many others of considerable value are in the gift of private patrons.

The Schoolmaster's Diploma was presented to two candidates; the certificate of Literate of Arts (L.A.) was granted to three candidates; and certificates in Arts for women were gained by 11 candidates who had studied in the classes of the Edinburgh Association for the University Education of Women. At the local examinations held in June last at various centres throughout the United Kingdom, and also abroad, the number of candidates who appeared for examination was 989, showing an increase of four as compared with the number for 1888. Of these, 361 passed in the preliminary subjects, 313 for the junior certificate, and 260 for the senior certificate.

Dr. W. L. F. Fischer, Emeritus Professor of Mathematics in St. Andrews University, has died at St. Andrews, after a few days' illness from bronchitis. Professor Fischer was connected with the University of St. Andrews upwards of forty-two years. He was inducted Professor of Natural Philosophy in the United College in 1847, and held that chair till 1859, when he was appointed Professor of Mathematics. He resigned in 1879, and was succeeded by Professor Chrystal, now of Edinburgh University. Professor Fischer, who was a native of Germany, was about seventy-six years of age.

The vacant professorship of Agriculture and Rural Economy at the Royal Agricultural College, Cirencester, has been conferred on Mr. James Muir, an old student and gold medallist of the College. Mr. Muir is the youngest grandson of the late Rev. Dr. Muir, of St. Stephen's, Edinburgh.

The Skinners' Company has selected the Rev. John Kennedy, of King's College, Cambridge, for the headmastership of Tonbridge School. Mr. Kennedy comes of a family which has produced three senior classics, and was himself placed fourth in the classical tripos in 1870. Mr. Kennedy was first Bell University Scholar in 1867, and was *proxime accessit* for the Craven Scholarship in 1868. He has also been a Fellow of his college (King's).

The governors of the Fettes Trust have appointed the Rev. W. A. Heard to be headmaster of Fettes College, Edinburgh. Mr. Heard was formerly one of the assistant-masters at Fettes, and has for the last five years been an assistant-master at Westminster School.

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THE EDUCATIONAL TIMES.

LONDON, FEBRUARY 1, 1890.

The London Chamber of Commerce has, at last, fixed the date for the examination for Commercial Certificates five weeks hence. This examination, which is at first limited to candidates for junior certificates only, will take place at the College of Preceptors, Bloomsbury Square, on Tuesday, the 11th of March, and following days. The *minimum* of general knowledge to be demanded of all the candidates is greater than in most examinations for youths of sixteen.

English, including handwriting, orthography, grammar, and composition; History of the British Isles and Colonies; Geography, with special reference to commerce and industry; Arithmetic, including a general knowledge of foreign weights and measures, currencies, and exchanges; Algebra; Euclid; Elementary Mechanics; Drawing and Bookkeeping, are all obligatory, and to these must be added one modern foreign language to be selected from the following:—(*a*) French, (*b*) German, (*c*) Spanish, (*d*) Portuguese, (*e*) Italian; comprising translation, composition, and conversation, and a knowledge of commercial terms and phraseology.

A considerable latitude of choice is then allowed in what are called the *optional* subjects, one at least of which must be taken. These are eight in number, namely:—(1) Mechanics and Hydrostatics; (2) Shorthand (any system); (3) Drawing—freehand, with model, *or* mechanical, *or* geometrical drawing; (4) Chemistry, theoretical and practical (the examination will be limited to the non-metallic elements, and to very simple questions on metals); (5) Elements of Heat, Light, and Sound; (6) Electricity and Magnetism; (7) Natural History: two of the following—Elements of Botany, Zoology, Geology, and Physiology; (8) One or more of the modern foreign languages not taken as an obligatory subject.

There can be no doubt at all that this is, on the whole, a very severe curriculum. It is much harder than that of the Oxford and Cambridge Schools Examination Board, although we hear that, having regard to an arrangement to which we are about to refer, this Board intends to bring its own requirements into agreement with those of the Chamber. It would be less serious to have ten obligatory subjects if the *number* only were obligatory, and there were alternatives. The rigid course proposed offers too little scope for individual bent.

With the curriculum the Chamber of Commerce has issued a list of members who have consented to give a preference to candidates for employment holding Commercial Certificates, either of the London Chamber, or the Oxford and Cambridge Schools Examination Board. This list contains the names

of one hundred and eighty-five important firms, representatives of almost every class of business.

It appears, therefore, that we have here an extension of the Competitive Examination system, and the introduction of the system for the first time into Commerce. We are not told what is the exact use which these firms intend to make of the examination lists. Will they select their employés from amongst the holders of Commercial certificates, so long as these holders are forthcoming; and will they choose from among them in order of merit as revealed by the lists? What, in fact, is the exact nature of the preference to be given to the successful candidates by these firms? It is very important that this should be made as clear as possible, that there may be no misunderstanding and no disappointed aspirations.

Our object at present, however, is not so much to criticize the details of the scheme, as to give our unqualified approval of the points of principle involved in such an examination coupled with the publication of such a list and at the same time to point out two other principles which must not be forced from our remembrance by the completeness of our accord with the former.

In explaining the first point we will adopt the language of commercial men. The Chamber of Commerce does well to show schools and schoolmasters what is required in trade, and schoolmasters will do well to give heed to the lesson. In this matter we are the manufacturers, they the consumers; and, if we fail to adapt our productions to the requirements of the consumer, our trade will forsake us and fall into the hands of those who succeed. This we fully admit. Nothing can be more important than that we, the manufacturers, should be kept informed of the requisites of the human market in the City; but, at the same time, it is clear that the consumer will go beyond his province if he presumes to instruct the maker as to the methods and plans which form the secrets or special knowledge belonging to his craft. The merchants of the City should assist schoolmasters to the discovery of what is wanted; the schoolmasters must be left to produce the required article in their own way.

Secondly, it is to be hoped that the holding of these examinations will not divert the attention of the Chamber from a far more important work which it should be their privilege to accomplish, namely, the establishment of an Institute which will supply facilities for the acquisition of all the special knowledge and skill required in trade—an Institute which should be the connecting link between the schools and the business houses, and should be in the hands of specialists who are acquainted, on the one hand, with the latest needs of trade, and on the other hand with the work of schools. It is certain, after all, that the great majority of those who enter commerce will be selected on account of their possessing qualities which no examination can test. The most skilful salesmen, for instance, possess the most persuasive tongues. To create a market for goods, or to retain one against competition, requires qualities that rest on more than a knowledge of language. These essential qualities must often be found first, and the knowledge of language superadded. The fundamental qualities required will often be power of reflection, grasp of mind, judgment, and weight of character; and to these, mere quickness in acquiring, and memory for retaining, may be subordinate. To allow the possessor of the former to add easily the technical knowledge which he finds he requires when he has fairly entered on a commercial career, and to which he is prepared to devote all his leisure, we want a well-equipped Commercial Institute.

The schools must be chiefly faculty-making institutions. The education they offer must tend to make the recipients abler and better men, and in doing this will tend to make them better men of business. It may do more,—it may create a genuine interest in the scientific bearings of commerce, and a keen desire to take part in it. But school education cannot accomplish its primary task of giving depth and power to the intelligence, and strength to the character, and, at the same time, communicate special and technical trade knowledge. Our young clerks, travellers, salesmen, and warehousemen need greater facilities for completing their special commercial education after they have left the ordinary school, and it is to be hoped that the Chamber of Commerce, and wealthy individuals among the trading firms and manufacturers of the City, will render help towards the formation of a Commercial School or Institute which will afford these facilities.

Mr. Balfour's significant reference to the higher education of Ireland on the last day of last session has given rise to much discussion and speculation, in the Press and amongst politicians, as to the intentions of the Government to make further concessions to the Roman Catholic Hierarchy in Ireland. The Irish Secretary himself has since candidly explained the conditions that must exist before he would undertake any legislation such as was foreshadowed in his speech. They are shortly these. The matter must not be treated as a party question. No serious opposition must be offered to his Bill by any considerable body of members on his own or on the other side of the House. And those for whose benefit the intervention of the State is invoked must be prepared to accept his proposals as a remedy for their alleged grievances.

It is, perhaps, too much to expect that all these conditions should co-exist in the approaching session; and so probably the further readjustment of Irish University Education will be indefinitely postponed. Meanwhile, it may not be amiss to remind our readers of the existing provision for University education in Ireland, and to point out why it is that this provision fails to satisfy the higher Catholic ecclesiastics.

At the present time, Ireland has two Universities—the ancient Elizabethan foundation of Dublin, and the very modern foundation of a dozen years ago, known as the Royal University. In any reconstitution of the higher education in Ireland, it will be necessary to carefully consider to what extent these institutions fail to supply the educational needs of all classes of the Queen's subjects in Ireland.

The University of Dublin is undoubtedly the most successful and popular of English institutions planted in the sister country. From its foundation to the present time, it has united in itself the teaching office and the power of conferring degrees. By an historical accident, also, the College and University are united with a completeness that has no parallel in England. It was the intention of the founders of the University of Dublin that other Colleges than Trinity should, from time to time, as at Oxford and Cambridge, be incorporated with the University. But no such addition has, in fact, ever taken place. No other college has

been founded in connexion with it, and the various faculties of the University are under the control of the Provost and Senior Fellows of Trinity College, in the same manner as the discipline of the students, the undergraduate course, or the management of the College estates. In short, the University of Dublin and Trinity College are practically one.

To this unity of organization is to be ascribed, in large measure, the great success that Trinity College has achieved, and the high estimation in which it is held by all Irishmen. It has enabled the governing body, not merely to keep pace with public opinion in secularising the teaching in the University, but in some instances to outstrip public opinion, at least that of England and Scotland, in granting educational privileges to Roman Catholics and Protestant dissenters. As long ago as 1793, Roman Catholics were admitted as students of Trinity College and to degrees in Dublin University, and immunity to the like extent from religious disabilities was from the same date accorded to Protestant dissenters. In our own time this University and College, originally destined exclusively for Episcopalian Protestants, were thrown open to all comers,—scholarships, fellowships, professorships, and the other prizes of the University and College are open to the competition of all without regard to religious belief.

The heads of the Catholic Church in Ireland are not satisfied—we simply note the fact—with such religious equality. They have never made any abatements in the claims they preferred in their correspondence with the late Lord Mayo in 1867–8. They then insisted on the concession of a Chartered and Endowed University placed practically under their own control. They claimed to be entrusted with the regulation of studies, a veto and power of deprivation as to professors in affiliated colleges, and the control of all that might be deemed by them essential to "faith and morals."

Now, although, as Matthew Arnold used to say mockingly, "The Liberal Party has emphatically condemned religious endowment, the Protestants of Great Britain are emphatically hostile to the endowment of Catholicism in any shape or form,"—still, many conspicuous Liberals, as well as Mr. Arnold, have thought that Catholic Ireland has a just claim "not to have her education determined by the 'Protestant feelings' of Great Britain. She has a just claim also not to have it determined by other feelings of our British public which go to determine it now. She has a just claim, in short, to have it determined as she herself likes." The late John Stuart Mill, and his disciple Mr. John Morley, have also expressed the opinion that the best solution of the Irish University problem would be reached by frankly conceding the Catholic demands. The various attempts that have been made hitherto have failed, because they resulted in the foundation of institutions that were not wanted.

Of those institutions, the Royal University is the latest. As is well known, it arose out of a desire to do something for the higher education of Ireland without encountering the religious difficulty. To effect this object, London University was taken as the model for the new Irish University. The Queen's University, founded in 1850, which restricted its degrees to the students resident in one of the three Queen's Colleges of Belfast, Cork, and Galway, was suppressed, and the Royal University established on its ruins. The new University offered its degrees to matriculated students wherever educated. The three Queen's Colleges remain, and do excellent work, although shorn of their privileges as the constituent colleges of an University. If we add to these the Catholic College in Dublin, we have all the colleges of University rank in Ireland outside Trinity.

If any English Government grants a Charter and Endowment to a Catholic University, there will be no need of the Royal University. All the steps taken recently will have to be retraced. Incorporation with Dublin University would possibly be the best method of disposing of such colleges as now exist, and as cannot be absorbed in the new Catholic University, if such there is to be.

LANGUAGE AND LINGUISTIC METHOD IN THE SCHOOL.*

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Lecture VI.

Method in Teaching Foreign Languages—Latin as Type.

(*Continued from page* 36, *and concluded.*)

7. *Evoke the Will.*

In order that any subject of instruction, or any part of a subject, may be really grasped, the boy must bring his own will to bear on it, with a view to apprehension and comprehension. He must not sit passively and have things placed before him by his teacher. You have to pump out of him, not to pump into him. The teacher is the caterer, guide, and co-operator; but that is all. His duty is simply to direct the pupil what to do in due order and succession, and to get the pupil to do it. Apply this to the getting-up of prescribed lessons :—

The master having, after due thought as the guide of his pupil, arranged the work to be done, the boys should be required to attack the work of the day in the schoolroom under his guidance. The present practice of converting schools into repetition halls, where the work done elsewhere is merely "said over," the master relieving himself of all true effort to educate, and indeed even to instruct, by letting boys pit themselves one against another for places, while he merely keeps the game going, is, I venture to say, not education—not even instruction. The true work is done elsewhere.

As caterer and co-operator, then, the master should put the next lesson before the boys, and, supposing it be a new conjugation, get the boys to follow him as he writes it down on the board, requiring them to *find out for themselves*, and to point out, its resemblances to and differences from what has been already acquired. Those resemblances and differences being thus worked out, should be written down in bold characters by the master on the board. A few minutes spent asking questions on what is thus written down, secures that instruction in the lesson has been given—and how? By the boys to themselves—with the co-operation of the master, and organically out of the old. They have had an intellectual exercise, and the result is intelligent perception. This, observe, is discipline so far as it goes, and if the boy left school for good that day, he would yet carry with him something better than knowledge. It is *only now* that memory comes into requisition; and the boy should be expected to prepare overnight nothing but what has been first done and understood in the school.

So with translation: the master, having heard a few read the lesson of the previous day and having done the parsing carefully, should state generally the substance of the next chapter, and turn the boys on to the learning of it under his guidance and co-operation—sentence by sentence. After a pause, he calls for translation, and if there be considerable difficulties, he points out the leading clause of the sentence, and gives such other limited assistance as he considers necessary. The passage being thus worked out in cooperation, the master should then require the boys to bring a written translation on the following day. While the other boys look on, this written translation should be read by one or two of the cleverer boys, who should then collect the other

* A Course of Six Lectures delivered at the University of Cambridge and at the College of Preceptors, London, during the month of May, 1889.

exercises and correct them. This being done—and it ought not to take more than ten minutes—there should be oral translation of the passage. The teacher should then make the boys parse one sentence in full detail, repeating, word for word, every rule hitherto learned, confining himself in this exercise to the worse half of his class. The *verbs* of the rest of the lesson having been conjugated, he proceeds to the preparation of the next lesson. By working out the lesson with the master with a view to the working it out by himself at night with the help of a dictionary, the boy more truly does his share in the learning than by the present plan, according to which a few boys prepare their work independently, but the great majority are dependent either on tutors or on cribs, or on copying down the master's reading of the next lesson (which, of course, is a crib), or on their neighbours when they come to take their turn in the class.

If you do not think the above a good plan, and are of opinion that boys really instruct themselves best by getting their lessons to prepare and without any previous assistance, and by using the school simply as a repetition and testing place, you will at least see the importance of causing the boy to write out his translations daily. By so doing he cannot shirk his work; he truly must apply his mind to the bit of Latin before him in order to reproduce it in written language; and so far he instructs himself. You may say, How can I know in that case that a boy instructs himself? He may have a tutor or use a crib in his own home. To which the answer is: For the former you are not responsible, and the latter you can find out with perfect ease. You test him by the oral translation which follows the reading, and you further have simply occasionally to require the written exercise to be done in the school under your own eye. In any case a test will be applied at your regular written school examinations, which should be fortnightly. Masters talk against cribs, but I am satisfied they purposely wink at the use of them, or at least are indifferent about it. It is very easy for them to detect the practice, if they choose to try; and when morality begins to be deliberately aimed at in our secondary schools, the masters will quickly find out the boys who are not doing honest work. So much for daily written translations, which should be clearly and carefully done. If you think the lesson too long to be written out, you can give the most important part of it.

Finally, with a view to instruction in shades of meaning and exact and literary reproduction, you should conclude the lesson by reading a translation made by yourself in your best style, taking advantage of the best cribs in doing this.

Consider, further, the bearing of this practice on another of our reasons for teaching Latin—its utility in giving a comprehension of English. These written translations are English composition exercises of the very best kind, because they are regulated, as to their *form* by a language whose syntactical construction is close and logical, and because the matter of the composition is, as is right at this stage, supplied.

9. *"Be exact and thorough," for all knowledge as it is acquired must be exact, if it is to afford a sound basis for further organic progress.*

Note the importance of this, not only as making progress possible, but in view of one of our reasons for teaching Latin—that it is a formal *discipline* of intellect. How can there be any *discipline* where there is no exactness and thoroughness? This is all-important. And yet how loosely Latin is taught! That lax translation which boys make in a class, trusting to some sudden inspiration, or to a prompter, or to the master, is a training in inexactness, and is positively hurtful both to the intelligence and the *morale* of a boy. With a view to exactness, observe again the advantages of much writing. A boy in writing out his lesson ascertains his own ignorance: in oral work he never knows (save in a few exceptional cases) whether he has accomplished it or not.

This habit of writing also, let me add, gives a sense of power and progress, and of independent activity. Thus it is that one good rule of method supports every other rule, and is supported by them in turn. Observe again, for example, how this rule of writing out with a view to exactness gives effect to the rule "Present to Sense." In this exercise, the boy creates for himself a thing to look at, and does it with an intentness and application which ensures its being retained: for he recognises his Latin (as it were) through a fresh sense—the sense of *touch*, by the manual act of writing. Still once more, observe how a sound rule of method tells in every direction: the habit of writing extends the number of associations with the work done, and so in this way helps the memory.

Exactness in the knowledge of the day's translation means that no boy shall leave it till he thoroughly knows it.

[The question of "Removes" falls to be considered here, but may be passed by as having to do with school organization.]

10. *Confine your teaching to the leading outlines or salient facts in the first instance, and gradually fill in details.*

This rule is based on the psychological fact that *thus* we perceive and conceive.

In Latin, then, confine yourself to a few rules at first, until they are sufficiently understood, and then go on to others. The boy has his own Grammar note-book and enters them as they occur.

If this rule apply to the ordinary rules of syntax, how much more does it apply to idioms, and exceptions, and irregularities! And yet the old practice (old, though not yet antiquated) was to cram them all down together. With what result? This rule is so obvious that I shall pass it without further remark.

11. Again I recur to the important rule, TURN TO USE: this time in connexion with more advanced work—the translation of a Latin author.

You have read a chapter of Nepos, or of Cæsar, having prepared it in the manner explained above. You have parsed all the verbs at least, and also such portion of the lesson in *extreme detail* as there is time for. But you have not done with the chapter yet. What is the function of the chapter in view of the reasons for teaching Latin, and the acquisition of the Latin tongue? It is clear to me that you have not *used* the chapter until you have extracted from it (1) all the vocables, (2) all the syntax, (3) all the making of Latin, (4) all the English, which it will yield. I do not mean to say that you are to build up on the foundation of the words occurring in the lesson, *all* their derivatives, but I do say that you are to build up all the *more commonly used* cognates and derivatives. It is extraordinary what a mass of vocables the first book of Cæsar's "Gallic War" will thus yield. These groups of cognates the boy will enter either at the end of his Grammar note-book or in a separate book. In connexion with this, the English of the Latin is taught. For great numbers of English words are now seen in their origins and primary significance, and thus one of the chief reasons for our teaching Latin is satisfied.

So we proceed with the syntax.

So also we proceed with the making of Latin. To-day we make Latin out of yesterday's chapter, in a free and varied way. No exercise in Latin composition excites the interest or supplies the discipline which retroversion of the English of past chapters into Latin does. On this, indeed, we mainly rely for Latin composition, using composition books as mere accessories and helps.

I am well aware that some boys will be left behind, however good the teaching, but they will learn something at least, and they will be disciplined. I am also well aware that there may not be always time to exhaust every lesson. But have this mode of procedure as your aim. This is the essential thing.

A single chapter of Cæsar thus thoroughly and exactly *known* (or "lessoned," to use Milton's word) is worth twenty loosely, or even fairly, gone over. As a *discipline* you will at once admit that this is so. But what I further maintain is, that every part of sound method helps every other, and that the so-called *practical* outcome is also thus best secured. With such thoroughness and exactness as I demand, the boy would take a considerable time to get over the fifty-four chapters of Lib. I. of, say, the "Gallic War." I admit that he would do only fifteen chapters per month; but are four months, or even five months, too much to devote to the first book of Cæsar, if at the end of that time a boy truly knows it, and has constructed his own note-books out of it? He will have learned more, quite apart from discipline, than by four books read as they are too commonly read. To Latin, as to other studies, the rule of Quintilian is applicable: "cito scribendo non fit ut bene scribatur, bene scribendo fit ut cito" (x. 3, 9).

12. *Exercise the Memory. Revise.*

All the above rules make remembrance easy, for they presume understanding, and they give free course to association. But, apart from these rules, consider the importance of constant revision with boys if they are to remember. What a grown man will remember after one telling, has to be told twenty times to a boy. A day once a week should be set apart for revisal, and a "grand" day once a month. When the pupil begins Latin poetry, prescribe the learning by heart of lines. Not too many. A few, well learned—this is all that is needed.

What has now to be said concerns the middle of the third year and thereafter.

13. I would refer you now to our ninth reason for learning Latin, and deduce this rule: *A pupil must be so instructed that he shall attain a grasp of the sweep, characteristics, and genius of the language, and a general acquaintance with the literature and history, of the Roman people.*

In the earlier stages of study little can be done in this direction, it is true. I think, however, that more than is generally supposed may be accomplished. The slow, exact, and critical way in which the regular Latin lesson should be done may possibly weary boys. To obviate this, and to give your pupils relief and some acquaintance with Latin literature, and a larger comprehension of the sweep and character and capacity of the language than they can otherwise get, I am of opinion that in every class above the second there ought to be *cursive* reading. For example, while engaged closely and critically on the first book of Cæsar, the master should read *with the boys* some such book as Eutropius or Cornelius Nepos—translating a sentence, calling on some one to do it after him, and then hurrying on to the next sentence. In this way the whole of Eutropius and the Latin lives in Cornelius Nepos might be read during the year in which the boys are doing Cæsar and Ovid. In the following year, when the boys are engaged on Sallust and Virgil, or some of the simpler orations of Cicero, all the more interesting portions of the eight books of the "Gallic War" might be cursively read—the substance of those portions omitted being narrated by the master. While Livy, again, is being *studied*, Curtius's "Life of Alexander the Great" might be read in the same way. While Horace is being critically and exactly studied, much of Ovid might be cursively read. I would also encourage, for cursive and private reading, editions with the Latin or Greek on one side and the English on the other. In short, every means should be taken to make the boy familiar with a large *mass* of the language and literature which he is studying.

It is scarcely necessary to say under this rule that when a new book, say the twenty-second book of Livy, or a book of Tacitus, is begun, it is necessary to give wholeness and fulness and unity to a boy's conceptions, if you are to engage his interests. Therefore, give him an account (with the map before him) of the history of Rome or Greece, dwelling on the great incidents and great men, up to the date at which they begin to read. Let them know about Livy and Tacitus, and lead them to take a living interest in their writings, not as so many word-puzzles constructed two thousand years ago for schoolboys, with a view to determine who is, or is not, to be head boy of a class on a certain day in the nineteenth century. Ample introductions, more than once repeated, to the books actually read critically, will be the certain means of interesting boys, if anything will, in the Latin language through its literature and history. For the teacher, too, it is valuable: it connects him through the humanities with the hearts and intellects of his pupils, and establishes his moral influence. If Latin be not taught in this large spirit, even that admirable tongue, with all its great educative advantages, will not permanently hold its own against the intrusion of scientific teaching accompanied by modern languages.

By the end of the fourth year your boys, if taught in accordance with the above suggestions, will have read, with much more exactness and thoroughness, all the usual material, they will have written a hundred Latin translations and Latin prose exercises for one now written, have thoroughly worked out the English bearing of the Latin tongue, and in the course of this have constructed their own syntactical grammar and idiom book; nay, over and above, they will have read cursively, or with the help of translations, the whole of Eutropius, of Cornelius Nepos, of Cæsar's "Gallic War," the passages omitted being orally related and all the more interesting legends of Ovid's "Metamorphosis;" and, although they may have read only one book of the "Æneid" critically, you, the master, will have found time to read to them the whole of Dryden's translation, or some other. Compare this with the miserable scraps and disconnected fragments which at present constitute the Latin diet of boys.

You see, then, that while I advocate much more verbal thoroughness and much more Latin composition than is at present practised, in the interests at once of discipline and acquisition, I also advocate much more looseness! The mode of procedure suggested is more intensive, and at the same time more extensive. It is scarcely necessary to point out how the exact and critical, as well as more extensive, reading of Latin gives opportunities for complying with the requirements involved in our third reason for studying Latin—the analysis of the shades of meaning between words.

Doubtless, those of you who have already taught Latin will say that the carrying out of this system of constant writing and of Latin composition would be extremely difficult with a class exceeding thirty-five, or composed of boys of different stages of progress. To which the answer is, that classes should not be composed of more than thirty-five, and that they should not be at different stages of progress.

If I hold that all this can be done to introduce boys into the life and spirit and genius of the Roman people, by the end of their fourth year in Latin, presuming that they begin in their twelfth year, I need scarcely say that I should expect much more when the study of Latin is prolonged two years beyond this.

The exercises in the making of Latin should now be more varied. Retroversion should still be practised, but the boys should also be required to reproduce the *substance* of several chapters of the Latin author they are reading as an exercise; and to prevent too much reliance on the book these exercises should be done as much as possible in school.

By following the procedure which I have above indicated, we associate the study of a language with the realities and humanities, and bring ourselves into accord with our eighth as well as our ninth reason for teaching Latin. In continuing our course of instruction further, we follow the same method, and while doing so are led into a still higher sphere of the humanities, and encounter our eighth reason for teaching Latin, which yields us a rule of method, as the other reasons do.

14. *So instruct in more advanced Latin as to cultivate the æsthetic and art perceptions of your pupils.*

You read Horace and Virgil and Livy, we may assume, and require written translations, if not of the whole lesson read, of a part of it, daily, and maintain your daily exercises in Latin composition, oral and written, on the basis of the passages read. You also continue your cursive reading, and encourage the boys to continue it at home with the help of translations. But this is not enough. When you have read an eloquent passage in Cicero, or a fine passage in Virgil or Horace, you should ask your boys to note its eloquence or its beauty. Their attention should be directed to the art with which the thought is expressed. And what is literary art? It is the adequate expression of an idea—neither more nor less than adequate—in language worthy of the idea and controlled by the feeling of the beautiful. And the beautiful, let me remind you, is severe, is chaste, is self-controlled, balanced like a Greek statue; and it is all this because it is simplicity and harmony. State the idea in your own words or ask them to do it in theirs, and then point out how nobly, and yet with what chaste simplicity or eloquent rhythm, the orator or poet has given expression to what in their limited utterance is mean enough. The boys should continue, of course, to learn the finer pieces both of *prose* and poetry by heart.

Then, when you have read a piece of Horace or Virgil, pronounce to them, with fit elocution, the best poetical translations in our own tongue: Dryden, Conington, Martin, will, as a matter of course, be in the library and schoolroom of every classical teacher who is not a mere gerund-grinder.

In home exercises, *elegant* English renderings will now be encouraged, and much, very much, educational value attached to them.

At the same time, do not forget at this stage to deepen and broaden the pupil's knowledge of the history and life of Rome: read to him translations of the best passages in the Livian History; present to his eyes maps of the geography of the ancient world; exhibit photographs of Rome, of its great buildings, of its works of art. The room should be adorned with casts from the British Museum. The whole atmosphere should be classical. Remember, too, that in the most brilliant period of Roman literature with which you are now dealing, it was Greece which was the mother of Roman arts. You are now on Grecian soil, and as boys have by this time begun Greek, and made some way in it, you can improve on the Roman lesson.

A boy who, after six years in Latin begun at the age of about twelve, to which he has given an average of eight school hours per week, has not, either in the original tongue, critically, cursively, or by means of translations, read the whole of Cæsar's "Gallic War," Cornelius Nepos, Sallust, Virgil, Horace, seven or eight orations of Cicero, all the best books of Livy, a portion of Tacitus, all that is best in the "Tristia," "Epistolæ ex Ponto," and "Metamorphoses" of Ovid, and two or three plays of Plautus and Terence, has not, in my opinion, been taught in the best possible way.

And need I add that the master who is incompetent to extract from Latin study all its æsthetic and moral culture, as well as its logical discipline, is not a true builder of the Temple of Education, but a mere hodman—a carrier of bricks and plaster, out of which others are to rear the stately and beautiful edifice, if it is to be reared at all?

Note.—As to Latin verse-writing, I presume that as a universally prescribed exercise, and consequent engine of immorality, it is now gone out. But I cannot agree with those who condemn it. For the higher stages of progress, if pursued in moderation, it does much to enable a youth to realize the genius of the ancients and to appreciate literary form.

Greek and Modern Tongues.

I might now go on to deal with Greek, but I should simply have to repeat what I have said about Latin. The only warning to be given is, that the "old" out of which Greek instruction grows is Latin. To bother boys, for example, with Greek syntax rules which are the same as those in Latin, is palpably absurd. It is differences and contrasts the teacher has now to bring out. I would also say that Epic and Ionic dialects should not be touched by the boy (still less learned in the grammar) until an Attic foundation has been securely laid.

So in modern languages the rules of method are the same as in Latin, and, for that matter, the same as in English—always, of course, *mutatis mutandis*. Substitute the word French for Latin, and the rules are manifestly the same. The chief point of difference in modern tongues is, that as we have to do with *living* speech, the ear should be from the first cultivated without the help of the eye, and that what in Latin is oral composition should, in German and French, take the form of elementary conversation—chiefly based on the lesson of the day. I cannot, however, pass from this subject—one of growing importance—without expressing my surprise that any master or parent should expect boys to get a thorough knowledge of French or German with less instruction than five hours a week.

Conclusion.

My object in this brief course of lectures has been to show how it is that Language must always be the governing subject in all education worthy of the name.

I have endeavoured to show that, properly taught, it provides real nutrition for the mind, without which it cannot grow; it provides a vehicle, ever growing with the growth of mind, for the expression of the inner life, without which linguistic expression the deeper emotions and the spiritual suggestions of our complex nature, are like the clouds on a windy sky, ever changing their undefined forms, and finally vanishing altogether. Only when shaped into words have these feelings and emotions got for themselves a body, and become to us a permanent possession. They then react upon our lives, and become the steps to higher things. Thus it is that language, as a concrete subject, feeds, and by feeding makes the growth of mind in us possible.

Again, Language as a real and concrete subject not only feeds, but, if it is understood, it *trains:* it trains the processes of intelligence without strain or effort, and whether a boy will or not.

Further, Language, as a formal or abstract subject (grammar), *disciplines* the intelligence, and I have endeavoured to point out the distinction between training and discipline with a view to your seeing that, while without grammar, the study of language as vehicle of thought and feeling trains, with grammar, it disciplines, and thus its claims as an educational instrument become irresistible.

But not only does language feed, train, and discipline: it also at all stages, if properly taught, cultivates in us the beautiful and ideal through the forms of literature—to which, indeed, all other forms of art, to a very large extent, are of secondary and ancillary importance. It is possible—as you, I hope, now see—to teach literature, though it may be impossible to examine on it. Outside examination, though inevitable in these days, can never be allowed to tarnish and degrade those more delicate instruments of education which have to do with the spiritual in any form, whether it be literature or religion. It is death to them.

In speaking of the Method which is to be followed in teaching language if it is to be an educational instrument, I have given you rules, but I have not sought, I hope, to dwell on these unduly. Enough has been done, however, to show how the teacher may apply the rules for himself. But he must first cast them aside as *rules*, and work from within. Let him realize fully, and by much thought, the aim, the purpose, the idea of his work. Let him understand that he is using language in its various aspects in order to enrich and form the minds committed to him, and he will quickly find a method of procedure, which may or may not embrace all the rules of method which another may advocate, but which, though occasionally erring, will yet be better than any system imposed on him from without, because it will be a living, and not a mechanical, system. In a teacher, however, as in men of every other occupation and profession, a man's originality is of little worth until he has first learned all that can be taught him; but when he has once learned this, let him then live his own professional life freely, for it is the letter that killeth, but the spirit giveth life.

My purpose in these lectures, I need hardly say, has not been to attack science-teaching. On the contrary, it ought to be found in every school, in so far as it is *nature*-teaching. But I have thought the time not unfitting for restating the case for language, and saying a Word for Words.

EDUCATIONAL NOTES AND SUMMARY.

On the evening of Saturday, the 11th of January, at the Royal Institution, Prof. Max Müller delivered an address to inaugurate the establishment of a school for modern Oriental studies by the Imperial Institute in union with University College and King's College, London. The Prince of Wales presided, and among those present were many eminent persons, including some distinguished Orientals. Prof. Müller presented with admirable force and clearness the need for a great English school for Oriental studies, and had much to tell his hearers as to work done in this direction in other countries. His account of the new Berlin seminary of Oriental languages was particularly interesting. This institution has the following staff of professors and teachers: —One professor of Chinese; two teachers of Chinese, both natives—one for teaching North Chinese, the other South Chinese; one professor of Japanese, assisted by a native teacher; one professor of Arabic, assisted by two native teachers—one for Arabic as spoken in Egypt, the other for Arabic as spoken in Syria; one native teacher of Hindustani and Persian; one native teacher of Turkish; one teacher of Suaheli, an important language spoken on the East Coast of Africa, assisted by a native. Besides these special lectures, those given by the most eminent professors of Sanskrit, Arabic, Persian, and Chinese in the Universities of Berlin are open to the students of the Oriental seminary. The number of students amounts at present to 115. Of these, 56 are said to belong to the faculty of law, which must be taken to include all who aspire to any employment in the consular and colonial services. Fifteen belong to the faculties of philosophy, medicine, and physical science; four to the faculty of theology, who are probably intended for missionary work. Twenty-three are mentioned as engaged in mercantile pursuits, three are technical students, five officers in the army, and nine are returned as studying modern Greek, Spanish, and languages generally counted as Oriental, though, no doubt, of great usefulness in the East and in America. Prof. Müller succeeded in conveying a remarkably vivid impression of the fact, that England, looking at the subject simply from the point of view of her own material interests, cannot afford to neglect the studies to which so much attention is devoted elsewhere. "England," he said, "cannot live an isolated life. She must be able to breathe, to grow, to expand, if she is to live at all. Her productive power is far too much for herself, too much even for Europe. She must have a wider field for her unceasing activity, and that field is the East, with its many races, its many markets, its many languages. To allow herself to be forestalled or to be ousted by more eloquent and persuasive competitors from those vast fields of commerce would be simple suicide. Our school, in claiming national support, appeals first of all to the instinct of self-preservation. It says to every manufacturing town in England, help us, and, in doing so, help thyself. Whenever the safety and honour of England are at stake we know what enormous sums Parliament is willing to vote for army and navy, for fortresses and harbours —sums larger than any other Parliament would venture to name. We want very little for our School of Oriental Languages, but we want at least as much as other countries devote to the same object. We want it for the very existence of England; for the vital condition of her existence is her commerce, and the best markets for that commerce lie in the East."

Lord Norton writes to the *Times*:—

"Mr. Mundella's statement to a Luton audience, that 'in Sheffield the higher grade schools, instead of being a burden to the rates, actually contributed to them, on account of the large grants that were earned from the Education and Science and Art Departments,' deserves serious consideration. It is the first authoritative statement that the higher education of the middle classes is not only being paid for by the general taxation of all classes, down to the poorest, but that a bonus is added, besides the cost, from general taxation, in relief of the rates of large manufacturing towns. Besides, as the largest grants are attached to the higher subjects, the poorer country parishes share this general public aid in inverse ratio to their fair claim. Mr. Mundella winds up his speech with a hope that soon no child will be allowed to leave school until it has passed the sixth standard; that is to say, that no workman's child shall be allowed to begin his education in work, and his training for contributing to the family sustenance—no sailor-boy begin his apprenticeship to sea life nor plough-boy begin handling a horse—until he has 'read a passage from one of Shakespeare's historical plays' to an inspector's satisfaction. No matter its being then, perhaps, too late to begin the most practical part of education; the *sine quâ non* is book-learning, and ordinary occupations may comparatively be dispensed with. *Civis Anglicanus* should be above them. This is the plainest avowal yet made of a specially interested aim at free technical instruction, which many cannot avail themselves of, at general public expense; inevitably suppressing the great private undertakings now promising so much more for the purpose, and ignoring all education out of school for the common industries of the majority of mankind."

We deeply regret to announce that Mr. Patrick Cumin, C.B., the Secretary of the Education Department, was found dead in his bed on the morning of the 11th of January. Mr. Cumin had been seriously unwell for some time, suffering from renal and heart disease, but he stuck uncomplainingly to his work and transacted business at the Council Office on Friday. He was in his sixty-ninth year. Mr. Cumin was a graduate of Oxford, and after being called to the Bar did a great deal of journalistic work. From time to time he served as Assistant Commissioner to various Royal Commissions on Education, notably the Newcastle Commission of 1859, and subsequently as Secretary to the Scottish Education Committee (Duke of Argyle's). Subsequently, in 1870, he became an Examiner in the Education Department, and was private secretary to Mr. Forster at the time of the introduction of the great Act of 1870. Mr. Forster, and subsequently Mr. Mundella, owed much to the sagacity of Mr. Cumin, and when Sir F. Sandford retired from the Department, it was Mr. Mundella's influence that secured his promotion to the Chief Secretaryship. Mr. Cumin was a remarkable man in many ways. He ruled quietly, but firmly; he never made any display, nor affected any great zeal; but at a time of difficulty his rare sagacity made him a most valuable adviser. Under a quiet, almost cold, exterior there lay hidden a very warm heart, and among those who served with and under him his death is deeply and sincerely lamented.

Mr. G. W. Kekewich, brother of Mr. Justice Kekewich, has been appointed Secretary to the Education Department, in place of the late Mr. P. Cumin. Mr. Kekewich was educated at Eton and Oxford, and entered the Education Department as Junior Examiner in 1867; subsequently he filled the posts of Acting Chief Clerk and Senior Examiner. But there is a much more experienced, and, we believe, a much abler man whom we expected would be chosen to fill the vacancy caused by the death of Mr. Cumin.

One of the most eminent victims of the influenza has been Dr. Döllinger, the great "Old Catholic" theologian, who died at Munich almost on the eve of attaining his 91st year. Born in Bavaria in 1799, he was ordained in 1822, and four years later he was called to Munich, as lecturer at the University. Through his long life he has remained a citizen of the capital of Bavaria, where he laboured unwearied in the cause of theology, history, and science. The number of his published works is very extensive, and each one of them stamped him as a leader of men. When the breach came in the Roman Catholic Church between those who upheld the infallibility of the Pope and those who would have none of it, and did not approve of the temporal power of the Papacy, it was Dr. Döllinger who held high the banner of the latter party, and who became the acknowledged leader of the Old Catholics. Dr. Döllinger was one of those exceptions which prove the rule that a prophet is not honoured in his own country, for both the King of Bavaria and the Emperor of Germany have vied with each other in bestowing titles and decorations on the scholar, who was almost as great an historian and scientist as he was a theologian. Nor has this country been at all behind in acknowledging the services of the German thinker, for in 1871 the University of Oxford conferred on him the degree of D.C.L., and a year later Edinburgh followed with the honorary degree of LL.D. Most of Dr. Döllinger's works have been translated into English. Dr. Döllinger was one of those fine heroic figures of Old Germany of which the Emperor William I. was a type, and to which men like Prince Bismark and Count Moltke still belong. His habits were exceedingly simple, and thus he preserved his health to old age. Only a few weeks ago he was seen taking long walks every day among the picturesque surroundings of Munich, and the day before his death he was engaged in his literary work.

The Rev. Dr. Perry, the eminent astronomer of Stonyhurst College, died of dysentery while engaged on the expedition off the coast of French Guiana, to observe the total eclipse of Dec. 22nd. Father Perry was born in London, in 1833, and entered the Society of Jesus in 1856. He was elected a Fellow of the Royal Society in 1874, and enriched the Philosophical Transactions of that body with papers containing the results of work at the Stonyhurst Observatory, as well as of some of the many expeditions he was connected with, such as the magnetic survey of France, in 1868-9. He was engaged in the observation of the transit of Venus in 1874 and 1882, and of the eclipses of the sun of 1886, 1887, and 1889. He was elected a member of the Society of Arts in 1888.

By the death of Emeritus Professor Fischer, of St. Andrews, mathematical science has lost one of its foremost exponents. He was regarded by his students as a veritable dungeon of mathematical learning; and judging from the difficulty with which even the best of them, at least in the early years of his mathematical professorship, could keep sight of him, he was a profound mathematician. What dire calamity befell several budding wranglers when Professor Fischer took the place of Professor Couch Adams! For a week or two they managed to keep up a faint acquaintance with the cabalistic signs that covered the blackboard; but as the session wore on, one after another of the prizemen of previous years groaned in despair, and gave up the chase. The University library could give no aid. No mathematical works known in St. Andrews contained anything taught by the Professor. His mathematics were his own. Whether evolved from the depths of his inner consciousness, or drawn from some other German source, no one could tell; but the only hope of keeping up any intelligent acquaintance with the class work lay in taking down all that appeared on the board, and trying to decipher its meaning afterwards. Some who have since become wranglers, and even professors, were proud when they got half value for their written examinations. Some would-be wranglers would have been pleased with the half of half value. We believe Professor Fischer, in later years, learnt to form a more correct estimate of the mathematical capabilities of ordinary mortals. He was a kindly man, but he had great difficulty in hiding his contempt for all who had the misfortune to be born without a pronounced development of the mathematical bump. We never met a St. Andrews student who had not a kindly word to say of him. It was no uncommon sight to see him angry—perhaps with good reason; but, even in his angriest moments, he seldom gave utterance to those cutting comments which some of his colleagues could plant with stinging effect and lasting soreness. Few carried away from the University rankling recollections of Professor Fischer.

In referring to Lord Randolph Churchill's speech in favour of the promotion of Polytechnics, the *Times* says:—

"Lord Randolph Churchill asks for £100,000, of which half is to go for the land, and half for the building. He has confidence in the philanthropy of the age, and he gives good reason for his trust, by referring to what has been elsewhere, in other quarters of London and in our large provincial towns. The truth is that our wants grow with the supply. Each new advance suggests, and makes imperative, a further step forward. As far as the machinery of education is concerned, we have done, for the primary needs of the country, an enormous work, which seemed almost impracticable a quarter of a century ago. The result, so far from relieving us from our burden, has served rather to add to its intensity and weight. Primary education, essential as it may be, is neither sufficient nor satisfactory by itself. It must be supplemented by the further training which polytechnics and technical schools are designed to give. So only can we hope that the work done in the public elementary school will

be permanent or of practical use. This view has got possession of the public mind—how fully we can see by the very wide effect which has been given to it, and by the almost ubiquitous demand for more and yet more. Whether the primary education of the country is in the well-nigh perfect state in which Lord Randolph Churchill believes it to be, we are not now concerned to ask. Good, bad, or indifferent, it is certainly insufficient by itself. It does not fit our people to hold their own in the industrial competition of the day. More truly it imposes an obligation to do something more for a class for which we have done so much, and which we have forced to become the recipients of a prescribed and confessedly inadequate educational course. To supply this something more is the aim of the polytechnic, of the mechanics' institute, of the technical school."

On delivering judgment in the case Malan *v.* Young, on the 21st of last month, Mr. Justice Denman remarked that—

"He came to the conclusion to hear the case in private, with the approval of his learned brethren. In the course of the proceedings, however, the wish was expressed that his judgment should be given in open court, upon the ground that the case, being heard in private, had led to rumours that the parties themselves, or one of them, had been guilty of immoral practices. He thought it right to state that from first to last there was nothing in the slightest degree which affected the conduct of either party in the case in the sense of either of them having been guilty of any immoral act whatever. The defendant was the Headmaster of the well-known Grammar School at Sherborne, in Dorsetshire; and the plaintiff having been at this school for education, went to a famous school at Cheam, and afterwards became house tutor in the Headmaster's house at Sherborne. This happened in 1886, and everything went on well until 1888, when there was reason to believe that some few of the boys in the school had been guilty of immoral acts. It was decided to send one boy away, but the plaintiff insisted that he should be first publicly flogged; but he was not flogged. Another boy was flogged, but was not expelled. The plaintiff became very excited in connexion with these matters; and the defendant on two or three occasions saw persons who were, in one way or another, connected with the school, and said that the conduct of the plaintiff was that of a lunatic, and used expressions conveying a similar meaning. As to these slanders, he had come to the conclusion that the words complained of were spoken upon privileged occasions, and spoken without malice, and therefore that the action, so far as they were concerned, must fail. Two of the libels which were contained in letters were to the same effect. He considered both letters privileged. In December, 1888, the defendant wrote to three governors of the school, and said of the plaintiff, 'His conduct has been covertly disloyal to me.' He (Mr. Justice Denman) could not hold the occasion of this letter to be privileged, and he thought that as to it the plaintiff was entitled to judgment. Another letter said to be libellous was written to a brother of a schoolboy, and said of the plaintiff, 'I cannot doubt he is subject to a form of mania, and he has been behaving to me with treachery almost inconceivable.' He thought that this letter also was libellous, that there was no privilege, and that the plaintiff must have judgment upon it. Looking at all the circumstances, however, he had come to the conclusion that he ought not to allow the plaintiff more than 1s. damages in respect of each of these two libels. He thought that the action had been brought more to punish the defendant than to recover damages for anything that the plaintiff had suffered. There would, therefore, be judgment for the plaintiff in respect of two of the libels, with 1s. damages upon each; and he made no order as to costs, so that each party would pay his own."

Mrs. Salis-Schwabe, whose name we have frequently mentioned in connexion with a promised donation to the Maria Grey Training College, after a long visit to England, has returned to Naples for the winter. The Italian Government have made the "Froebel" method, which she advocates, a part of their scheme of education. Mrs. Schwabe proposes to endow a college and school in this country, and to dedicate it to the memory of the Empress Frederick, who has taken a deep interest in the working of the system in Germany, and its introduction into Italy. For these purposes £25,000 would be required, and the Lord Mayor has promised his support as soon as £10,000 has been subscribed, but of this at present little more than £4000 has been promised. Mrs. Schwabe's supporters include the Empress Frederick, Princess Christian, Lady (Louisa) Goldsmid, Miss Davenport-Hill, Sir Douglas Galton, and the Rev. William Rogers; and among the subscribers are Lord Rothschild, Mr. J. S. Morgan, Mr. Mocatta, Mr. Montefiore, and the Bishop of Chichester.

There is a general complaint among the young teachers in Germany, or at least in Prussia, about the contemptuous treatment they experience, during their military exercises, at the hands of their drill-masters. It is said that to this humiliating treatment they are subjected even in the presence of the superior officers, who look on complacently, and in that of their own pupils, who delight in the spectacle with what the Germans called *Schadenfreude* Can it be that this unpardonable and rough treatment is caused by professional jealousy, because the saying is current "that it was the *schoolmaster* who secured victory in Germany's last war"?

The Sixteenth General Meeting of the Association for the Improvement of Geometrical Teaching was held at University College, on Friday, January 17th. At the morning sitting, the Report of the Council was adopted; eleven new members were elected; and the Council and Officers re-elected. At the afternoon sitting, papers were read by Rev. C. Taylor, D.D., on "A New Treatment of the Hyperbola"; by Mr. G. Heppel, M.A., on "The Teaching of Trigonometry"; by Mr. E. M. Langley, M.A., on "Some Geometrical Theorems"; and by the President (Prof. Minchin), on "Statics and Geometry," and by Mr. R. Tucker, M.A., on "Isosceles Hexagrams." These will be published, with some additions, in the Sixteenth General Report, which is now in the press. The following is the Report of the Council:—

"The Council observe with pleasure that the Universities of Oxford and Cambridge have embodied in the printed regulations for various examinations in Elementary Geometry the regulations sanctioned by the Boards in agreement with the petitions of the Association, but regret to notice that the 'Euclid' papers set for Responsions at Oxford still consist exclusively of 'book-work.' The entire absence of 'riders,' or other questions designed to test the real knowledge of the student, seems calculated to foster 'cram.' A fresh application has been made to the University of Dublin, which, owing apparently to some miscarriage of the petition forwarded to the Senate, returned no answer to the first. The question came before the Board of Trinity College, Dublin, on November 30th; the only result at present being that 'they are not prepared to decide on such an important question without much consideration.' The Council, however, is assured by the Registrar that the subject will not be lost sight of, and it has reason to believe that the Examiners in the University of Dublin do not really require such a rigid adherence to Euclid's text as might be supposed from the regulations."

"The Council is of opinion that an interesting historical collection of text-books, especially of such as treat of Geometry, might, with advantage, be gradually formed. Of such a collection, the books lent by Mr. F. Hockliffe, of Bedford, form at present a suitable nucleus. The Council takes this opportunity of thanking him for his kind loan; and also gratefully acknowledges the liberality with which several important publishing firms have responded to their appeal for presentation copies.

"As the Syllabus of Plane Geometry was out of print, the Council requested the Rev. J. J. Milne to bring it into agreement with the Text-Book, and see it through the press. This has been done, and a copy of the revised edition has been sent to each member of the Association."

The annual meeting of the Froebel Society was held on January 16th, in the Hall of the College of Preceptors, by the kind permission of the Council of that College. At a preliminary meeting of the subscribers the formal business of the year was transacted. A. Bourne, Esq., of the British and Foreign School Society, was unanimously elected a Vice-President of the Society, and E. B. Sargant, Esq. (of Toynbee Hall), was elected Hon. Auditor for the year. Amongst the new names added to the list of the Council were those of W. G. McNaught, Esq., and Mrs. Curwen. At eight o'clock the Rev. Canon Daniel took the Chair. The Report and Balance Sheet were presented, and special notice was drawn to the passages dealing with the necessity of training—"In the training of each individual kindergarten teacher lies the germ of future success or failure in your work. If Froebel's scientific methods of the education of mankind are to be put in practice in the training of young children, the teachers must themselves have received a similar moral, intellectual, and practical training; and it is for this purpose that all who intend to become kindergarten teachers should attend a properly constituted training college." The resolution for the adoption of the Report was moved by W. Bousfield, Esq., and seconded by G. Ricks, Esq., the well-known author of "Hand and Eye Training." Mr. Bousfield spoke of the ultimate adoption by the Government of the principles of Froebel's teaching, and pointed out the admirable work done by the Society in bringing the matter before the public, and hastening the day when the methods of the great Educator must receive official recognition and adoption in this country. Mr. Ricks made an able speech, and gave many valuable and practical suggestions on the lines that Froebel's teaching should be carried out in the upper standards. The second resolution—"That this meeting is of opinion that a knowledge of Froebel's principles is a primary essential for all educators"—was moved by Mr. Bowen, and

seconded by Miss Steele, of the British and Foreign Training College, Saffron Walden. The Chairman gave a clear and concise statement of the Society's work, and closed with an appeal for financial help. The Hon. Lyulph Stanley, M.L.S.B., spoke, moving a vote of thanks to the Chair, which was seconded by Miss Shirreff, President of the Society. Miss Davenport-Hill, M.L.S.B., was also present.

The new Headmaster of the City of London School, in replying to the toast of the School at the dinner of the John Carpenter Club, on the 28th ult., made some interesting remarks on the recent changes. He said—

"He was entering on his duties as a stranger to the school and its traditions, and as successor to one of the foremost schoolmasters of the day; but from his reception he augured that he would have in the performance of those duties the best wishes and the loyal support of the old boys. Headmasters, when new-comers, were often accused of a desire for changes, and he wished at once to disclaim any desire of that kind. He should never consider that changes would be beneficial, or even necessary, unless their primary and only object was to increase the efficiency of the education given. The Court of Common Council had declared its wish that, while the older lines were still to be maintained, a commercial and more modern education should be given to those for whom such a course was thought to be desirable. Nothing seemed to him to be more natural than such a desire, and nothing easier than to carry it into effect. There was no reason why classical education should not flourish side by side with the more modern course of study desired by one section of the school. There was, however, some ambiguity as to what a commercial education meant, and it was feared on some hands that the mental training of boys educated on a modern system would be deficient, as compared with that of those who still continued their classical studies. To meet this, he could not do better than quote the scheme drawn up by the London Chamber of Commerce. This scheme laid a foundation of arithmetic, writing, history, geography, and English literature; on this a superstructure of mathematics, modern languages, and science was to be raised, with facilities to be given for drawing, bookkeeping, shorthand, the study of commerce, commercial law, and those elements of political economy which bore directly upon business transactions. This, he contended, would be a liberal as well as a practical education. He did not wish to force any particular plan forward, but to study the wishes of the governors and of the parents and boys, and to work on such a scheme as should give expression to those wishes. His intention was that whatever was done in the school should be done well: that the boys under his care should receive a thorough education, and not a merely shallow training. After speaking of the immense amount of assistance rendered to himself by the late headmaster, Mr. Pollard concluded by expressing a hope that when his time came to leave the school his name might be remembered and spoken of with such honour and good feeling as had been shown in the references to his predecessor."

Writing in the *New York School Journal* on the subject of providing the average child with a better education, Professor Noetling says:—

"Education is a development and training of all the powers of man in such a manner as shall make them of the best service to him in all the work of life. Powers are developed by exercise. Self-exercise alone educates. Exercise means work, work performed by the pupil himself, freely and willingly. Only that in which the learner takes an interest makes a lasting impression upon him, and therefore to the fullest extent develops his powers. The powers to be trained are the physical and the mental. Not only must the pupil's health be preserved, but he must be taught how to take care of it himself; his voice and hands also need training. Of the mental powers, those of the intellect, of the feelings, and of the will, must be developed and trained. But developing a power means not only understanding its nature, the material of instruction to be used, the relation of the material to the ends sought to be accomplished, but also a knowledge of adapting the means to the proper ends. Joseph Payne says: 'The essential function of the teacher consists in helping the child to educate itself.' Helping the child to educate itself, or, in other words, superintending its education, demands a knowledge of all that is implied in education, and this comparatively few of the teachers in the rural schools possess,—none of those in the 'average schools.' The low condition of the average rural school is, therefore, the result of the low pedagogic attainments of the average rural teacher. Better teaching would give the average child a better education, no matter how few its school years might be. No one who has not had special training for the work of the schoolroom should be licensed to teach. More and better opportunities should be afforded those who desire to teach to qualify themselves for their duties. Normal schools should be more professional than scholastic, and no one who is not thoroughly competent to train teachers should be permitted to undertake it. County institutes, instead of being entertainments for the average intelligence of the communities in which they are held, should be schools of pedagogic instruction for the teachers. Until we have well-qualified teachers, and the people are sufficiently enlightened to appreciate good teaching, it is idle to expect good schools, either for the average or any other child. The beginning must be made with the teachers."

REVIEWS, NOTICES, &c.

The Treasury of Sacred Song: selected from the English Lyrical Poetry of Four Centuries, with Notes by Francis T. Palgrave. (Clarendon Press.)

The Professor of Poetry at Oxford has done a piece of good work in collecting and editing these sacred songs. He tells us that "to offer poetry for poetry's sake has been his first aim and leading principle in fulfilling the task with which the authorities of the Clarendon Press have honoured him." Generally, collections of this kind are made from another and equally excellent standpoint—namely, for direct usefulness in religious life; for "spiritual aid" and comfort. This collection is, in some respects, the more effective for being made and arranged by a Professor of Poetry. Permanent pleasure, elevation and enlightenment of the soul, is secured most effectually and most enduringly through the aid of melody in words and beauty in form.

Professor Palgrave has acted on the assumption that these efforts of Poetic Art have no more fitting place, or loftier function, than when the inspiring muses are Faith, Hope, and Love; and conversely, even though the subjects are those so directly practical as may be summed up as "right conduct here and its reward hereafter," yet it is not necessary to sacrifice pleasure to usefulness, beauty to edification. Consequently he has rigidly applied the canons of true art in deciding what he should admit into his collection, and what he should reject. He has, however, taken note of an opposite view.

"The argument has to be met, that by its very nature, through its general aim and its often imperfect quality as art, sacred poetry rarely deserves the honour of that great name. And there is a large element of truth in this objection. The aim at direct usefulness to the individual or to the Church has unquestionably led to the neglect of poetry in religious verse; and Art, we may truly say, has here revenged herself upon Religion. The most weighty of these adverse criticisms is the often-quoted verdict of Dr. Johnson. 'Poetry,' he says, 'loses its lustre and its power, because it is applied to the decoration of something more excellent than itself. All that pious verse can do is to help the memory and delight the ear, and for these purposes it may be very useful; but it supplies nothing for the mind. The ideas of Christian theology are too simple for eloquence, too sacred for fiction, and too majestic for ornament.' Johnson is a judge whose native good sense, sincerity, and alertness of mind render disregard of his decisions impossible without folly. Yet we cannot concede to him, in this matter, the infallibility which (when that great debater had tossed and gored his antagonists) he would laughingly disclaim for himself. His argument seems arbitrarily to confine the range and the capability of religious verse, as it will be found represented in this selection; and it is also a view coloured by the unalloyed seriousness—the gloom—of the great writer's own deeply felt religious faith: possibly, also, by the fact that he was writing at a period when our sacred song was well-nigh confined to hymns."

Dr. Johnson, like many men of great genius in a particular direction, was abnormally defective in some other directions. He had no taste for music, for instance, and never felt its power until he found himself with his ear within a yard of the great drone of the Scotch bagpipes, and it seems to us that it was a constitutional defect which prevented him from appreciating fully the application of poetic melody to the subjects of religious faith. Yet, as Professor Palgrave says, there is some truth in his criticism. Secular verse covers many provinces; sacred verse has but one; and consequently masterpieces must necessarily be more numerous in the secular lyric than in the sacred. Further, the collectors of hymns have thought much more of the subjects dealt with than of the poetic excellence of the form in which they are clothed. Every collection of hymns for public worship with which we are acquainted, admits a large proportion of verse which is very inferior as regards art. Professor Palgrave has, however, here shown that English lyrical religious poetry fairly holds its own, and that "Urania has her legitimate throne beside her sister Muses of song."

As regards the arrangement, a chronological order has been generally followed; but, at the same time, poems of cognate character in style or in thought within the same period have been grouped together. The whole is divided into three books. In the first we have poems by Thomas Lord Vaux, Spenser, Bolton, Champion, George Herbert, Habington, Pestel, Henry Vaughan, Jeremy Taylor, Baxter, Crossman, Shepherd, and others of the same period; in the second book are poems by Addison, Ken,

Byron, Oliver, Wesley, Skelton, Newton, and others; the third book has poems by Heber, Milmann, Wordsworth, Keble, Trench, Lyte, Barnes, Shairp, Newman, Stanley, Tennyson, Faber, and others, known or anonymous. The notes, explanatory and biographical, are real aids to the comprehension of the poems, and to the making of acquaintance with the personality of the authors. As an example of the method, we will select the case of William Barnes. Four of his poems are given, the following being one :—

READEN OV A HEAD-STWONE.

As I wer readèn of a stwone
In Grenley church-yard all alwone,
A little maïd ran up wi' pride
To zee me there, an' push'd a-zide
A bunch o' bennets* that did hide
A verse her father, as she zaïd,
Put up above her mother's head,
To tell how much he loved her.

The verse wer short, but very good,
I stood an' larn'd en where I stood:—
"Mid† God, dear Meäry, gi'e me greäce
To vind, lik' thee, a better pleäce,
Where I woonee mwore mid zee thy feäce;
An' bring thy children up to know
His word, that they mid come an' show
Thy soul how much I loved thee."

"Where's father, then," I said, "my chile?"
"Dead too," she answer'd wi' a smile;
"An' I an' brother Jim do bide
At Betty White's, o' tother zide
O' road." "Mid He, my chile," I cried,
"That's father to the fatherless,
Become thy father now, an' bless,
An keep, an leäd, an' love thee."

Though she've a-lost, I thought, so much,
Still He don't let the thoughts o't touch
Here lissome heart by day or night;
An' zoo,‡ if we could teäke it right,
Do show He'll meäke His burdens light
To weaker souls, an' that His smile
Is sweet upon a harmless chile,
When they be dead that loved it.

The biography of Blake is as follows :—

"*William Blake.*—Mr. A. Gilchrist has well recounted the story of this singularly attractive poet and painter. A long life could hardly have fewer events; only a sixty years' cheerful and happy struggle against starvation, but the beautiful soul of the man, devoted to his art and his loving wife and his God, gives it an unique interest—a fascination, rarely raised by any biography. And in Blake, more than most, the man is identified with the artist; the spell which the life holds over the sympathetic reader is renewed and confirmed by the poet-painter's designs and verses. The drawing may be often faulty, the syntax imperfect, yet there is a subtle simplicity, a tenderness springing equally from the heart and the imagination—sometimes a sublimity of idea—which give the best work of Blake's youth a peculiar place of its own high up amongst our 'treasures for ever.'

"The soul of that child-like and celestial painter, Fra Angelico, might have entered into Blake (who, in 1789, can have known nothing of the monastic Italian artist) when writing this and the two following pieces for his 'Songs of Innocence.'

"The work of each was, in truth, irradiated by mystic inward enthusiasm, by constant presence of the spiritual life, by intensity of vision. To men of this class the Invisible world is the Visible—the Supernatural was the Real."

A large paper edition of the *Treasury of Sacred Song* was published a month ago, consisting of copies numbered and signed by the author, and we hear that the whole of this edition was sold within three days of publication, and that the book is now quite unprocurable.

A New History of England and Great Britain. Part I. By J. M. D. Meiklejohn, M.A. (*Simpkin, Marshall, & Co.*)—This "New History" will, we think, be found a very useful book in middle schools, and in the middle classes of public schools—especially when, as is usually the case, there is an examination in prospect. It is a new edition of Professor Meiklejohn's "History of the British Empire," with considerable changes and additions. It consists (to quote the Preface) of a continuous narrative of the chief events of each reign in the history of England and Great Britain, along with a number of notes and illustrative remarks which throw side-lights on the most important events and characters in the history of the country. The narrative moves pleasantly, and the events are well chosen, and described with sufficient accuracy. Tables and lists of various kinds abound, stowed away in the right places, so as not to interefere too much with the text; and in the notes and small-type paragraphs a very large amount of miscellaneous information is given, for the most part decidedly interesting, especially (as the author hints) to those preparing for examinations. The only fault we have to find with the book is that there are somewhat too many of those arrangements which "will make it easier for the student to get up and to remember the details of History"; the consequence being that the pages are rather distressful to the eye (though well printed enough), with their varieties of type and numbered paragraphs; while the idea of "getting up" history does not fill one with enthusiasm as the object of a book written by a Professor of Education. Still, the demand for such a book is a real one, and we do not know a better of its kind. We may add that Part I. extends from the beginning of things to the end of the fifteenth century, costs half-a-crown, and contains 311 pages. A few small maps are also given.

Euclid's Elements of Geometry. Books I. and II. By H. M. Taylor, M.A. (*Cambridge Press.*)—We do not think Mr. Taylor need be afraid that teachers of Euclid will turn and rend him for tampering with the sacred text. On the contrary, he seems to us to have distinctly deserved their gratitude by removing all such obstructions and clumsinesses which it is possible to remove without departing altogether from Euclid's order and method. Some of us—to our sorrow—have still, whether we like it not, to retain Euclid's elements as our text-book; and to such Mr. Taylor's edition (issued under the authority of the Syndics of the University Press) will be a decided mitigation, if not a lasting comfort. Mr. Taylor has not attempted an exact translation of the original, but has retained the substance of the elements and the order of the propositions. Definitions which were faulty have been amended and explained, useless ones omitted, and a few omissions made good. Postulates (or simple geometrical propositions whose truth we assume) are extremely well treated, and are not introduced till each is wanted. In Book I. the method of superposition is introduced in the cases of many propositions dependent on Proposition 4; and in Book II. the truth of the first Proposition is frequently applied to the proof of those which follow—to their great simplification. The missing case of the equality of two triangles is introduced into the text as "Proposition 26 A"; and there are one or two other additions—especially in the Notes—and a few alternative proofs. The Notes follow immediately upon a proposition whenever they appear to be needed; and after every proposition there is a short exercise on it, and on what has preceded it. At the end of each book there are miscellaneous exercises. Our readers will now understand the general character of the book (it costs eighteenpence), and must decide on the *pros* and *cons* of the matter for themselves. It has been discussed too often for us to introduce it again here. But, whatever may be their opinion, they should by no means miss reading the Notes, which are full of useful suggestions to teachers, and will add greatly to the clearness of the young learner's ideas.

From Poverty to Plenty; or, The Labour Question Solved. By W. L. Rees. (*Wyman & Sons.*)—Readers may perhaps question the appropriateness of Mr. Rees' title, but no one who peruses this book can fail to note many valuable suggestions for the improvement of our commercial and social relations. The author writes from the standpoint of an Australian, and informs us that he was first led to study social problems by a consideration of the native land laws of New Zealand, which, in his opinion, "were and are a disgrace to any civilised community." Mr. Rees gradually leads his readers up to an exposition of his panacea for the labouring classes and the whole community, which is practically the adoption of a system of Co-operative Colonization. He draws up a prospectus to serve as a memorandum of association for any such enterprise (p. 424), and he shows how the adoption of some such scheme would make land and wealth common property, because "all would be owners in the accumulated wealth in distinct shares, while the corporate body would hold it in trust for all." The plan advocated resembles very largely the colonization projected and carried through in South Africa by Mr. Arnold White; and we believe that it is, at all events, along such lines that the most permanent solution of our economic difficulties will be found. The advantages of corporate colonization over individual and unorganized emigration are obvious and great; and when a community can be

* *Bennets*, coarse flowering grasses. † *Mid*, may. ‡ *Zoo*, so.

formed on a co-operative basis, the best guarantee possible is secured for industry and stability. Mr. Rees has no doubt as to the scope yet remaining for such operations on the Australian continent: he states (p. 5) that "in Australia I have travelled for months to and fro, over thousands of square miles of level fertile land, unbroken by the spade or plough, rich with flowers and herbage, in a climate like that of Spain or Italy, where the air was redolent with the odours of the flowering gum and wattle, seeing but seldom the glance of a human eye, or the imprint of a human foot. I have journeyed over hills and valleys in New Zealand, . . . over territories as large as Yorkshire, with soil and climate unrivalled in the British Isles, where fruits ripen in the open air; where all the productions of a temperate climate grow in almost unexampled profusion; which, untilled and untouched, lie desolate and waste. In those colonies alone, the whole population of Great Britain and Ireland ten times told could find homes and subsistence upon lands now lonely and unoccupied. . . . The colonies languish for men and money; England groans beneath the burdens of a pauperised multitude and impossibility of good investments." With such exceptional opportunities for judging, Mr. Rees may well aim at being the Moses of a new Exodus to the sunny South. Many chapters in the book are interesting reading, and the historical reviews of the attempts of the past are specially worthy of notice. Mr. Rees runs full tilt against the so-called "orthodox" economists, he cannot agree with modern Socialism, and criticises adversely some, though not all, of the positions of Mr. Henry George. But, in every case, he gives good reasons for his opinions.

The Kindergarten at Home: a Practical Handbook for Mothers. By Emily A. E. Shirreff. (*Joseph Hughes.*)—Now that kindergarten ideas are making themselves known in England and America, and kindergartens are slowly but surely multiplying, we are often asked—especially by young mothers keenly anxious about the rearing of their little ones—to name some book which, without entering too deeply into psychological matters, gives an adequate notion of the main principles of Frobellian education, and of how these may be put into practice. In her "Kindergarten at Home," Miss Shirreff, the President of the Froebel Society, supplies exactly what is wanted. She does not pretend to give a complete outfit for kindergarten work, knowing that much else besides the reading of a manual is required for this; but she makes the point of view quite clear, and indicates the nature and direction of the effort to be made, illustrating her remarks by more detailed accounts of some of the "gifts." The feeling for little children, and the attitude of mind toward them, are both admirable—the tenderness never becoming unintelligent, as is only too often the case—and the appeal to mothers to fit themselves for the right performance of their most sacred duty is eloquent, earnest, and clear-sighted. But Miss Shirreff does not restrict herself to speaking of very young children only; she justly urges that the same principles should underlie all education, and are more and more productive of valuable results as mind and body grow and develop. To begin well is something; but to continue well is even more important. The two chapters which deal with the work of "transition classes" are full of sound advice and suggestion, and lead up to a concluding chapter which alone would afford sufficient proof to any one of how excellently qualified Miss Shirreff is to deal with the subject of education, and would explain to any one ignorant of the reason how it is that all teachers have come to regard her with both reverence and gratitude. The edition before us is the second—revised and illustrated. It contains 200 octavo pages, and the published price is six shillings. Every mother anxious to rear her children wisely should possess the book.

Education in the United States: Its History from the Earliest Settlements. By Richard G. Boone, A.M., Professor of Pedagogy in Indiana University. (*Allen & Co.*)—This book belongs to the very important International Education Series, edited by Dr. William T. Harris, and published by Appletons at New York. It is an exhaustive survey of the origin and development of schools in the States, and at the same time it contains an excellent *résumé* of the present state of educational agencies of all kinds in New England. But there is more than this. The historical facts are given in detail, but these facts are so organised that the leading tendencies as shown in educational history of America are carefully unfolded, and, as Dr. Harris points out, the following broad results are disclosed:—

1. Everywhere there appears a movement from private, endowed, and parochial schools toward the assumption of education by the State.

2. There is a "trend away" from isolated efforts and toward system and supervision.

3. The development in methods has been towards the adaptation of the matter of instruction to the mind of the child, "so that he assimilates relatively more, and memorises or stores up in an undigested form relatively less."

In other words, the history of education in America can "report progress" of a startling nature. In England we have been fettered by past traditions, both in subjects and in methods, whereas the States have been able to work out new ideas, new suggestions, and to gain experience from experiments, both of their own and any taken from history or from Europe. The consequence is that the history of education in the United States constitutes a line of triumphant success. Education there shows itself strong in its universality, and in the width of view which is kept before the educators. Some of the more interesting matters in the book to the reader this side of the Atlantic are the Preparation of Teachers, the Education of Unfortunates and Criminal Classes, and the Higher Education of Women. On all these points we have much to learn from America. Nor must we omit to draw attention to the account of the Bureau of Education. We quote Mr. Boone's statement of the functions of the Bureau. They are:—

"(1) To collect such statistics and facts as shall show the condition and progress of education in the several States and territories; and (2) To diffuse such information respecting the organization and management of schools and school systems, and methods of teaching, as shall aid the people of the United States in the establishment and maintenance of efficient school systems, and otherwise promote the cause of education throughout the country."

We have no hesitation in strongly recommending this book to every English reader anxious to know the history of educational efforts in New England.

(1) *Aus der Werkstatt eines Wörterbuchschreibers Plaudereien. Von Daniel Sanders.* (*Berlin: Lüstenröder.*) (2) *Bausteine zu einem Wörterbuch der sinnverwandten Ausdrücke im Deutschen. Same author.* (*Same publisher.*)—The laudable fashion has sprung up abroad, but more especially in Germany, of celebrating the birthdays, not only of aged eminent statesmen, successful generals, and great artists, but also of distinguished scholars Thus the well-known philologist, Dr. D. Sanders, the author of the above-mentioned works, recently received quite an ovation on the part of German and foreign scholars, when he celebrated the seventieth anniversary of his birth. The learned *Jubilar* seized this opportunity of issuing an autobiographical sketch in which he introduces the reader into the "Workshop of a Lexicographer." English readers of this sketch who have visited the British Museum upwards of a generation ago will be interested to learn that Herr J. Zedner was one of the teachers of Dr. Sanders before he came over to this country and became an official in the great national library. The biographical detail of the learned philologist is, on the whole, scanty; but the chapter referring to the way in which he built up his great German Dictionary will be of great interest to all students of language, and of the greatest practical use to intending lexicographers. Indeed, to the latter, the peep into Dr. Sanders's *Workshop* cannot be too highly recommended. The second book in our list contains "Materials for a Dictionary of German Synonyms" by the same author, who some years ago issued a *Wörterbuch deutscher Synonymen* and *Neue Beiträge zur deutschen Synonymik*, so that the present publication may be considered supplementary to the author's former works in the same department. We need hardly add tha ithe present book is distinguished by the same thoroughness, clearness, and precision which form the chief characteristics of Dr. Sanders's works. We deem it superfluous to dilate on the necessity of consulting dictionaries of synonyms, more especially for students of foreign languages, and so we will content ourselves with expressing the hope that the erudite septuagenarian may be able to combine his three valuable contributions to German Synonymics into one handy volume, both for the benefit of his own countrymen and the English philological students of German.

OUR LIBRARY TABLE.

Latin Prose for London Students. By A. Baker. (*Bell & Sons.*)—This is a collection of English sentences with Latin versions brought under various headings, but with no pretensions to completeness. Many of the sentences are from papers set in the Matriculation and other Pass Examinations of the University of London, and the use of such a manual, when some more methodical and comprehensive book has been already worked through, will, no doubt, help backward candidates by showing them how to attack any specially harsh and untoward fragments laid before them.

With this view, alternative renderings might have been occasionally introduced with advantage. Signs are not wanting that the editor's own acquaintance with Latin idiom is more painful than profound. Instances are—"Men have been found to praise Nero"—*Reperti sunt qui Neronem laudent.* "I marvelled at the frequency of his failures"—*Mirabar quotiens is rem male gessisset.*' "He is suffering from some trouble. *Illum nescio quid dolet.* The dark saying, "He holds the eel of science by the tail," is surely mistranslated by *Mente rerum naturam tamquam piscem hamo comprehendit.*

A Handbook of Quantitative Analysis. By John Mills and Barker North. (*Chapman & Hall.*)—This handbook is an expansion of the *Introductory Lessons on Quantitative Analysis* which we have already noticed, and which contains, as additional matter, examples in quantitative separations; analyses of alloys, minerals, and ores; assaying; water and gas analyses. It is intended chiefly for students entering for the Honours Examination in inorganic and organic chemistry of the Science and Art Department. The illustrations are in outline only, but they are very clear. In a few places the condensation of the matter passes the limits of obscurity, and will be very confusing to the student.

A Synopsis of Roman History, A.D. 14-96; *and A Synopsis of Greek History*, B.C. 405–358. *By W. F. Masom, B.A., and A. H. Allcroft, B.A.* (*W. B. Clive & Co.*)—The special periods dealt with in these two little books are those which have been selected as the periods in Roman and Greek history for the next B.A. Examination. Their excellence will make them invaluable to intending candidates, more especially for the purpose of rapid revision. Each contains a history of the literature of the period; and the Greek History an appendix containing short lives of the more important personages.

A Working Handbook of the Analysis of Sentences. (*Blackwood & Sons.*)—The title of a *working* handbook is claimed by reason of the amount of detailed explanation and the abundant illustrations and exercises that the book contains. It is adapted to the requirements of pupils in the higher classes in secondary schools, of those preparing for the local or similar examinations, and of pupil teachers. Particular attention is paid to disputed points in the analysis of sentences; and the pupil is taught to indicate his reasons for preferring a particular method, when dealing with doubtful points. There are chapters on Paraphrasing, Figures of Speech, and Prosody.

Notabilia of Anglo-Saxon Grammar. By A. J. Wyatt, M.A. (*W. B. Clive & Co.*)—Almost every teacher of Anglo-Saxon grammar to beginners has notes of his own supplementary to Mr. Sweet's "Primer." The book before us contains the rough notes of the author put into shape, and so arranged as to form six weeks' work. They take up very few pages, but appear to us to afford the student just the assistance he is likely to require. The "Notabilia" are followed by 150 questions on Mr. Sweet's "Anglo-Saxon Primer."

The "Finger" Prayer Book. (*Oxford University Press Warehouse.*)—The excellence of the printing of the Oxford University Press has received many recognitions of late, but in few of their publications is this so distinctly shown as in these miniature Prayer Books. To produce them very uncommon paper is required, and given the paper, very careful printing must be applied. The paper is the Oxford Indian Paper, made by the printers at their own works. It possesses three qualities in an extraordinary degree—it is very thin, very tough, and receives impressions very distinctly. Hence, in the miniature books before us, the print is easily read—so easily indeed, that in reading it we are scarcely conscious it is so small. The tiny volume, which weighs in limp binding about three-quarters of an ounce, is only 1 inch in breadth, 3½ inches in length, and ⅓ of an inch in thickness; yet it contains 670 pages, about as many as a volume of the Library Edition of Stubbs' Constitutional History. It comprises the whole of the English Prayer Book, unabridged, in a type which, though necessarily minute, is yet clear, distinct, and perfectly legible. It is pre-eminently the Prayer Book for the chatelaine; it will go with ease into a purse or a waistcoat pocket; and leaves far behind anything yet attempted.

Elementary Mathematical Tables. By Alexander Macfarlane, D.Sc., LL.D. (*Ginn.*)—These tables are designed to be useful, not only in computing and in the graphic method, but also in the teaching of arithmetic and the illustration of the theorems of algebra. They contain logarithmic tables, square and cube roots, tables of quantities, involving constant π, and computations of interest and annuities. The type is clear and large, and the tables are arranged on a system which facilitates reference to them.

Pure Mathematics. Stages I. and II. By T. J. Rankin, C.E. (*Chapman & Hall.*)—This little book contains the solutions to the questions set at the May Examinations of the Science and Art Department during the years 1881 to 1886 inclusive.

Arithmetic for Beginners. By J. Brooksmith, M.A., LL.B., and E. J. Brooksmith, B.A., LL.M. (*Macmillan.*)—The present book is written on the same lines as Mr. Brooksmith's "Arithmetic in Theory and Practice." It is intended to supply the want of a more elementary work, and to lead up to the study of the higher work. In its present state it is amply sufficient for ordinary school use.

Practical Geometry for Second Grade Art Pupils. By T. N. Andrews, F.S.Sc. (*Allman & Son.*)—The course of lessons contained in this little work is calculated to give a beginner a thorough insight into the subject. In Part II. there are many good points in the Projection of Simple Solids.

The Shorthand of Arithmetic. By John Jackson. (*Sampson Low.*)—The author of "The New System of Upright Penmanship" has projected his book as a companion to all arithmetics without superseding any text-book. It contains many useful abbreviations of method which ought to be taught by all masters.

Examination Bookkeeping. John Bell, LL.D. (*Chambers.*)—The theory of Bookkeeping is not very complex in its character, but an acquaintance with the practice of it has now become not only a necessity from a business point of view, but is also a subject for examination in the Civil Service competitions, and at the hands of the College of Preceptors. We are here given solutions of all Civil Service papers for a number of years, of papers set by the College of Preceptors and other examining bodies. There is a special paper of Government Departmental Bookkeeping, and one distinct feature is the paper on Journaling.

"With all my Worldly Goods I thee Endow." By G. Washington Moon. (*George Routledge & Sons.*)—With the religious topics which have urged an old man to write this his first novel we do not propose to deal; suffice to say that it is a tirade against a clause in the Marriage Service of the Church of England. The writer is eccentric, and bold too, to express himself in his Preface so strongly against people who borrow books to save themselves the expense of buying them. We cannot recommend Mr. Moon's attempt; and we trust that he will not carry out his threat to tell us another tale some other day. The narrative is very forced, at times absurdly so. It is a pill with a sugar coating of silly frantic jokes, and these jokes in two cases are unquestionably in bad taste.

John Heywood's Paragon Readers. Primer I.—An attempt to teach reading in a simple and natural manner.

The Dramatic Works of Jean Racine. By Robert Bruce Boswell, M.A. Vol. I. (*Bell & Sons.*)—A metrical English version of some of the works of Jean Racine fitly finds a place in Bohn's Standard Library. It contains a biographical notice of Racine, and an able translation of the following plays:—"The Thebaïd," "Alexander the Great," "Andromache," "The Litigants," "Britannicus," and "Berenice."

How to Choose a Calling. (*Educational Supply Association.*)—It is recorded that a member of a river party who was reputed to be able to play upon the banjo, on interrogation, responded that he was not quite sure, but that he had brought the instrument and an instruction book. When a book professes to summarise for a young man all the teaching of his youth, and all the experience of his elders, it affords the spectacle of a presumption strikingly parallel to that of the gentleman mentioned—and its general method of combining instruction with interest by jumbling together trite platitude and irritating moral maxim is an aggravation of its offence. In the present work, however, there are but few of these, and its statement of trades and professions which a young man may enter, their advantages, requirements, and possibilities, is clearly and modestly set forth, and though there is nothing original, yet the recapitulation of its well-worn facts is at least readable.

Petites Conversations sur La Grammaire. For the use of Schools and Public Examinations. By H. F. Acquier. (*Jarrold & Sons.*)—A little shilling book. Each page has two columns. In one, the conversation is in English; in the other it is put into French. The right points seem to have been selected, and they are treated with precision. But the plan of teaching grammar by printed conversation does not commend itself to us.

The Butterfly: its History, Development, and Attributes. By John Stuttard. (*T. Fisher Unwin.*)—A small shilling book, clearly and sensibly written, and well arranged and illustrated. A little vague talk about the immortality of the soul is introduced; but this seems to us entirely out of place; and the "Epilogue" is not much better. We have not noticed anything original or very new; but Mr. Stuttard evidently loves his subject, and his little book is not unlikely to make others do so too.

Free Method in Elementary Schools: Suggestions offered to all lovers of Children. By One of Themselves. (*Mr. A. J. Roche, Lewisham.*)—A most extraordinary and wholly invertebrate collection of grumbles, principles of education, rule-of-thumb devices, scores of music, copies for writing, scraps of poetry, and profuse quotations from various authors. The book consists of 356 pages, and no less than 140 of these are taken up with quotations from Thring and Ruskin; while 13 pages of "simple rhymes" are introduced into an earlier section. The author is himself apparently guilty of the two pages of doggerel on doing sums. The respect due to one's profession should prevent the publishing of such compilations.

How to Avoid a Cold. By One Who Does. (*Griffith, Farran, Okeden, & Welsh.*)—The reader of this treatise, if he acts upon the precepts therein contained (and if he has, moreover, acquired the ownership of a copy by right of purchase), will *de facto* be elevated into that small and select band of wiseacres, the poverty of whose numbers Carlyle did aforetime deplore.

The Detection of Colour-Blindness. By F. W. Edridge-Green, M.D. (*Ballière, Tindall, & Cox.*)—This pamphlet gives reliable tests for the detection of colour-blindness, and is a forerunner of a book on the same subject.

Ince & Gilbert's Outlines of French History. Revised and corrected by A. Hassall, M.A.—We need only mention that this well-known little book has been revised and corrected, that it costs eighteenpence, and that it is now in its fifty-fourth thousand.

How to Prepare Notes of Lessons. By T. J. Livesey. (*Moffatt & Paige.*)—This is the fifth edition of a useful little book, containing many good

suggestions for the preparation of lessons. When it appeared some little time ago we stated that we thought teachers would find much to their purpose in it. The fact that it is in its fifth edition proves we were right. The published price is half-a-crown.

A Catechism of English Literature. By James Nash. (*Francis Hodgson.*)—We cannot understand why Mr. Nash should have been at the trouble and expense of printing this booklet. The plan of question and answer is absolutely discredited for all school books; and the information dealt with is of the most meagre kind.

Bacon's Memory Map Slates. (*G. W. Bacon & Co.*)—These slates are sheets of cardboard specially dressed on one side so that they can be drawn on with slate or lead pencil. They are ruled with lines of latitude and longitude, and to suit maps of England and Wales, Ireland, and Scotland, the chief countries in Europe, Africa, Australia, New Zealand, and the whole of Europe. The maps can, of course, be drawn and rubbed out any number of times until they are correctly committed to memory.

(1) *Westward Ho! By Charles Kingsley;* (2) *Hypatia;* (3) *Yeast.* (*Macmillan.*)—These reprints, published at 6d., are marvels of cheapness. "Westward Ho!" contains 248 pages in double column. It forms an excellent reading-book for the higher classes of middle schools, and for such a purpose contains one term's good work.

"Come ye Children," Heart Stories for the Young. By the Rev. Benjamin Waugh. (*Cassell.*)—The object of the addresses in this book is rather to inspire than to teach; to stir life, rather than to give a complement of facts and notions. The experience which Mr. Waugh has acquired as the leading spirit of the agitation which led to the passing of the Act of last session, gives him authority to write on the topic of the education of the young.

Alternative Elementary Physics. By John Mills. (*Chapman & Hall.*)—This volume has been written expressly for the "Alternative Course of Elementary Physics," as detailed by the Department of Science and Art in the Science Directory. The subject is treated in a homely manner, and will lead the student to a clear conception of the fundamental laws of the physical sciences.

The Modern Language Examiner. By E. A. Rowe, B.A. (*Relfe Brothers.*)—This little book aims, by repetition of questions on the chief difficulties of French and German Grammar, to prepare students for the various public examinations in modern languages. There are many idioms and proverbs, and about a score of questions in philology.

Pupil Teachers' Government Examination Questions. By R. F. Geddes. (*Simpkin, Marshall & Co.*)—The questions embrace the subjects required by pupil teachers during their last five years. A separate book containing the papers of each year. A key is given in each to the arithmetic and music.

No. 1 *of The Children's Guide, January,* 1890. *Price* 2*d.* (*David Balsillie, M.A. Edinburgh.*)—This is an illustrated monthly intended to provide wholesome reading for young people. The first number contains fairy tales and other stories, poetry, and essays of an instructive as well as interesting kind.

No. 1 *of The Field Club. Edited by Rev. Theodore Wood. Price* 3*d.* (*Elliot Stock.*)—A well-written and excellently printed magazine of Natural History. The first part contains articles on Electricity in Animals, Popular Fallacies in Natural History, Denizens of a Turf Bank, Beetles, &c.

No. 1, *Vol. I., of Springtide. Price* 1*d.* (*Elliot Stock.*)—A well-illustrated magazine for girls and boys—a very good pennyworth.

We have received a parcel of books from the *University Correspondence College Press Warehouse,* which are especially adapted to intending candidates for the B.A. degree of the University of London.—The *B.A. Directory* contains the Regulations of the Examination, Hints on the Choice of Text-books, past Examination Papers, and Solutions. There are translations to the set books, viz.:—*Cicero de Oratore, Book I., Thucydides, Book IV., Virgil's Æneid, Books VII.–X.,* and *Aristophanes' Plutus,* in which the rendering is as close as possible consistent with due regard for idiom. They are translated by classical scholars of high repute, and cannot fail to materially lighten the work of the private student. The *Cicero de Oratore* deserves a special word of praise for the care taken by the translator to find proper equivalent rhetorical terms. —*The Agenbite of Inwyt* is a translation by *A. J. Wyatt, M.A.,* of parts of the Early English Text Society's publication. The author has been fortunate in receiving the assistance of Dr. Skeat in the perusal of proof-sheets. We fail, however, to see what great assistance this book will afford the student; after a little practice no difficulty is found in reading Dan Michel's work. The same remark applies to a translation of the *Anglo-Saxon Chronicle,* 787–1001 A.D., *by W. H. Low, M.A.* The *Plutus of Aristophanes, with Introduction and Notes by M. T. Quinn, M.A.,* is just the book a candidate requires, and is superior in many points to any other edition of the play. The Introduction deals with Greek comedy in general, the life of Aristophanes, and the date of the *Plutus.* In the Notes a good attempt is made to explain the frequent allusions that occur in the play. The text is expurgated, and well printed.—*B.A. Test Papers in Latin and Greek for* 1890 are on the authors and special periods of history prescribed. The 60 papers (30 in each language), of about five questions each, will drill the student on the important points of his work. —*The B.A. English Examination Questions for* 1890 is on similar lines, the subjects being treated in order. Many of the questions have already figured in the Examination Papers.

We have also received:—

The first number of *The Northern Star.* Price 2d. This is not a resurrection of Daniel O'Connor's famous organ *The Northern Star* of fifty years ago, which was based on the five points of the Chartists' creed, but is simply a light from the north, that is to say, from Edinburgh, upon educational subjects. It contains, in addition to varieties culled from Bacon, Taadi, Montague, Hazlitt, Plato, Gladstone, Carlyle, and Scott, the following articles:—Poem of Chatterton, "Canoe Cruise in Vancouver Island," "Heyne's Early Struggles," Letter from Bailie Walcot, Literature, Aristotle and Plato, "Gossip Nanny," "The Cheap Clerk." The first halfpenny number of the *Life of Christ,* by Dr. Farrar. The halfpenny number, be it remembered. Messrs. Cassell & Co. feel that the time has now arrived when this standard work should be placed within the reach of the humblest families in the land, and they have therefore arranged for its issue in halfpenny weekly numbers and threepenny monthly parts. *The Cornhill Magazine, The Boys and Girls' Own Papers, The Leisure Hour,* and *Sunday at Home.* The Sixty-third number of the *Old Testament Commentary,* by Dr. Ellicott. (Cassell & Co.). *Tales from Blackwood,* 3rd series, vol. 6, contains "The Last Words of Joseph Barrable," "The Dragon Tree," "How I Fell among Thieves," "Fiddlers Three," and "The Ghost of Morcar Tower."

New Editions.

English Grammar for Beginners. By J. H. Hawley. (*Relfe Brothers.*)—The revised edition of this book is arranged in three parts, which may be obtained separately. Part I. deals with the Parts of Speech, Part II. with the Accidence, and Part III. with Syntax and Analysis. Questions have been added to each lesson, with numerical references to the paragraphs where the respective answers are to be found.

The Elements of Physiography. By J. J. Prince. (*Heywood.*)—The seventh edition of the Physiography has been thoroughly revised and much enlarged. The work is now published in two parts—Elementary and Advanced. Part II., which is before us, is adapted to the advanced stage of the Syllabus issued by the Science and Art Department, and follows closely the order therein laid down.

Manchester Science Lectures. (*Heywood.*)—This is the third series of Science Lectures for the People, delivered in Manchester. It contains a lecture on "Yeast," by Professor Huxley; on "Coal Colours" and on the "Progress of Sanitary Science," by Professor Roscoe; the "Origin of the English People," by Professor Wilkins; the "Food of Plants," by Professor Odling; the "Conscious Action of the Brain" and "Epidemic Delusions," by Dr. Carpenter.

UNIVERSITY EDUCATION.

We desire to draw attention to a lecture delivered by Sir Philip Magnus at the London Institution, Finsbury Circus, on University Education in London. A crisis had, the lecturer observed, occurred in the history of University education in London. Such crises had arisen in the history of all Universities. For some years it had been felt that the University had not done all that it might have done in organizing and directing the higher education of the metropolis. The last quarter of a century had been a period of educational reform. Education, for the first time in the history of the English people, had permeated all classes of society. Moreover, the progress of physical science and the marvellous changes that had followed in its course, had altered to some extent the objects and methods of education. It was not to be expected that the Universities should have escaped these influences. Oxford, Cambridge, Durham, Edinburgh, and Glasgow were very different from what they were fifty years ago. London had been strangely circumstanced as regarded University education, having been for centuries almost the only capital in Europe which did not possess a University. Having sketched the history of the University of London since its foundation in 1827, and incidentally spoken of the influence of examinations, he referred to the opinions he expressed in an article which he wrote in 1867, before the cry for a teaching University had been heard. In 1884, at the educational conference held in connexion with the Health Exhibition of London, the idea of a teaching University was fully discussed, and eventually the whole question of University education for London was referred for consideration and report to a Royal Commission. Although the recommendations of the Commissioners could not be said to satisfy completely any of the opposing parties, they offered a fair working compromise, which was now receiving careful consideration, and which it was hoped would, with certain modifications, form a basis for the settlement of this difficult question. He afterwards proceeded to argue that the existing University of London, properly reorganized, was competent to direct the higher education of the metropolis, that the circumstances of London life did not enable the University to be remodelled on the type of any other University, and that the establishment of a second University in London would in no way tend to advance higher learning, but might have a contrary effect. Whilst the University should encourage systematic training in every way it could, the means of acquiring knowledge and the agencies for providing such training were so various that the University should not refuse its degree to those who could not give evidence of having received their education in any duly appointed college of University rank. The Royal Commissioners had indicated one means of giving University value to evidence of systematic training at a recognized college. Other means might have been sug-

gested, but questions such as these might well be left to be solved by the newly-constructed University. Teachers would no longer have any ground for complaint when their voice was duly heard in the councils of the University and their advice was sought on all educational matters. The bringing together of representative teachers to confer with one another on all questions affecting the well-being of the University and the advancement of higher learning was, he held, the main reform needed to convert what was an examining into a teaching University, and this reform both the University and Convocation were now fully prepared to adopt. A University thus constituted, associating together the most eminent professors and the principal teachers of the metropolis, and governed by an executive Council consisting of men distinguished in various walks of life, forming their judgment on the well-considered advice of the educational Boards, would come to have an individuality of its own, which in course of time would be strengthened by traditions, and would form a teaching corporation for the advancement on its own lines of higher education. It was true such a University would be, as had been said by way of reproach, a teachers' University, inasmuch as it would consist largely of men engaged in the teaching profession; and in so far it would conform to the original conception of a University, which was a gathering of teachers—a *Universitas magistrorum et scholarum*. But it would also be a teaching University, for the parts that constituted the whole would be teaching bodies, and even isolated teachers would be associated with it by the guidance they would receive from it in the instruction of their pupils.

THE NATIONAL HOME READING UNION.

The National Home-Reading Union has been formed for the purpose of developing a taste for recreative and instructive reading among all classes of the community, and directing home study to definite ends, so as on the one hand to check the spread of pernicious literature among the young, and on the other to remedy the waste of energy and lack of purpose so often found among those who have time and opportunity for a considerable amount of reading. Its objects are:—1. To draw up and publish courses of reading adapted to the tastes and requirements of different classes of readers, especially (*a*) young people, (*b*) artisans, (*c*) general readers. 2. To publish for each class of readers a cheap monthly magazine giving introductions to the prescribed books, answers to questions, and other helps. The readers will be organized, as far as possible, into local circles under suitable leaders; certificates will be issued to those who have completed regular courses of study; and such further assistance as experience shows to be practicable will be rendered. 3. To organize summer assemblies at convenient centres, when lectures will be delivered by experienced teachers, social gatherings held, and excursions arranged. The first reading season commenced on October 1st last, and the Union now numbers 5,500 members. It publishes a monthly journal in three sections, printed at the University Press, Cambridge: (*a*) The General Reader's Magazine, which contains chapters on Literature (English and General), Nature (Organic and Inorganic), History (English and General, and Political Science; (*b*) The Artizan's Section of the monthly journal; (*c*) the Young People's Section of the monthly journal. These all give directions for the reading and study of the prescribed books, abstracts of these books in most cases, and questions on them, to be answered after reading. The Union bids fair to be a great elevating and civilizing agency, and its very rapid extension and success has already outstepped the most sanguine expectations of its promoters.

CORRESPONDENCE.

To the Editor of the Educational Times.

Sir,—Using Mr. Reynolds' figure (p. 22), we may prove Euc. iv. 12 in the following manner:—

Since angles B, C are together equal two right angles, and the four angles of a quadrilateral are equal four right angles (i. 32),

Therefore the angles at K and F are together equal two right angles, and all the angles at F are equal.

Therefore all the angles of the pentagon are equal.

Join A, C, and produce AH, CK to meet in P.

Then (iii. 32), $\angle ABH = \angle ACB = \angle BAC$,

$\therefore$ AC is parallel to HK (i. 27) ..... (α),

and also $\angle HAB = \angle ACB$ (iii. 32),

$\therefore$ $\angle ABH = \angle BAH$ and $HB = HA$ (i. 6) .....(β).

Similarly, $KB = KC$, and $PA = PC$,

therefore, by (α), $PH = PK$ (i. 29),

$\therefore$ $AH = CK$;

but $BH = HA$ and $BK = KC$, by (β),

$\therefore$ $HB = BK$;

i.e., all the sides of the pentagon are bisected at angular points of in-pentagon.

Hence, by (β), *all the sides are equal.*

If Euclid had proved the converse of iii. 22 (or 31), the proof of iv. 12 might be much simplified.

R. Tucker.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending January 31st, 1890.

Abhandlungen zur Geschichte der Mathematik, Part 5, 60m.
Bartholomew's (J. G.) Atlas of Commercial Geography, 3s. cl.
Bartholomew's (J.) Library Atlas of the World, sm. folio, 52s. 6d.
Blaikie's (W. G.) Summer Suns in the Far West, cr. 8vo, 2s.
Carus (J. V.): Prodromus Faunæ Mediterraneæ, Vol. 2, Part 1, 12m.
Century Atlas and Gazetteer of the World, edited by J. G. Bartholomew, 4to 3s. 6d. cl.
Century Dictionary (The), Vol. 1, folio, 42s. cl.
Corpus Glossariorum Latinorum, ed. G. Goetz, Vol. 4, 20m.
Corpus Inscriptionum Latinarum, Vol. 3, Supplement, Pt. 1, 17m.
Cremona's (L.) Graphical Statics, trans. by T. H. Beare, 8s. 6d.
Dunlop's (A. H.) Anent Old Edinburgh, and some of the Worthies who walked its Streets, &c., cr. 8vo, 4s. cl.
Elsom's (H.) Notes of Lessons for Pupil Teachers, &c, 2s. 6d. cl.
Freytag's (G.) The Crown Prince and the German Imperial Crown, Reminiscences, trans. by G. Duncan, 4s. 6d. cl.
Fyffe's (C. A.) History of Modern Europe, Vol. 3, 8vo, 12s. 6d. cl.
Gore's (J. E.) The Scenery of the Heavens, cr. 8vo, 10s. 6d. cl.
Griffith's (L. M.) Evenings with Shakespeare, a Handbook to the Study of his Works, sm. 4to, 15s. cl.
Heathcote's (A. M.) Ragged Robin, and other Plays for Children, 12mo, 2s. 6d. cl.
Hugues (C.): Le Sommeil de Danton, 2fr.
Janssen (V. F.): Gesammtindex zu Kluges Etymologischem Wörterbuch der Deutschen Sprache, 7m.
Kaye and Malleson's History of the Indian Mutiny, 1857-8, Vol. 6, Cabinet Edition, cr. 8vo, 6s. cl.
Keeling's (E. D'Esterre) The Music of the Poets, a Musicians' Birthday Book, imp. 16mo, 6s. cl.
Kinloch's (A.) Russian Conversational Grammar, cr. 8vo, 9s.
Kühnemann (E.): Die Kantischen Studien Schillers, 5m.
Macaulay's (Lord) Critical and Historical Essays, Trevelyan Edition, cr. 8vo, 9s. cl.
M'Carthy's (J.) History of the Four Georges, Vol. 2, 8vo, 12s.
Matheson's (Rev. G.) Sacred Songs, cr. 8vo, 4s. cl.
Moulton's (Rev. G.) The Ancient Classical Drama, 8s. 6d. cl.
Mummery (A. E.) and Hobson's (J. A.) Physiology of Industry, cr. 8vo, 7s. 6d. cl.
Newman's (F. W.) Elliptic Integrals, 8vo, 9s. cl.
Noel's (Hon. E.) The Science of Metrology, 8vo, 2s. 6d. cl.
Pliny's Letters, Books 1 and 2, with Introduction, &c., edited by J. Cowan, 12mo, 5s. cl.
Plutarchi Chæronensis Moralia, rec. G. N. Bernadakis, Vol. 2, 3m.
Records of the Past, edited by A. H. Sayce, New Series, Vol. 2, cr. 8vo, 4s. 6d. cl.
Riehm (E.): Einleitung in das Alte Testament, Parts 2–6, 7m. 50.
Rodwell's (Rev. W. M.) The Mosaic Sacrifices in Leviticus i.–viii., imp. 16mo, 3s. 6d. cl.
Salmoné's (H. A.) An Arabic-English Dictionary on a New System, 2 vols. cr. 8vo, 36s. half-roan.
Sargent's (J. W.) Models and Materials for Greek Iambic Verse, cr. 8vo. 4s. 6d. cl.
Smith's (H. A.) A Century of American Literature, cr. 8vo, 6s. cl.
Stubb's (J. W.) History of the University of Dublin, 12s. 6d. cl.
Tacitus's Histories, Books 3, 4, and 5, with Introduction by A. D. Godley, 12mo, 5s. cl.
Taylor's (I.) The Origin of the Aryans, cr. 8vo, 3s. 6d. cl. (Contemporary Science Series.)
Thucydides, Book 4, a Revision of the Text by W. G. Rutherford, 8vo, 7s. 6d. cl
Waddell's (W. W.) Versions and Imitations in Greek and Latin, cr. 8vo 2s. 6d. cl.
Walter's (J. C.) In Tennyson Land, 8vo, 5s. cl.
Warner's (R.) Stock Exchange Bookkeeping, 8vo, 2s. 6d. cl.
Watson's (W.) Wordsworth's Grave, and other Poems, cr. 8vo, 3s. 6d. (Cameo Series.)
Weber (H.): Elektrodynamik, 6m.
Wolff's (J. S.) Stories from Lives of Saints and Martyrs of the Church, 16mo, 2s. 6d. cl.
Wordsworth's (C.) Series Collectarum ex Liturgia Anglicana versibus Latinis reddita necnon Selecti Hymni Psalmique, cr. 8vo, 5s. cl.
Young's (C. A.) Elements of Astronomy, cr. 8vo, 6s. half-mor.

MATHEMATICS.

2883. (Professor Sylvester.)—If there be two coincident solutions of $x+y+z=a+b+c$, $ax+by+cz=(a+b+c)^2$, $xyz=ayz+bzx+cxy$, show (1) that a curve can be formed of which a, b, c may be regarded as the trilinear coordinates, and determine its order; and find (2) how many (if any) points of the curve all three solutions will coincide; also (3) whether it is possible for the coordinates at any point of the curve to be commensurable quantities.

Solution by Professor Schoute.

1. According to the problem, the surface $xyz = ayz + bzx + cxy$ of the third order, of which the origin is a node, is to be touched by the line $x+y+z=a+b+c$, $ax+by+cz=(a+b+c)^2$,

or, in geometry of two dimensions, the line

$$(b+c)x+(c+a)y+(a+b)z=0 \text{.....}(1)$$

is to touch the cubic $ayz(y+z)+bzx(z+x)+cxy(x+y)=0$ .....(2).

Now the tangential equation of the cubic

$$p_x^3 \equiv (p_1x+p_2y+p_3z)^{(3)} = 0 \text{.....(3)}$$

is

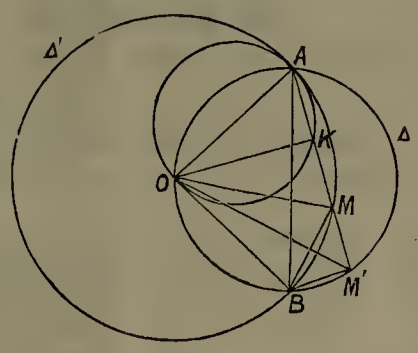
$$(pqu)^2(rsu)^2(pru)(qsu) = 0 \text{.....(4)},$$

where q, r, s are repetitions of the symbols p. And as (4) is a Homogen of the fourth order in the coefficients of (2), and a Homogen of the sixth order in the tangential coordinates u, v, w, the equation obtained by substituting $b+c$, $c+a$, $a+b$ for u, v, w in (4) will be a Homogen of the order ten in a, b, c. So the locus in question is a curve of the tenth order.

[The rest in Volume.]

10350. (Professor Sollertinski.)—Une circonférence Δ, passant par le centre O d'une autre circonférence Δ', coupe celle-ci en A, B. Une corde AM de Δ' rencontre Δ en M'. Démontrer (1) que BM' = MM'; et (2) déduire une solution du problème suivant:—Deux points A, B, étant donnés sur une circonference Δ, trouver sur Δ un point M' tel que M'A + M'B soit égale à une longueur donnée $2h$.

Solution by R. H. W. Whapham, B.A.; R. Knowles, B.A.; *and others.*



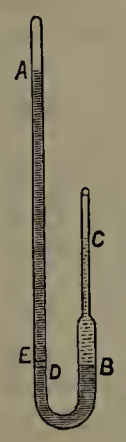
1. $\angle BOM' = BAM = \frac{1}{2}BOM$,
therefore $\angle BOM' = MOM'$,
and $OB = OM$,
therefore $BM' = MM'$.

2. Let Δ be the given circle; bisect the arc AB at O; with centre O and radius OA or OB describe a circle Δ'. On OA' as diameter describe another circle AKO. Through A draw a line AKMM' meeting Δ' in M and Δ in M'; and such that KM' = h. Then M' will be the required point on Δ. For AKO is a right angle, therefore K is the mid-point of AM; therefore

$$M'A + M'B = M'A + MM' \text{ by (1)} = 2KM + 2MM' = 2KM' = 2h.$$

3792. (G. S. Carr, M.A.)—A tube of smaller bore is joined to the open end of a common wheel-barometer tube, and alcohol is then poured in upon the mercury. Taking area of upper surface of mercury = a, that of the alcohol = c, area of common surface = b, sp. gr. of mercury = $m \times$ sp. gr. of alcohol; deduce the variation in the level of (c) corresponding to a variation (x) in the ordinary barometric column of mercury.

Solution by D. Biddle.



Here we have BC = m. DE, and AE = atmospheric pressure. Let $ay = bz = cu$, where y, z, u indicate relative change of level when disturbance occurs. Then

$$u - z + BC = m\,(DE)',$$

where (DE)' represents the position of mercury counterbalancing the alcohol after the given disturbance, as DE did before

also $AD - y - z = AE - x + (DE)' = AE - x + (u - z + BC)/m$

whence $m(x-y-z) = u - z$,

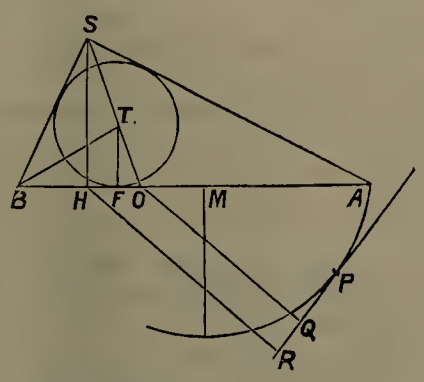
and $u = abmx/\{a(b-c)+(a+b)mc\}$.

Thus, if a, b, c are as 8, 10, 1, and $m = 20$, then

$$u = 1600x/432, \quad \text{or} \quad 27u = 100x.$$

8870. (Professor Neuberg.)—Soient S le sommet d'un cône de révolution, et O le point où l'axe du cône rencontre un plan quelconque P. Démontrer que les distances de S et O à une tangente quelconque de la section du cône par le plan P sont dans un rapport constant.

Solution by Professor Schoute.



In the diagram, AB is the major axis of the section, that we suppose elliptical. By Dandelin's theorem the point F, where AB is touched by the in-circle of ASB, is a focus of the section, the plane of which is brought to coincidence with the plane of ASB by rotation about AB. With the notation

$$AM = MB = a, \quad MF = c,$$
$$(a^2-c^2)^{\frac{1}{2}} = b, \quad MO = m,$$

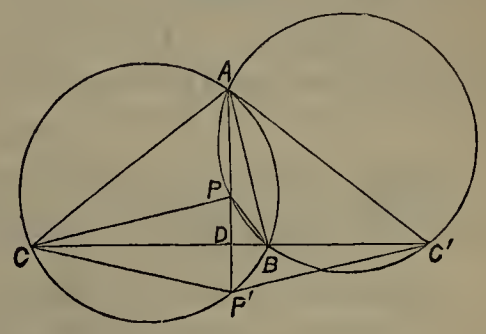
we find $\dfrac{SA}{SB} = \dfrac{AO}{OB} = \dfrac{a+m}{a-m}$, $SA - SB = 2c$;

i.e., $SA = \dfrac{c}{m}(a+m)$, $SB = \dfrac{c}{m}(a-m)$, $SH^2 = \dfrac{b^2}{m^2}(c^2-m^2)$.

[The rest in Volume.]

9783. (W. J. C. Sharp, M.A.)—If ABC be a triangle, in which AC > AB, AD the perpendicular from A upon BC, and if DC' be taken upon CD produced, so that DC' = CD; the circle through A, B, C' will also pass through the orthocentre of ABC, and will be equal to the circumcircle of that triangle, which will pass through the orthocentre of ABC'.

Solution by W. J. Greenstreet, M.A.; G. G. Storr, M.A.; *and others.*



1. Let the circles ABC' cut AD in P. Then

$$A\hat{P}B = \pi - A\hat{C'}B = \pi - ACB$$

$$\therefore \quad P\hat{A}B + P\hat{B}A = C,$$

i.e., P is orthocentre of triangle ABC.

2. If AD meet ACB in P',

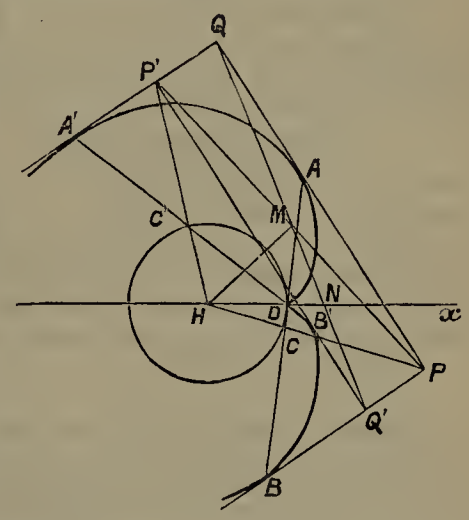
$$AP'C = \tfrac{1}{2}\pi - P'\hat{C'}D = \tfrac{1}{2}\pi - P'CB$$
$$= \tfrac{1}{2}\pi - P'AB = ABC = \pi - ABC;$$

therefore P' is orthocentre of triangle ABC'.

[The rest in Volume.]

9097. (W. W. Basset, M.A.)—If two tangents be drawn to the cardioid $r = a(1-\cos\theta)$, at the ends of (α) a chord through the cusp, (β) two radii inclined at an angle $\frac{1}{3}\pi$; prove that (1) they will intersect at right angles; and (2) in the first case the locus of their point of intersection is a circle, and in the second case the locus is the limaçon $r = \frac{3}{4}a(2\cos\theta + \sqrt{3})$.

Solution by Professor Schoute.



The cardioid is obtained when on every radius vector OC of the circle (H) through O the segments CA and CB are made equal to the circle's diameter. It has the property that the angle PAO formed by tangent and radius vector is half the angle AOX, which determines the radius vector. This property is immediately verified by the equation

$$r = a(1-\cos\theta),$$

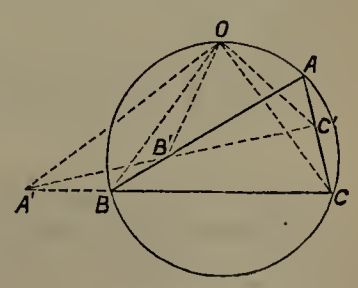
where a is the diameter of (H), and θ the angle XOA.

1. Let P be the point common to the tangents in A and B on the same line through O. Then, as $\angle PAO = \frac{1}{2}\angle AOX$, and in the same way $\angle CBP = \frac{1}{2}\angle XOB$, the sum of the angles A and B of triangle APB is $\frac{1}{2}\pi$; thus P is right angle.

[The rest in Volume.]

10193. (Prof. Moreau.)—Trouver le lieu des centres des cercles qui passent par le sommet A d'un triangle donné et coupent les côtés AB, AC respectivement aux points B', C' tels que BB' = CC'.

Solution by E. M. Langley, M.A.; D. T. Griffiths; *and others.*



Let O be the mid-point of the arc BAC of the circumcircle of BAC; then

$$OB, BB' = OC, CC',$$
$$\angle OBB' = OCC',$$
$$\therefore \quad \angle BOB' = COC',$$
$$\therefore \quad \angle B'OC' = BOC = B'AC';$$

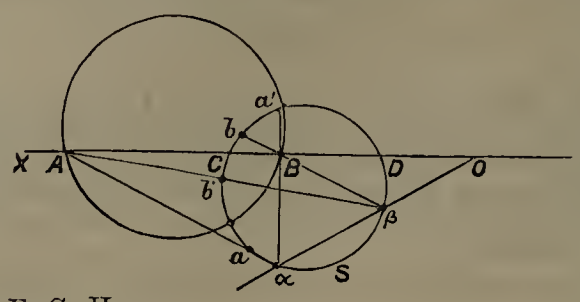
hence the circumcircle of B'AC' passes through O; and thus the locus of its centre is the perpendicular bisector of AO. The solution is easily adapted to the case BB' : CC' = m : n.

[The rest in Volume.]

8995. (J. L. McKenzie, B.A., B.Sc.)—A system of coaxal circles, of which one circle S is considered fixed, is cut by a fixed line OX. If A, B be the points in which OX cuts any circle of the system, and if any line through O cut the fixed circle S in α and β; prove that Aα, Bβ cut the circle S again in points which are collinear with a fixed point on OX.

Solution by Professor SCHOUTE.

The coaxal circles cut OX in the quadratic involution determined by the couples AB and CD (where C, D are the points common to S and OX). Project the two homographic divisions.



$$\begin{cases} A, B; C, D; E, F; G, H; \ldots \\ B, A; D, C; F, E; H, G; \ldots \end{cases}$$

which, combined, form this involution, the first from α, the second from β, on S. [The rest in Volume.]

10238. (J. J. BARNIVILLE.)—A triangle, in which $a^2 : b^2 : c^2 = 9 : 7 : 16$, performs a complete rotation round the side a; prove that it generates a cone whose vertical angle is equal to the trihedral angle of a cube.

Solution by H. J. WOODALL; Rev. T. GALLIERS, M.A.; *and others.*

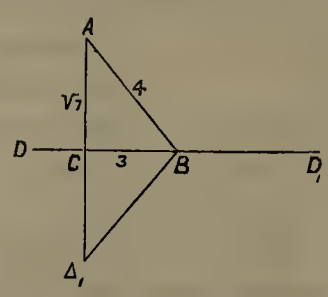
Let $AD\Delta_1D_1$ be section of sphere; therefore $AC\Delta_1B$ is section of cone;

$DC = AB - CB = 4 - 3 = 1$ and $CD_1 = 7$,

therefore surface of zone from pole D to small circle $ACA_1 = \frac{1}{8} \times$ surface of sphere, therefore solid angle of cone

$= \frac{1}{8}$ whole solid angle at any point

= solid angle of cube.



10373. (W. J. GREENSTREET, M.A.)—Through C the mid-point of the arc ACB of a circle, any chord CE cuts the straight line AB in D; find the locus of the centre of the circle through B, D, E.

Solution by R. KNOWLES, B.A.; G. G. STORR, M.A.; *and others.*

Join CB, BG, G being the centre of the circle through B, D, and E; produce BG to F, and join EF and EB; then

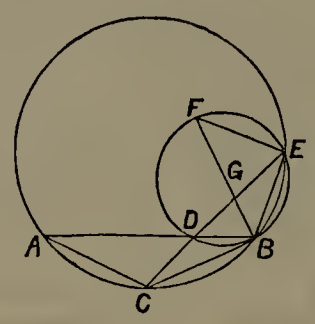
$\angle BAC = BEC = ABC$;

also $\angle FED = FBD$;

therefore $\angle FEB = FBC$;

but FEB is a right angle, being in a semicircle, hence FBC is a right angle; thus CB is fixed, and therefore FB; therefore centre lies on FB perpendicular to CB.

[The rest in Volume.]



10385. (Professor GOB.)—Soit ABCD un parallélogramme quelconque, et soient A′, B′, C′ les seconds points de rencontre des droits DA, DB, DC avec la circonférence circonscrite au triangle ABC. Démontrer que la droite A′D est la moyenne géométrique, en grandeur et en position, des droites A′C′ et A′B′.

Solution by D. BIDDLE; R. KNOWLES, B.A.; *and others.*

There are three cases under this question, viz: (1) where B′, C′ are both *further* from D than B, C; (2) where both are *nearer* than B, C; (3) where one is nearer and the other further. But the same reasoning can be adapted to all. Thus,

$\angle A'C'C = A'AC$ (or its supplement),

$\angle A'B'B = A'AB$ (or its supplement).

[The rest in Volume.]

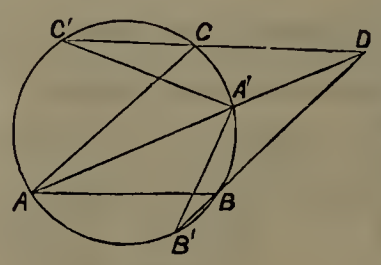


Fig 1.

10338. (C. BICKERDIKE.)—If the density at any point of a triangular lamina varies as the product of the perpendiculars on the sides, prove that the mean density is $\frac{9}{20}$ of the density at the centres of inertia of the area of the triangle.

Solution by Rev. T. R. TERRY, M.A.; G. G. STORR, M.A.; *and others.*

Take the sides CB and CA as axes of x and y. Then, if μ be the density at the centre of mass, the density D at the point (x, y) is

$$27\mu \frac{x}{a} \frac{y}{b} \left(1 - \frac{x}{a} - \frac{y}{b}\right).$$

Therefore mean density $= \dfrac{2}{ab \sin C} \iint D\, dx\, dy \sin C$;

and, integrating for y from 0 to $b(1 - x/a)$, and for x from 0 to a, we get the required result.

10361. (MAURICE D'OCAGNE.)—Soit M un point pris sur la base BC du triangle ABC. Si la perpendiculaire élevée en A à la droite AM coupe en B′ et en C′ les perpendiculaires élevées respectivement à AB et à AC, en B et en C; démontrer que (1) $AB'.MB/AC'.MC = AB^2/AC^2$; et (2) si AM est symédiane de ABC, le sommet A est le milieu de B′C′.

Solution by W. J. GREENSTREET, M.A.; R. WHAPHAM, B.A.; *and others.*

$AB' = AB \operatorname{cosec} BAM$,

$AC' = AC \operatorname{cosec} CAM$,

$MB = AB \sin BAM \operatorname{cosec} AMB$,

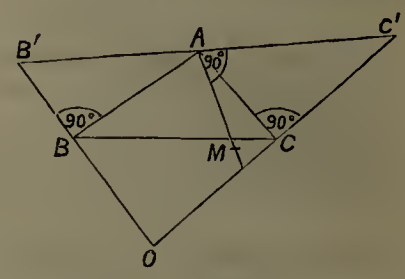
$MC = AC \sin CAM \operatorname{cosec} AMC$;

therefore $\dfrac{AB'.MB}{AC'.MC} = \dfrac{AB^2}{AC^2}$;

and, if AM be a symmedian,

$MB : MC = AB^2 : AC^2$;

therefore $AB' = AC'$; *i.e.*, A is mid-point of B′C′.



10284. (J. J. BARNIVILLE.)—If C^x denote the combinations of y things taken x at a time, find C_x^{y+z} in terms of C_x^y and C_x^z.

Solution by W. J. GREENSTREET, M.A.; Prof. BEYENS; *and others.*

We have the following classification of C_x^{y+z}:—

(1) C_x^y; (2) each of the C_{x-1}^y with each of the C_1^z; *i.e.*, $C_{x-1}^y C_1^z$;

(3) each of the C_{x-2}^y with each of the C_2^z,

and so on, a classification exhaustive and simplex. Therefore

$$C_x^{y+z} = C_x^y + C_{x-1}^y C_1^z + C_{x-2}^y C_2^z + \ldots + C_1^y C_{x-1}^z + C_x^z.$$

QUESTIONS FOR SOLUTION.

10439. (Professor SYLVESTER.)—If three functions of the form $ax + by + cz + dt$ (where a, b, c, d are positive integers) are to be made equal, for positive integer values of x, y, z, t (zeros included), to three given numbers; show that the number of ways of effecting this is the same as the number of ways of solving the equation resulting from the elimination of *two* properly selected variables between the three given equations, and that, out of the six binary combinations of x, y, z, t, there is only one pair which can be so selected.

—440. (Professor HAUGHTON, F.R.S.) — Describe the quartic curve passing through the following points, whose Cartesian coordinates (with $x = 104$ as origin) are (1) Rubidium (85, −1); (2) Strontium (87, −2); (3) Yttrium (89, −3); (4) Zirconium (90, −4); (5) Niobium (94, −3); (6) Molybdenum (96, −2); (7) Hecaton (100, −1); (8) Silver (108, 1); (9) Cadmium (112, 2); (10) Indium (113, 3); (11) Tin (118, 4); (12) Antimony (121, 3); (13) Tellurium (125, 2); (14) Iodine (127, 1).

—441. (Professor ORCHARD, M.A.)—Give an algebraical proof of the following result:—Having put down any sum of money (£. s. d.): (a) Reverse (so that pence come under pounds), and subtract; (b) Reverse this last sum, and add; then the result is constant, and is £12. 18s. 11d., as shown in the annexed example.

£	s.	d.
10	17	5
5	17	10
4	19	7
7	19	4
12	18	11

—442. (Prof. WOLSTENHOLME, Sc.D.)—The four polar equations

$$r = a/\cos\tfrac{1}{2}\theta\,(\cos\tfrac{1}{2}\theta \pm 1), \quad r = -a/\sin\tfrac{1}{2}\theta\,(\sin\tfrac{1}{2}\theta \pm 1)$$

all represent the same quartic whose equation in rectangular coordinates is

$$y^4 + 8ay^2(x - 3a) + 16a^3(a - 2x) = 0.$$

Any chord through the origin is divided harmonically by this curve, and the mid-points of the joins of each pair of conjugate points of the harmonic range lie on the parabola whose focus is the origin and latus rectum $4a$. The point P $(2a, 2\sqrt{3}a)$ lies on this curve, and if the tangent at P meet the curve again in Q, Q′, P will bisect QQ′, and O being the origin, $OQ = OQ' = 12a$; the normal at P passes through the origin, and the radius of curvature at P is $8a$.

—443. (Professor MORLEY.) — In the triangle ABC, if G be centroid; H orthocentre; O circumcentre; K symmedian; K_1 isotomic conjugate of K; T the TARRY-point; Ω, Ω_1 BROCARD-points; Γ circumcircle; U minimum circumscribed ellipse; U_1 maximum inscribed ellipse; F, F_1 foci of UU_1; V KIEPERT's hyperbola; L fourth intersection of Γ, U; LGL_1 diameter of U; X, X_1 points at which the sides BC, CA, AB subtend equal or supplementary angles (these might be termed the

isoptic points, but see MILNE'S *Companion*, p. 165, note): then prove that (1) GL_1, HT are diameters of V; (2) XX_1 is a diameter of V, passes through K, is parallel to GT, and is normal to U_1 at the centre of V; (3) tangents to V at G, H meet at K; (4) LT is a diameter of Γ and passes through K_1, which is on V; (5) the maximum ellipse in $\Omega\Omega_1K_1$ is concentric and homothetic with U_1; (6) K_1H, OK are parallel; (7) the centres of KIEPERT'S hyperbola, the BROCARD-ellipse, the nine-points circle, are collinear; (8) F, X, F_1, X_1 lie on a circle and divide it harmonically.

10444. (Professor CURTIS, M.A.)—Prove that the equation of an equilateral hyperbola touching three equilateral hyperbolas (the four curves being similarly placed) is

$$(23 \,.\, S_1)^{\frac{1}{2}} \pm (31 \,.\, S_2)^{\frac{1}{2}} \pm (12 \,.\, S_3)^{\frac{1}{2}} = 0,$$

where 23 is the area of a triangle of which the base is a common tangent to S_2 and S_3, and the sides are parallel to the asymptotes.

—445. (Professor SCHOUTE.)—Trouver le lieu du point P pour lequel la surface du second ordre de Question 10412 est de révolution.

—446. (Professor NRITYA GOPAL SARKAR.)—Two florins with smooth rims are placed in the corner between two smooth vertical planks. A sixpenny-piece can be pressed between these coins without causing them to separate. Find the angle between the vertical planks.

—447. (Professor DE LONGCHAMPS.)—Soient une circonférence Δ et deux diamètres rectangulaires Δ′, Δ″. D'un point M, de Δ, on abaisse des perpendiculaires MP′, MP″ sur ces diamètres; soient P le pôle de la droite P′P″ par rapport à Δ; Q, R, ses projections sur Δ′Δ″. Démontrer que QR est tangente à Δ.

—448. (Professor NEUBERG.)—Deux droites d, d' roulent sur deux courbes données Δ, Δ′ avec des vitesses angulaires, qui sont constamment égales et de sens contraire. Trouver la tangente à la courbe décrite par le point d'intersection de ces droites.

—449. (Professor STEINER.)—D'un point O du plan ABC, on abaisse OX, OY, OZ, respectivement, perpendiculaires sur BC, CA, AB. Soient A′B′C′, A″B″C″ deux triangles inscrits au faisceau O (XYZ), et soient D, E les points de concours des perpendiculaires abaissées de A, B, C sur les côtés correspondants de l'un ou l'autre triangle ABC, A′B′C′. Démontrer que l'axe de perspective des triangles ABC, A′B′C′ est perpendiculaire à la droite DE.

—450. (Professor CESÁRO.)—Démontrer que (1) les cercles osculateurs d'une courbe plane ne peuvent rencontrer un même cercle sous un angle constant; (2) il n'y a pas de courbes dont les sphères osculatrices rencontrent orthogonalement une sphère fixe. Y en a-t-il dont les sphères osculatrices rencontrent une même sphère sous un angle constant?

—451. (Professor BUENGER.)—Démontrer qu'il existe deux points dont les distances aux sommets d'un tétraèdre donné ABCD soient proportionnelles à des nombres donnés α, β, γ, δ. Ces points divisent harmoniquement un diamètre de la sphère circonscrite au tétraèdre ABCD.

—452. (Professor H. VAN AUBEL.)—Soient M, N deux points quelconques du plan du triangle ABC. On construit le triangle BCA′ semblable à MNA, le triangle CAB′ semblable à MNB, le triangle ABC′ semblable à MNC. Démontrer que les triangles ABC, A′B′C′ ont même centre de gravité.

—453. (Professor GOB.)—Soient F_a, F'_a les foyers d'une hyperbole tangente au côté BC d'un triangle ABC et asymptote aux côtés AB, AC. Soient F_b, F'_b et F_c, F'_c les foyers des deux autres hyperboles analogues. Démontrer que les quadrilatères $BF_a\,CF_a$, $F_b\,F_a\,F'_b\,F'_a$ sont harmoniques.

—454. (Professor CATALAN.)—Si m est impair, transformer

$$\cos^{m-1} x \sin x \text{ en } A_1 \sin x + A_3 \sin 3x + \ldots + A_m \sin mx.$$

Quelles sont les valeurs des coefficients?

—455. (Professor DÉPREZ.) — Les milieux des côtés d'un triangle ABC, le centre I du cercle inscrit, le centre O du cercle circonscrit, et le centre de gravité du périmètre de ABC sont six points d'une même hyperbole équilatère.

—456. (The EDITOR.)—On the base BC of a triangle find a point P, such that AP^2 may have to BP . PC a given ratio.

—457. (W. J. C. SHARP, M.A.)—Show that the binary octavic $(a, b, c, \ldots g, h, i \between x, y)$ has a subinvariant

$$aei - 4(afh + bdi) + 3(ag^2 + ie^2) + e\left\{12bh - 22cg - 36df + 15e^2\right\}$$
$$- 8(bfg + cdh) + 24(cf^2 + gd^2).$$

—458. (D. BIDDLE.)—Prove that the proper angle at which to cross a street when a person wishes to continue his course on the other side, and the roadway is n times as muddy as the pavement, is that of which the sine is $(n^2-1)/(n^2+1)$.

—459. (J. J. BARNIVILLE.) — A number of round bodies of four dimensions are piled up so as to form a regular figure bounded by 5 pyramids; if the base be composed of 10 bodies, prove that (1) the whole figure will contain 15; (2) in a pile of r dimensions, if the base be composed of $\frac{1}{n!} \cdot \frac{(n+r-1)!}{(r-1)!}$, the pile will contain $\frac{1}{n!} \cdot \frac{(n+r)!}{r!}$.

10460. (W. J. GREENSTREET, M.A.)—A triangle ABC is such that $R^2 = a^2 + b^2 + c^2$. Describe, with each angular point as centre, circles of radii $\frac{1}{4}(b^2+c^2)$, $\frac{1}{4}(c^2+a^2)$, $\frac{1}{4}(a^2+b^2)$. Show that these circles meet in a point.

—461. (A. E. JOLLIFFE.)—A conic has a given self-conjugate triangle, and its director circle passes through a fixed point. Construct four fixed tangents to it. If a conic be drawn to circumscribe the triangle with the fixed point as focus, the corresponding directrix touches the given conic.

—462. (W. J. JOHNSTON, M.A.) — If a vector $\equiv ix + jy + kz$, as in quaternions, and we assume

$$i^2 = j^2 = k^2 = ijk = +1 \quad (\text{so that } ij = ji = k, \text{ \&c.});$$

prove that (1) an *associative* and *commutative* algebra is thereby obtained; (2) on this system the scalar part of

$$a(b-c) + b(c-a) + c(a-b) = 0,$$

gives the known theorem that, if A, B, C, D are four points in space,

$$\Sigma\, AB \,.\, CD \cos(\widehat{AB, CD}) \equiv 0;$$

(3) interpret the vector part of the product of two vectors, also the vector part of the above identity; and (4) if $w \equiv i + j + k$, prove $(\omega+1)(\omega-3) = 0$, and interpret this.

—463. (C. BICKERDIKE.)—A hollow iron shell half-filled with water rolls down a rough inclined plane; find the equation of motion and the time of descent, the usual quantities being known.

—464. (G. B. M. ZERR.)—Solve the equations

$$x + y^2 + z^3 = 21, \quad x^2 + y^3 + z = 45, \quad x^3 + y + z^2 = 71.$$

—465. (J. C. MALET, F.R.S.)—Writing $f(k, \theta)$ for

$$\left(\frac{k \sin\theta \cos\theta}{1 - k \sin^2\theta}\right)^{\frac{1}{2}}, \text{ prove that } 2\int_0^{\frac{1}{2}\pi} f(k, \theta)\, d\theta = \int_0^{\frac{1}{2}\pi} f(\lambda, \theta)\, d\theta,$$

λ and k being connected by the relation

$$(1-\lambda)^{\frac{1}{2}} = \frac{2(1-k)^{\frac{1}{2}} - k}{2(1-k)^{\frac{1}{2}} + k}.$$

—466. (R. H. W. WHAPHAM, B.A.)—The two tangents from $x'y'$ to $x^2/a^2 + y^2/b^2 = 1$ form with $lx + my + n = 0$ a triangle circumscribing an ellipse; show that, if ξ, η is the middle point of $lx + my + n = 0$, we have

$$\xi : nx' - la^2 = \eta : ny' - mb^2 = -1 : lx' + my' - n.$$

—467. (WALTER STOTT.)—To construct a pentagon when the middle points of the diagonals are given.

—468. (M. D'OCAGNE.)—Soit μ la droite harmoniquement associée au point M, par rapport au triangle ABC. Les droites joignant un point quelconque de μ à A, à B, et à C, coupent les pédales correspondantes du point M en α, β, et γ. Démontrer que les côtés du triangle $\alpha\beta\gamma$ passent par les sommets du triangle ABC.

[La droite harmoniquement associée au point M par rapport au triangle ABC est celle qui joint les conjugués harmoniques, par rapport aux extrémités des côtés de ce triangle, des points A_1, B_1, C_1, où ces côtés sont respectivement coupés par AM, BM, CM. Les pédales du point M sont les droites A_1B_1, B_1C_1, C_1A_1.]

—469. (E. LEMOINE.)—Soient I, I_a, I_b, I_c les centres des cercles tangents aux trois côtés du triangle ABC, et soient T, T_a, T_b, T_c les points de concours des droites joignant A, B, C aux points de contact des côtés opposés avec l'un de ces cercles. Démontrer que les droites IT, I_aT_a, I_bT_b, I_cT_c concourent en un même point T, et trouver les coordonnées de ce point.

—470. (G. RICHARDSON, M.A.)—If

$$\left\{\cos\tfrac{1}{2}(\beta-\gamma)\sin 2\alpha - \sin\tfrac{1}{2}(2\alpha+\beta+\gamma)\right\} / \sin\tfrac{1}{2}(2\alpha-\beta-\gamma)$$
$$= \left\{\cos\tfrac{1}{2}(\gamma-\alpha)\sin 2\beta - \sin\tfrac{1}{2}(2\beta+\gamma+\alpha)\right\} / \sin\tfrac{1}{2}(2\beta-\gamma-\alpha),$$

prove that each of the fractions

$$= \left\{\cos\tfrac{1}{2}(\alpha-\beta)\sin 2\gamma - \sin\tfrac{1}{2}(2\gamma+\alpha+\beta)\right\} / \sin\tfrac{1}{2}(2\gamma-\alpha-\beta).$$

[The solution of this problem furnishes a proof by means of eccentric angles of the following theorem, which is obvious when treated by trilinear coordinates:—If a triangle ABC inscribed in an ellipse be such that the normals at B and C bisect those angles, then the normal at A also bisects that angle.]

—471. (R. KNOWLES, B.A.)—In any triangle ABC, prove that (1) the tangent to the circumcircle at A, the symmedian from a, and the sides AB, AC form a harmonic pencil; (2) the tangent, the side BC, and the perpendicular from the circumcentre on the symmedian are concurrent.

—472. (L. BÉNÉZECH.)—Dans un triangle donné ABC, mener, parallèlement à une direction donnée, une sécante B′C′ telle que BB′ = CC′, B′ et C′ étant les points de rencontre de cette sécante avec AB et AC.

10473. (Colonel Servais.)—Si m est un nombre entier, on a

$$\frac{1.3.5\ldots(2m+1)}{2.4.6\ldots(2m+2)} = \frac{1}{2} - m\frac{1}{2.4} + \frac{m(m-1)}{1.2}\cdot\frac{1.3}{2.4.6} - \ldots;$$

$$\frac{2.4.6\ldots 2m}{3.5.7\ldots(2m+1)} = 1 - m\,\frac{1}{3} + \frac{m(m-1)}{1.2}\cdot\frac{1}{5} - \ldots.$$

—473. (A. Poulain.)—Dans un triangle, démontrer que la distance d du centre de gravité au point de Lemoine vérifie l'égalité

$$9d^2(\Sigma a^2)^2 = -\Sigma a^6 + 3\Sigma a^4b^2 - 15a^2b^2c^2.$$

—474. (J. Moreau.)—De l'un des sommets d'un triangle, on mène des tangentes à un cercle quelconque passant par les deux autres sommets Trouver le lieu du point où la corde de contact rencontre le diamètre qui passe par le premier sommet.

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Correspondents should be careful (*a*) to write each Question and each Solution on a *separate* paper (otherwise, when used for printing, the Editor has the labour of entirely *re-writing* such articles); (*b*) to make their Solutions as short as possible; (*c*) to send all Questions *early in the month*, but not to send Solutions till their Questions have been published; (*d*) to write their names at the *top* of *each* paper; (*e*) to *prepay* the postage in *full;* and (*f*) to send all communications to

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THE LONDON MATHEMATICAL SOCIETY.

Thursday, January 9th, 1890.—J. J. Walker, F.R.S., President, in the Chair. Mr. J. E. Campbell, B.A., Fellow and Lecturer of Hertford College, and Lecturer at University College, Oxford, was elected a member.

The following communications were made:—"On the Deformation of an Elastic Shell," Professor H. Lamb, F.R.S.; "On the Relation between the Logical Theory of Classes and the Geometrical Theory of Points," A. B. Kempe, F.R.S.; "On the Correlation of Two Spaces, each of Three Dimensions," Dr. Hirst, F.R.S.; "Note on the Simultaneous Reduction of the Ternary Quadric and Cubic to the forms $Ax^2+By^2+Cz^2+Dw^2$, $ax^3+by^3+cz^3+dw^3$," the President (Sir J. Cockle, F.R.S., V.P., in the Chair).

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f. = French.
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gr. = Greek.
ger. = German.
h. = History.
i. = Italian.
l. = Latin.
m. = Mechanics.
ms. = Mensuration.
mu. = Music.
nat. = Natural History.
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ph. = Physics.
s. = Scripture.
sp. = Spanish.
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Haskew, W. H. Wellington College, Salop. *eu. ms. ger. d.*
McNaught, H. *a. ch.* St. Martin's Gram. S., Scarboro'.
Thomas, W. G. Wellington College, Salop. *ms. l. ch.*
Garrett, E. P. Henley House, S. John's Wood. *e. al. eu. l.*
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Day, W. W. *a. m. ch.* The Western Coll., Harrogate.
Roberts, A. D. Grove Park School, Wrexham. *a. al. eu. tr. l.*
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Burdon, J. R. Northgate S., Bury St. Edmunds.
Cross, E. P. Gillingham Grammar School.
Evans, C. E. *ch.* Bourne College, Quinton.
Howlett, A. Friends' School, Saffron Walden.
Milligan, W. Ascham College, Clacton-on-Sea.
Price, J. High School, Shrewsbury.
Campbell, W. Paignton School.
Fielding, B. Farnworth Grammar School
Hoyle, A. W. Hastings Grammar School.
Roddy, J. M. *ch.* St. Peter's College, St. Leonards.
Spencer, A. G. Mayall College, Herne Hill.
Taylor, E. J. Anglo-French Coll., Finchley Rd.
Whitaker, H. St. John's College, Truro.
Bailey, F. Selhurst Park College, S.E.
Bradley, G. F. Barbourne College, Worcester.
Clague, H. J. King William's Coll., Isle of Man.
Cowell, H. R. Charles I. Gram. S., Kidderminster.
Lychenheim, M. Chorlton High School, Manchester.
Preston, E. G. Handel College, Southampton.
Robertson, L. Ghyll Bank College, Whitehaven.
Wilson, J. E. Chesterfield Grammar School.
Brookes, J. A. Wellington College, Salop.
Dixon, H. E. Hull and East Riding College.
Hahlo, H. B. *ch.* Victoria Park School, Manchester.
Jackson, F. W. Claremont College, Blackpool.
Jenner, W. M. Winton House, Folkestone.
Syer, W. V. Lindenthorpe, Broadstairs.

BOYS, SECOND CLASS—*Continued.*

Brown, S.		Elmfield College, York.
Carter, W. G.		Warwick House School, Southsea.
Cowley, P. E.		Grammar S., Ramsey, Isle of Man.
Faris, W. W.		Wellington College, Salop.
Greenlees, J. C.		Paradise House, Stoke Newington.
Hayden, A. J.		Deal College.
Brown, R. G.		Wellington College, Salop.
Gilbert, P. G.		Eastbourne Old School.
Stahlschmidt, E.E.H.		High School for Boys, Sutton.
Grove, H.		Stoke Public School, Devonport.
King, B. W. V.		Anglo-French Coll., Finchley Rd.
Lewis, H.		Royal Masonic Inst., Wood Green.
Pashler, W.		Mead House School, Biggleswade.
Ridyard, G. J.		Farnworth Grammar School.
Stephenson, E.		Werneth Academy, Oldham.
Turner, G. E.		Paignton School.
Weekes, C. P.		Sutton Park School, Surrey.
Cook, J. G.		Grammar School, Ongar.
Cutting, G. H.		Wirksworth Grammar School.
White, P. H.		Gillingham Grammar School.
Frank, H.		Chorlton High School, Manchester.
Latham, R. G.		College House School, Eastbourne.
Lee, G. W.	*a.*	Sandyford Acad., Newcastle-on-T.
Mules, R. J.		Bible Christian College, Shebbear.
Peake, S. M.	*d.*	Bolton High School for Boys.
Priestnall, A.	*d.*	Farnworth Grammar School.
Roe, R. D. T.		Deal College.
Tucker, C. O.		Gillingham Grammar School.
Bebro, L. S.		Great Ealing School, Ealing.
Dinnwiddy, H. L.		Teignmouth Grammar School.
Le Sbirel, R.		The School, Tavistock.
Markwell, A. S.		Forest Hill Middle Class School.
Pritchard, J.W.	*ch.d.*	Farnworth Grammar School.
Rybot, N. V. L.		Southampton Boys' Coll. & High S.
Upsdale, A. R.		Egerton Park School, Bexhill.
Walker, A.		Wirksworth Grammar School.
Barton, G.		Catholic Coll. Inst., Manchester.
Christopherson, C.T.		Hastings Grammar School.
Fuge, D. P.		Oxenford House, Jersey.
Jones, E. S.		Hoylake School.
Jones, J. H.		Dolgelley Grammar School.
Matthews, C. A.		Southampton Boys' Coll. & High S.
Thomas, J. D.		Forest Hill Middle Class School.
Till, W. F.		Leylands School, Hornsea.
Turton, E.		Grammar School, Drax, Selby.
Woodcock, T.		Netherhampton House, Salisbury.
Fraser, A. G.		New College, Cliftonville, Margate.
Pocock, A. H.		Skelsmergh House School, Margate.
Hayter, W. G.	*ch.*	Bourne College, Quinton.
Burdock, A.		Castle School, Guildford.
Gant, R. A.	*d.*	St. Peter's College, St. Leonards.
Hart, J. D.		Portsdown High S., Maida Vale.
Hindley, J. C.		The Grammar School, Eccles.
Kinahan, R. F.		Claughton Coll. S., Birkenhead.
Morris, J. A.		High School, Shrewsbury.
O'Callaghan, K. D.		Brighton House School, Clifton.
Smith, F.		Devonshire Place School, Bath.
Whitaker, H. E.		Huntingdon House S., Teddington.
Catford, C. E.		Friends' School, Saffron Walden.
Fortt, W. E.		Middle Class S., Weston-s.-Mare.
Haines, G. H.		Royal Masonic Inst., Wood Green.
Lewin, W. S.		Up-Holland Grammar School.
Spencer, E. J.	*a.*	Beaumont House School, Jersey.
Wells, F. C.		Skelsmergh House School, Margate.
Bickford, J. G.		St. Helen's College, Southsea.
Davey, F. G.	*d.*	Epsom College.
Edwards, W. H.		Lucton S., Kingsland, Hereford.
Freer, H. W.		King Edward's School, Stourbridge.
Harrison, S. D.		Brunswick House, Maidstone.
Horniblow, F. T.		Barbourne College, Worcester.
Langford, G. F.		Snettisham Grammar School.
Brimicombe, W. B.		Hill House School, Totnes.
Dinwiddy, N. T.		Teignmouth Grammar School.
Mell, S. S.		Friends' School, Saffron Walden.
Price, A. S.		Dudley Middle Class School.
Wintle, F. E.		Hazelcroft, Weston-super-Mare.
Worman, J. N.		The Grammar School, Midhurst.
Addenbrooke, B.		Charles I. Gram. S., Kidderminster.
Batho, R. P. G.		Oakwood House School, Jersey.
Camamile, A. W.		Chesterfield Grammar School.
Cooper, E. H.	*ch.*	Wellingborough Grammar School.
Walker, J. A.		Farnworth Grammar School.
Williams, E. L.		The Grammar School, Eccles.
Abrahams, S. G.		Warlingham School, Surrey.
Byrne, F. R.		Claughton Coll. S., Birkenhead.
Kent, A.		Skelsmergh House School, Margate.
Killick, A. E.		Mercers' School, E.C.
Kinloch, B.		St. Mary's Hall School, Cardiff.
Noble, F. H.		Hull and East Riding College.
Titus, J.		Parkyvelvet Gram. S., Carmarthen.
Carline, R. H.		Chesterfield Grammar School.
Duncan, A.		Mercers' School, E.C.
Hochbaum, M.		Jews' College, Tavistock Sq., W.C.
Parker, A.		Thanet College, Margate.
Powell, L.		Parkyvelvet Gram. S., Carmarthen.
Roberts, J. R.		Denbigh Grammar School.
Stickland, H. D.		Hemel Hempstead Gram. School.
Clark, R. F.		Private tuition.
Dykes, C. R.		Competitive College, Bath.
Marks, J. H.	*d.*	Huntington House S., Teddington.
Parlett, H. S.		St. James' Collegiate S., Jersey.
Taylor, E. M.		Chorlton High School, Manchester.
Twigge-Molecey, G.E.		Private tuition.
Whitehouse, W. H.		Dudley Middle Class School.
Wilson, J. H.		Dudley Middle Class School.
Blake, F. W. E.		Brunswick House, Maidstone.
Cocks, J. W.		Dunheved College, Launceston.
Deayton, L. J.		Huntingdon House S., Teddington.
Hall, J. H.		Private study.
Higgison, F. W.		Royal Masonic Inst., Wood Green.
Humphreys, J. E.		St. Helen's College, Southsea.
Leech, P. S.		Ghyll Bank College, Whitehaven.
Odell, G. E.		Polytechnic Intermediate S., W.
Powell, P. J.		St. Mary's Hall School, Cardiff.
Richardson, C. M.		Bolton High School for Boys.
Sales, H. S.		The Collegiate School, Grimsby.
Sandison, J.		Mercers' School, E.C.
Steel, D.		Channel View S., Walton, Somer.
Taylor, A. E. H.		Woodside House School, Sutton.
White, F. C. H.		Grove House School, Highgate.
Allwright, J. H.	*d.*	York House School, Reading.
Boulton, L. E.		Grammar School, Ongar.
Coachafer, W. H. W.		Private tuition.
Elliott, J. L.	*ch.*	Elmfield College, York.
Folliot, E.		Handel College, Southampton.
Herington, S. G.		Private study.
Hobden, E.		Hastings Grammar School.
James, F.		Commercial School, Bognor.
Jones, L.		Private tuition.
Newbould, H. J.		College House School, Eastbourne.
Russell, H. L.		Sydenham College.
Butterworth, F. N.		Sutton Park School, Surrey.
Elphick, W.		Farnham Grammar School.
Gillespie, A.		Collegiate School, Carlisle.
Holden, J. F.		Hutton Grammar School, Preston.
Pope, T. M.		Mayall College, Herne Hill.
Trotter, A. F.		High School, Stockton-on-Tees.
Beesley, L.		Wirksworth Grammar School.
Berry, H. J.		Farnworth Grammar School.
Browning, K. C.		Manor House, Clapham.
Casserley, A. L.		Tollington Park College, N.
Hirsch, J. M.		Claughton Coll. S., Birkenhead.
Jones, W. J.		Parkyvelvet Gram. S., Carmarthen.
Richards, J.		Independent College, Taunton.
Valpy, J. H.	*f.*	Oxenford House, Jersey.
Ward, H.		Woodside House School, Sutton.
Daniels, P.		Thanet College, Margate.
Gilbert, J. N.		Milton College, Ullesthorpe.
Lewis, R. R.		Dolgelley Grammar School.
Modlin, R. H.		Argyle House S., Sunderland.
Rance, F. E.		Holmwood House, Hampstead.
Salter, C. H.		24 Kidbrook Grove, Blackheath.
Taylor, W. J.		Anglo-French Coll., Finchley Rd.
Weare, E.		Gillingham Grammar School.
Atthill, F.		The Grange School, Halstead.
Balaam, C. J.		Undercliff Collegiate S., Ventnor.
Emmott, A. J.		Stamford Hill Collegiate School.
Hague, W.		Farnworth Grammar School.
Hawkes, F.		Commercial School, Bognor.
Hawkesley, H.		Royal Grammar School, Sheffield.
Hoole, W. H.		Sutton Park School, Surrey.
James, H.		Wirksworth Grammar School.
Beesley, E.		Wirksworth Grammar School.
Damerum, H.		Warwick House School, Southsea.
Friend, H. P.		Wesley College, Sheffield.
Jenkins, E.		Apsley House School, Margate.
Kelley, H. W.		Bible Christian Coll., Shebbear.
Stokoe, F. E.		Forest Hill Middle Class School.
Thomas, N.		Portland Grammar S., Plymouth.
Berresford, T. L.		Chesterfield Grammar School.
Brothers, O.		Farnworth Grammar School.
Hudson, F. C.		Vermont College, Clapton.
Ireland, W.		Ghyll Bank College, Whitehaven.
Leaman, R.		Royal Masonic Inst., Wood Green.
Mitchell, W. W.	*d.*	Sea House School, Eastbourne.
Tillett, G. W.		Brunswick House, Maidstone.
Barlet, J. M.		Mercers' School, E.C.
Bartlett, G. H.		Portway High School, Bath.
Blaeknall, C. A.		Chesterfield Grammar School.
Dalgliesh, T. H.		College House S., West Croydon.
Jones, J. W.		Dolgelley Grammar School.
Lovick, E.		Collegiate School, Hythe.
Potts, A. E.		Chesterfield Grammar School.
Reynolds, C. W.		East Hardwick School.
Rhind, A. H.		Lindenthorpe, Broadstairs.
Vibert, F. H.		Hill House School, Totnes.
Warner, G. P.		Wilsford House School, Devizes.
Aubrey, S. E.		Cleveland House S., Salisbury.
Clement, W. E.		Athenæum School, Llanelly.
Dingle, H.		Probus School, Cornwall.
Hawken, A. W.		All Saints' School, Clifton.
Heaver, H.		The High School, Hastings.
Plowman, T. R.		Vermont College, Clapton.
Remmington, W.		Woodhouse Grove School.
Royle, P.		Stamford Hill Collegiate School.
Twelves, F. J.		Chesterfield Grammar School.
Barney, F. P.		Deal College.
Buxton, B. S.		Wirksworth Grammar School.
Dean, W. L.		Queen Mary's Lower S., Walsall.
Fowler, F.		Farnworth Grammar School.
Garneys, P. W.		Endowed Middle School, Ipswich.
Kestin, H. C.		Huntingdon House S., Teddington.
Lee, E.		K. Edward VI. Gram. S., Spilsby.
Massey, J.		Catholic Coll. Inst., Manchester.
Moggridge, C. F. B.		Blundell's School, Tiverton.
Nimmo, A. D.	*d.*	Beaumont House School, Jersey.
Parker, H.		Park Hurst School, Buxton.
Richardson, A. H.		Private tuition.
Topham, J. A.		Park Hurst School, Buxton.
Walton, W. R.		Private tuition.
Grant, A. S.		Kingsland School, Shrewsbury.
Hart, H. T.		Vermont College, Clapton.
Hawkins, E. C.	*ger.*	Private tuition.
Hughes, T.		Dolgelley Grammar School.
Kinsey, R. M.		Lucton S., Kingsland, Hereford.
Lanham, E. H.		Handel College, Southampton.
Maye, J. B.		Totnes Grammar School.
Newman, E. H.		King Edward VI. School, Retford.
Pidcock, B. B.		All Hallows School, Honiton.
Prince, H. A.		Snettisham Grammar School.
Ray, E.		Praetoria House S., Folkestone.
Riley, F.		University School, Southport.
Wellings, R. P.		Wellington College, Salop.
Acres, H. W.		Battersea Grammar School.
Brown, E.		Southwick College, Brighton.
Butt, H. A.	*f.*	Anglo-French Coll., Finchley Rd.
Chamney, G. W.		Sydenham College.
Davidson, R. M.		Maida Vale School, W.
Francis, T.		Haverfordwest Grammar School.
Hunt, J. W.		Middle Class S., Weston-s.-Mare.
Lenfestey, L. d'E.	*d.*	Dunn Foundation S., Crediton.
Moon, V. W.		Middle Class School, Barnstaple.
Smaje, D.		Hull and East Riding College.
Tapley, H. S.		Holmwood House, Hampstead.
Thomas, L.		Praetoria House S., Folkestone.
Whiting, J. H.		Leylands School, Hornsea.
Charge, F. E.		Barbourne College, Worcester.
Deakin, J.		Strathmore House, Southport.
Dudley, C. F.		Oxenford House, Jersey.
Du Val, J.	*f.*	Oxenford House, Jersey.
Farnsworth, A. W.		Gilmore House, Derby.
Farr, A.		Epsom College.
James, J.		Swansea College.
Jeffery, F. J.		Apsley House School, Margate.
Lanyon, W.		Harleigh House, Bodmin.
Read, W. C.		Taunton's Trade S., S'hampton.
Schlesinger, B. L.		Great Ealing School, Ealing.
Stirling, T. F. L.		Beaumont House School, Jersey.
Warne, A.		Bible Christian College, Shebbear.
Waud, L. R.	*d.*	King Edward VI. School, Retford.
Woodhouse, G. E.		Scorton Grammar S., Darlington.
Anderson, S. A.		Skelsmergh House S., Margate.
Binns, W.		Deal College.
Crawford, H. J.		St. John's College, Southend.
Forth, C. D.		Whitby Middle Class School.
Fyson, R. A.		The School, Eaton Socon.
Mead, G. E.		Gillingham Grammar School.
Musin, E. G. A.		Farnham Grammar School.
Page, A. T.		Egerton Park School, Bexhill.
Pope, H. V.		Private tuition.
Powell, H. L.		Exmouth College.
Rush, P. E.		Redland Grove, Clifton.
Thorpe, W. G.		Grammar School, Drax, Selby.

SECOND CLASS.—2ND DIVISION.

Boulton, T. G.		Milton College, Ullesthorpe.
Cole, A. S.		Private tuition.
Duffell, T. H.		Hamstead Hill S., Handsworth.
Hothersall, J. B.		Cambridge House School, Wigan.
Jennings, D.		Athenæum School, Llanelly.
Simpson, A. G. W.		St. Helen's College, Southsea.
Smith, B. A.		Whitchurch Grammar S., Salop.
Wallwork, H. A.		The Grammar School, Eccles.
Holt, W. E.		South Hackney College, N.E.
Jackson, E.		Hull and East Riding College.
Morgan, L. R.		Swansea College.
Scott, S. R.		Milton College, Ullesthorpe.
Shairp, H. F.		Grosvenor College, Ostend.
Smith, F. W.		Bourne College, Quinton.
Stevenson, A. L.		East Hardwick School.
Stone, E. H.		Lindenthorpe, Broadstairs.
Thompson, S. C.		Mead House School, Biggleswade.
Thornley, J. M.		Bolton High School for Boys.
Verity, R. R.		Yarm Grammar School.
Wilcox, R. L.		King Edward VI. School, Retford.
Class, A. G.		The College, South Penge Park, S.E.
Copestick, E. J.		Whitworth School, Derby.
Fletcher, D.		Lord William's Grammar S., Thame.
Hughes, S. B.		Willow House College, Walsall.
Parnell, E. L.		Newton Abbot Boys' School.
Poole, C. R.	*ch.*	High S., Maindee, Newport, Mon.
Bluett, C. W. C.		Leek Grammar School.
Boulton, F. J.		Milton College, Ullesthorpe.
Button, J. V.		Harleigh House, Bodmin.
Chapman, E. M.	*d.*	56 Prospect Road, Scarborough.
Clarkson, G. D.		Clapham Rise Collegiate School.
Death, F. G.		Mercers' School, E.C.
D'Oyly, J.		Royal Masonic Inst., Wood Green.
East, S. F.		The Lowestoft High School.
Ferens, J. J.		Hull and East Riding College.
Griffith, A. H.		Totnes Grammar School.
Hughes, F. P.		Brighton House S., Clifton.
Rothwell, B.		The Grammar School, Eccles.
Sitwell, N. S. H.		Park Hurst School, Buxton.
Walter, W. J.		Forest Hill Middle Class School.
Wright P. W.		Rye College Peckham Rye.
Bendy, R. H.		Nelson College, Lee, S.E.
Butler, E. C.		Vermont College, Clapton.
Crawford, H.		Private tuition.
Dearden, C. R.		The Royal Grammar S., Sheffield.
Forster, W. D.		Argyle House School, Sunderland.
Hill, B.		Berkeley School, Hull.
Holmes, R. G.		Battersea Grammar School.
Kaschorreck, J.A.O.		Hull and East Riding College.
Kemp, W. L.		Hull and East Riding College.
Landsberger, H.K.A.		Thanet College, Margate.
Prettejohn, B. N. O.		Mount Radford School, Exeter.
Whitley, B. J.		Yorkshire Society's School, S.E.
Wilkinson, G. H.		Wellington College, Salop.
Caffyn, H.		Horsham College.
Gumbrell, G. C.		Middleton School, Bognor.
Jacobs, J. M. C.		High School, Shrewsbury.
Marples, P. M.		Claughton Coll. S., Birkenhead.
Partington, E.		Hindley Grammar School.
Stredder, E. W.		Farnworth Grammar School.
Vickery, W. R.		All Saints' School, Clifton.
Watts, T. H. E.		Arnold College, Bournemouth.

BOYS, SECOND CLASS—*Continued.*

Archbald, W.	Mercers' School, E.C.
Griffith, E. W. C.	Totnes Grammar School.
Hastings, F.	Grammar School, Sudbury.
Ordish, P.	Grammar School, Tadcaster.
Pace, P. C.	Private tuition.
Powell, E.	St. Mary's Hall School, Cardiff.
Reade, A. W.	Epsom College.
Reynolds, R.	All Saints' School, Clifton.
Scott, W.	Old Elvet School, Durham.
Smith, H. P.	*d.* Chorlton High School, Manchester.
Trethewy, H. J.	East Cornwall College, Liskeard.
Bray'shay, T. F.	Q. Eliz. Gram. S., Kirkby-Lonsdale.
Chadwick, C. D.	Charles I. Gram. S., Kidderminster.
Coe, G. H.	Hannington High S., Eastbourne.
Eatock, F.	Farnworth Grammar School.
Gibson, A. J.	High School for Boys, Sutton.
Jürgensen, W. N.	Chorlton High School, Manchester.
McCann, J.	Catholic Coll. Inst., Manchester.
Nowill, F.	*d.* Eton House Comm. S., Sheffield.
Pearson, H. J.	Deal College.
Singleton, M. S.	Endowed Middle School, Ipswich.
Bown, F.	Ellesmere School, Harrogate.
Dymond, R.	Woodland House, New Southgate.
Haworth, J. P.	University School, Southport.
Holmes, F. G.	Battersea Grammar School.
Marshall, T. B.	Wellingborough Grammar School.
Parker, C. H.	Newton Abbott Boys' School.
Ryder, J. A.	St. Martin's Gram. S., Scarborough.
Sissons, A. T.	Hull and East Riding College.
Stephenson, H.	The College, Churwell, Leeds.
Armstrong, W. S.	Emanuel S., Wandsworth Common.
Atkinson, G.	St. Mary's Hall School, Cardiff.
Bamforth, H. F. E.	All Saints' School, Clifton.
Blacklocks, H. J.	Deal College.
Davies, W. J.	Parkyvelvet Gram. S., Carmarthen.
Ely, S. G.	Cleveland House School, Salisbury.
Foster, S.	King Edward VI. School, Retford.
Jones, C. M.	Grove Park School, Wrexham.
Palmer, G. F.	Deal College.
Pearce, F. C.	Wellesley College, Nottingham.
Sotham, G. H.	Anglo-French Coll., Finchley Rd.
Young, W. F.	East Cornwall College, Liskeard.
Batley, A.	Trinity College, Harrogate.
Chapman, J. E.	Strathmore House, Southport.
Crossley, W. H.	Wesley College, Sheffield.
Dale, S. H. L.	Probus School, Cornwall.
Gibson, J. E.	Berkeley School, Hull.
Johnstone, T.	Ilkley College.
Latimer, F. D.	New College, Cliftonville, Margate.
Long, W. B.	Handel College, Southampton.
Reader, H. G.	Friends' School, Saffron Walden.
Roberts, G. W.	International College, Rochester.
Smith, R. P.	Chorlton High School, Manchester.
Thorncraft, W. E.	Halbrake S., Wandsworth Common.
Turnbull, C. F.	Argyle House School, Sunderland.
Wheaton S. J.	Rye College, Peckham Rye.
Beyer, O.	Catholic Coll. Inst., Manchester.
Dawson, H. W.	King Edward VI. S., Louth, Line.
Deane, E.	Bolton High School for Boys.
Figgess, W. G.	Royal Masonic Inst., Wood Green.
Fitch, E. H.	Grammar School, Drax, Selby.
Gale, E.	Bible Christian College, Shebbear.
Groom, P. F.	Northgate S., Bury St. Edmunds.
Martin, J. C.	Russell House, Plymouth.
Redway, R. W.	Exmouth College.
Spence, M.	Kersal Glen S., Higher Broughton.
Thomas, D. L.	Private tuition.
Turton, A. W.	Grammar School, Drax, Selby.
Adams, F. E. W.	Farnham Grammar School.
Burn, A. K.	Paradise Ho. S., Stoke Newington.
Haworth, R.	Rhodes House S., Cheetham Hill.
Jones G. H. B.	Highfield Coll. S., Rock Ferry.
Adamson, C. P.	Yarm Grammar School.
Beatty, F.	Emanuel S., Wandsworth Common.
Brentnall, G. F.	Grammar School, Altrincham.
Draper, L. H.	Hastings Grammar School.
Edwards, G.	Victoria College, Bath.
Kenn, F.	Portway High School, Bath.
Kirkus, A. E.	Leylands School, Hornsea.
Lowes, E.	Lucton S., Kingsland, Hereford.
Mayne, E. A. J.	Royal Masonic Inst., Wood Green.
Meaby, V. B.	Totnes Grammar School.
Mobberley, R. H.	Dudley Middle Class School.
Penny, C. B.	Lindenthorpe, Broadstairs.
Plugge, A.	Eton House School, Hull.
Rose, J. H.	Paston Grammar School.
Ross, W.	St. Mary's Hall School, Cardiff.
Stokes, T. H.	Grammar School, Huntingdon.
Street, S.	New Coll., Cliftonville, Margate.
Strickland, R.	Yarm Grammar School.
Rutherford, S.	Old Elvet School, Durham.
Underhill, S. H.	Halbrake S., Wandsworth Comm.
Utting, W.	Queen Mary's High S., Walsall.
Cooke, H.	Sydenham College.
Dransfield, J. D.	Wesley College, Sheffield.
Elliot, E. F.	Private tuition.
Falkner, H.	*d.* Farnham Grammar School.
Hewitt, F.	Private study.
Mayhew, A. J.	Endowed Middle School, Ipswich.
Mitchell, C. M.	St. John's College, Truro.
Morcom, J. P.	St. Austell School.
Rogers, E. N. C.	Grammar School, Knutsford.
Sellicks, S. A.	Newton Abbot Boys' School.
Sumner, A. E.	Midland Collegiate S., Edgbaston.
Thwaites, H.	Exmouth College.
Wilkin, W. L.	High School, Stockton-on-Tees.
Beabey, E.	Private tuition.
Bound, W.	Bourne College, Quinton.
Britton, L	Upland Coll., Newington Green.
Calcutt, G. W	Friends' School, Saffron Walden.
Chamberlain, N. I.	Royal Masonic Inst., Wood Green.
Fuchs, E. G.	Clapham Rise Collegiate School.
Furber, J. P.	Stamford Hill Collegiate School.
Garrett, T. C.	Grammar S., Ramsey, Isle of Man.
Hardisty, D.	High S., Springfield Mount, Leeds.
Hilton, R. S.	Hoylake School.
Jackson, R.	Grammar School, Ongar.
Lyell, J. C.	Private tuition.
Scott, S. H.	Endowed Middle School, Ipswich.
Andrews, J. R.	High School, Shrewsbury.
Birch, A. H.	Haverfordwest Grammar School.
Brain, H. S.	Northgate S., Bury St. Edmunds.
Claypole, E. E.	*d.* Handel College, Southampton.
Godfrey, T. A.	East Anglian S., BurySt.Edmunds.
Mackay, C.	University School, Southport.
Melling, W. T.	Waverley House S., Southport.
Moodey, E. E.	*d.* Cliftonville College, Margate.
Taylor, B. J. H.	Endowed Middle School, Ipswich.
Thornton, J. H.	Whitby Middle Class School.
Angus, G.	Taunton's Trade S., Southampton.
Esam, S. J.	Sea House School, Eastbourne.
Gibson, Z. J.	St. John's College, Truro.
Lloyd-Davies, D. E.	Bewdley Grammar School.
Potter, G. W.	Private tuition.
Smith, P. S.	Chesterfield Grammar School.
White, F. N.	College House School, Eastbourne.
Yeo, F.	East Anglian S., Bury S. Edmunds.
Alexander, C. T.	The Grammar School, Eccles.
Bramley, E.	*d.* Chesterfield Grammar School.
Corke, E. S.	Mead House School, Biggleswade.
Hamond, C. F. B.	Private tuition.
Harrington, A. W.	Anglo-French Coll., Finchley Rd.
Harrison, R. T.	Skelsmergh House S., Margate.
Johnson, C. R.	Hull and East Riding College.
Baverstock, L. H.	Hannington High S., Eastbourne.
Berrington, G. J.	Park Hurst School, Buxton.
Bishop, K. C.	Anglo-French Coll., Finchley Rd.
Clark, H. H.	Chingford High School.
Davison, L. S.	Newcastle-on-Tyne Modern School.
Hutchings, E.	Teignmouth Grammar School.
Keeton, P.	King Edward VI. School, Retford.
Linaker, C. E.	Mead House School, Biggleswade.
Peacock, W.	Scorton Grammar S., Darlington.
Stott, H. S.	Elmfield College, York.
Weall, J. G.	Osborne House, Margate.
Wicker, W. E.	The Royal Grammar S., Sheffield.
Wrightson, W. H.	Scarborough Grammar School.
Barbour, J.	Newcastle-on-Tyne Modern School.
Ellis, P.	Bible Christian College, Shebbear.
Faunce, T. De L.	Middleton School, Bognor.
Garrett, A. E.	Horsham College.
Gjemre, E. W.	Newcastle-on-Tyne Modern School.
Haigh, P. B.	Laurel Bank S., Higher Broughton.
Hall, W. T.	Tattenhall Schools, Chester.
Hamper, F. G. W.	St. Martin's Gram. S., Scarborough.
Hardie, N.	Chorlton High School, Manchester.
Hill, W. H.	Barbourne College, Worcester.
Horsfall, P.	University School, Southport.
Jones, G. S.	All Saints' School, Southend.
Lamb, M. H. M.	Grosvenor College, Ostend.
Mackay, W. A.	Epsom College.
Pond, S.	Guildhall Middle S., Bury St. Eds.
Prescott, J. T.	Rhodes House S., Cheetham Hill.
Wilkinson, A. B.	Harleigh House, Bodmin.
Bartholomew, W. H.	Etonhurst Prep.S., Weston-s.-Mare.
Coulthard, G. I.	Ghyll Bank College, Whitehaven.
Dallow, C. E.	King Edward's S., Stourbridge.
Dinnis, W.	Forest Hill Middle Class School.
Ford, H.	Hull and East Riding College.
Harrison, J. E.	Elmfield College, York.
King, W. H.	Grammar School, Tadcaster.
Palk, H. W.	Hill House School, Totnes.
Sachs, H.	The Western College, Harrogate.
Scott, W.	Rutland County S., Uppingham.
Slater, W. H.	Paradise House S., Stoke Newingtn.
Westron, H.	Mount Radford School, Exeter.
Whipp, R.	Grammar School, Rochdale.
Williams, H. P.	Commercial School, Astley Bridge.
Berry, F. L.	Oxford House, Brighton.
Combes, J.	Rye College, Peckham Rye.
Fletcher, O.	Yarm Grammar School.
Gray, E.	The Grange School, Halstead.
Hatt, H. E.	Grammar School, Wallingford.
Laurie, J. A.	Whitworth School, Derby.
Lewcock, A.	Hornsey Park College, N.
Maidment, C. H.	Grammar School, Ongar.
Murray, R.	Epsom College.
Nutt, J. A.	Hull and East Riding College.
Pearson, J. H.	Emanuel S., Wandsworth Common.
Scurlock, D.	Parkyvelvet Gram. S., Carmarthen.
Shirley, S. H.	South Hackney High School.
Spark, K. W.	Ebor School, Cambridge.
Williams H. G.	Thanet College, Margate.
Dymond, T. M.	Woodland House, New Southgate.
Fynney, T.	Leek Grammar School.
Jennison, J.	*d.* East Hardwick School.
Murray, M. M.	Newcastle-on-Tyne Mod. School.
Nosworthy, H. J. E.	Hill House School, Totnes.
Sowton, S.	Newton Abbot Boys' School.
Swayne, G.	Horsham College.
Turner, E. W.	Herne Bay College.
Walker, F. W.	Strathmore House, Southport.
Belshaw, P.	Cambridge House S., Wigan.
Conder, G.	Middleton School, Bognor.
Haddon, C. C.	Godwynehurst, Dover.
Hicks, A.	Hertford Grammar School.
Mutton, T.	East Cornwall College, Liskeard.
Purser, S.	Hillside, Addiscombe Rd., Croydon.
Smith, J. F.	Thanet College, Margate.
Treen, E. F.	Beverley House School, Barnes.
Brown, T. A.	Trinity College, Harrogate.
Clarke, J. B.	Grammar School, Altrincham.
Crabtree, E. F.	Private tuition.
Eames, E. J. W.	Middle Class S., Cowper St., E.C.
Highmore, W. R.	Claughton Coll. S., Birkenhead.
Hosgood, N.	Wilson Coll., Stoke Newington.
Imeson, E. E.	The Western College, Harrogate
Ogier, W. De G.	Oxenford House, Jersey.
Purvis, A.	2 Camden Villas, Sevenoaks.
Stone, J.	Caversham House S., Reading.
Taylor, E. G.	Blundell's School, Tiverton.
Walmsley, A. A.	The Grammar School, Eccles.
Bown, W. H.	Frome Grammar School.
Brownsword, P.	Wellington School, Heaton Moor.
Crosbie, H.	Hart House School, Tregoney.
Footner, R. J.	The Hermosa School, Ealing.
Garrett, J. D.	Hornsey Park College, N.
Greenwood, G. A.	University School, Southport.
Inman, H. E.	Gillingham Grammar School.
Lane, E. F.	Portland House S., Leamington.
Morgan, W. E.	Lewisham Park School, S.E.
Pearce, G.	Yarm Grammar School.
Storey, F. A.	St. Martin's School, York.
Watson, P.	Cleveland House School, Salisbury.
Reid, P.	Laurel Bank S., Higher Broughton.
Roberts, L. F. H.	Private tuition.
Stollard, S. W.	Darfield College, East Acton.
Streeter, P.	Malden College, New Malden.
Walters, J.	Catholic Coll. Inst., Manchester,
Wells, F.	Herne Bay College.
Wing, J. C.	Lewisham House, Weston-s.-Mare.
Bailliache, V. J.	Burleigh House S., St. Helier's.
Cribb, S.	The Grange School, Halstead.
Gamblen, E.	Warwick House S., Southsea.
Hall, J. G.	Old Elvet School, Durham.
Hunby, W. J.	Stationers' School, E.C.
McKenzie, A. T.	Private tuition.
Prior, G. P. U.	Warwick House School, Southsea.
Whitfield, C. B.	Newport Grammar School, Salop.
Francis, A. T.	Castle Hill Avenue Ho., Folkestone.
Hunt, L. J.	Gunnersbury College.
Isaac, T. A.	St. Mary's Hall School, Cardiff.
Jenner, P. G.	Grammar School, Altrincham.
Marston, A. T.	Milton College, Ullesthorpe.
Munro, W. C.	Argyle House S., Sunderland.
Nowell, P. J.	Hill House School, Totnes.
Parlett, F.	St. James Collegiate S., Jersey.
Wilson, J. F.	Headingley Hill School, Leeds.
Worth, E. R.	Independent College, Taunton.

SECOND CLASS.—3RD DIVISION.

Burt, A. E.	The Collegiate School, Grimsby.
Bytheway, J. A.	Charles I. Gram. S., Kidderminster.
Hooke, F. J.	Caversham House School, Reading.
Jenkins, T. J. H.	Lewisham House, Weston-s.-Mare.
Jones, H. C.	Castle Hill School, Ealing Dean.
Laidman, H. L.	Private tuition.
Linskill, W. H.	Ellesmere School, Harrogate.
Pigott, G.	Barbourne College, Worcester.
Trevor-Roper, E. M.	Victoria Park School, Manchester.
Wiley, R. S.	Hull and East Riding College.
Aikin, W. O.	Grammar School, Huntingdon.
Angas, C. H.	The Mount Academy, Malton.
Bridges, B.	Apsley House School, Margate.
Bryant, W.	Paradise House, Stoke Newington.
Collins, A. A. S.	Emanuel S., Wandsworth Common.
Collyns, A.	Teignmouth Grammar School.
Franklin, A. C.	High Street Academy, Fareham.
Franklin, G. A.	High Street Academy, Fareham.
Griffiths, W. J.	Private tuition.
Kirk, S.	Grammar School, Drax, Selby.
Millar, A. S.	Skelsmergh House School, Margate.
Nicholson, F.	Manchester Commercial Schools.
Smith, E. C.	Oak House School, Axminster.
Tiplady, G. J.	Anglo-French Coll., Finchley Rd.
Carroll, J. H.	Taunton's Trade S., Southampton.
Hodge, H.	The Western College, Harrogate.
Hodgson, E.	Grammar School, Huntingdon.
Sumerling, B. J.	Leek Grammar School.
Everard, L.	Rhodes House S., Cheetham Hill.
Moore, G. B.	Great Ealing School, Ealing.
Haines, T.	Abbey House School, Tewkesbury.
Hiorns, G. H.	Leamington Collegiate School.
Roberts, F. T.	Private tuition.
Robson, W.	Uxbridge Grammar School.
Saunders, A. K.	Hill House School, Totnes.
Sidebottom, H.	High School, Rose Hill, Bowdon.
Anderson, G. F.	Charles I. Gram. S., Kidderminster.
Conder, H.	Middleton School, Bognor.
Fox, H. B.	Competitive College, Bath.
Hoad, E.	Collegiate School, Hythe.
Horrell, H.	Collegiate School, Woodford.
Kinahan, C.	Claughton Coll. S., Birkenhead.
Mahon, M. H.	Competitive College, Bath.
Muir, L. A.	Laurel Bank S., Higher Broughton.
Munby, A.	Berkeley School, Hull.
Norris, E. M.	Emanuel S., Wandsworth Common.
Squibb, F. M. S.	Handel College, Southampton.
Waterman, G. M.	Upton School, Slough.
Butler, R.	Totnes Grammar School.
Pearson, H. J. M.	Kersal Glen S., Higher Broughton.
Purkis, H. F.	Northgate S., Bury St. Edmunds.
Street, S.	Snettisham Grammar School.
Thonger, W. F.	Parish Church Mid. Cl. S., Leeds.
Thorn, H. G. A.	Thanet College, Margate.
Alexandre, C.	Charing Cross School, St. Helier's.
Dawson, J.	Q. Eliz. Gram. S., Kirkby-Lonsdale.
Griffith, A. W.	Sydenham College.
Hore, A.	St. John's Choir S., St. Leonards.
Phillips, E. M.	1 Arthur Road, Holloway.
Tindall, McI.	Wellingborough Grammar School,

BOYS, SECOND CLASS—*Continued.*

Craft, A. E.	Parkgate Avenue School, Hull.
Hodgkinson, C. H.	Claremont College, Blackpool.
Luff-Smith, E.	Battersea Grammar School.
Marshall, G.	Thanet College, Margate.
Scott, F.	Thanet College, Margate.
Van Somereu, W. W.	Mount Radford School, Exeter.
Brayshay, A. W.	High School, Stockton-on-Tees.
Butler, H.	Skelsmergh House S., Margate.
Colman, E. E.	Private tuition.
Donohoe, F.	Cambridge House School, Wigan.
Forsyth, W. F.	Private tuition.
Hall, H. C.	Balham High School, S.W.
Pears, E. L.	Kent College, Canterbury.
Rainbow, E. H.	Castle Hill School, Ealing Dean.
Roberts, N. O.	Denbigh Grammar School.
Walpole, C. W.	St. Peter's College, St. Leonards.
Williams, C. J.	Sydenham College.
Winter, C. M.	Eton House School, Hull.
Ashurst, A. H. P.	Castle Hill School, Ealing Dean.
Davies, H. L.	Emanuel S., Wandsworth Common.
Eynon, W.	Vermont College, Clapton.
Munro, M.	Argyle House S., Sunderland.
Rhodes, A.	Ousegate School, Selby.
Stanier, W. A.	Swindon High School.
Williams, I. R.	Catford Collegiate S., Lewisham.
Dawson, J. T.	Brighton House Coll. S., Oldham.
Owen, A. V.	Grammar School, Tamworth.
Pethord, F. C. H.	Barbourne College, Worcester.
Pitman, H. G.	Kurnella School, Bournemouth.
Shillitoe, C.	Sydenham College, S.E.
Bonbernard, J. F. L.	St. John's College, Southend.
Bush, F. W.	Thanet College, Margate.
Clark, A. E.	Horsham College.
Emanuel, V.	Warlingham School, Surrey.
James, H. W.	Middle Class School, Cardiff.
McCoy, A. W.	Wellington School, Heaton Moor.
Phillips, H. B.	Haverfordwest Grammar School.
Pollard, H. J.	Hart House School, Tregoney.
Pring, A. L.	Anglo-French Coll., Finchley Rd.
Smith, H.	Eversley, Clifton.
Taylor, E. N.	Parkyvelvet Gram. S., Carmarthen.
Ten-Bruggenkate, S. R.	Clapham Rise Collegiate School.
Walker, S. H.	Strathmore House, Southport.
Watson, A. J.	Whitby Middle Class School.
Haxell, W. L.	Deal College.
Howes, E. J.	Private tuition.
Kennish, F.	Ghyll Bank College, Whitehaven.
Wells, E. J.	The High School, Hastings.
Barker, H. J. M. D. S.	Sydenham College.
Jackson, I. A.	Appleby Grammar S., Atherstone.
Mudd, A. H.	The Collegiate School, Grimsby.
Phillips, E.	Newcastle-on-Tyne Modern School.
Thomas, E.	Norton College, Luton.
Vincent, J. W.	Collett House, Bournemouth.
Youll, H.	Newcastle-on-Tyne Modern School.
Ingram, W. A.	The Grammar School, Newbury.
Lee, B. L.	Great Ealing School, Ealing.
Powell, F. C.	Dane Hill School, Margate.
Saul, W. A. H.	Highfield Coll. School, Rock Ferry.
Bee, W.	Goole Grammar School.
Box, H. M.	St. Austell School.
Browne, A. F.	Wellingborough Grammar School.
Burton, E.	International College, Rochester.
Nelmes, H. E.	Redland Grove, Clifton.
Smith, W. H. S.	Emanuel S., Wandsworth Common.
Eccles, B. T.	Grammar School, Drax, Selby.
Gardner, G. C.	Mount Radford School, Exeter.
Grayson, J.	Ghyll Bank College, Whitehaven.
Hawkins, E.	St. George's College, Wimbledon.
Jones, B. S.	Castle Hill School, Ealing Dean.
Mason, S. A.	Farnham Grammar School.
McIsack, S. G.	Manchester Commercial Schools.
Reddaway, E. J.	Teignmouth Grammar School.
Simmers, R. B.	Aberdeen House, Margate.
Ainscow, J.	Hindley Grammar School.
Briggs, F. C.	Emanuel S., Wandsworth Common.
Elgie, C.	Yarm Grammar School.
Gillies, W. B.	Argyle House School, Sunderland.
Martin, G.	Swansea College.
Paisley, G. F.	The Western College, Harrogate.
Yewdall, A.	High S., Springfield Mount, Leeds.
Cottrill, G. St. J.	Grammar School, Shepton Mallet.
Glover, H.	Pomfret College, Pontefract.
Hume, J. E.	Hoylake School.
Saunders, H. L.	Grammar School, Pontypool.
Sugden, J.	Parkgate Avenue School, Hull.
Tait, D. L.	Emanuel S., Wandsworth Common.
Combs, W.	Hardwick House School, Seaford.
Fowler, F. J.	Pine House School, Wincanton.
Rollason, E. G.	High S., Queen's Coll., Birmingham.
Sellers, C. H.	Emanuel S., Wandsworth Common.
Stothert, B. W.	King Edward VI. School, Retford.
Theakston, J.	Private tuition.
Kempe, E. H.	Edmonstone House, Worthing.
Morris, S. F.	90 Falkner Street, Liverpool.
Richards, D. S.	Tredegar Grammar School.
Scott, R. P.	Claughton Coll. S., Birkenhead.
Dorrien, F. J. C.	Beverley House School, Barnes.
Duncan, F. H.	Anglo-French Coll., Finchley Rd.
East, W.	Private tuition.
Govier, W. G.	Leek Grammar School.
Huntley, G.	Eton House School, Hull.
Porter, W. H.	Anglo-French Coll., Finchley Rd.
Salmon, H. J.	Grammar School, Shepton Mallet.
Shaul, H.	Grammar School, Devizes.
Taylor, W.	Eton House School, Hull.
Vickers, E. F.	Grammar School, Wallingford.
Gray, W.	Goole Grammar School.
Ormiston, W. G.	Swansea College.
Parry, D. R.	Walton School, Llangollen.
Willson, A. H.	Private tuition.
Ridsdale, P. W.	Snettisham Grammar School.
Capeling, P. D.	Kent College, Canterbury.
Cocks, J. W.	Lucton S., Kingsland, Hereford.
Hargraves, B. P.	Trinity College, Harrogate.
Johnson, S.	The College, Churwell, Leeds.
Middleton, J.	Hull and East Riding College.
Churchman, R.	Bethany House S., Goudhurst.
Fisher, C. D.	Upton School, Slough.
Brett, J.	Horsham College.
Cave, W. A.	Reading Collegiate School.
Mason, H. G.	Blenheim House School, Fareham.
Mitchell, R. C.	Anglo-French Coll., Finchley Rd.
Webster, G. A.	The College, Gildersome.
Baskerville, W. S.	Rhodes House S., Cheetham Hill.
Bray'shay, W. H.	Q. Eliz. Gram. S., Kirkby-Lonsdale.
Munford, W. B.	Kent College, Canterbury.
Thomas, F. J.	Hart House School, Tregoney.
Batty, F.	Wareside Endowed Grammar S.
Davies, R. D.	Golspie House School, Warminster.
Holbrook, E. F.	Emanuel S., Wandsworth Common.
Scott, J.	Manchester Commercial Schools.

THIRD CLASS—1ST DIVISION.

Skey, F.	*f.* Apsley House School, Margate.
Elliott, T. G.	Stoke Public School, Devonport.
McGoverne, E. G.	Farnham Grammar School.
Speakman, J.	Up-Holland Grammar School.
Black, O. D.	Anglo-French Coll., Finchley Road.
Wills, G. B.	Catford Collegiate S., Lewisham.
Norris, J. C.	Manchester Commercial Schools.
Whiting, T.	Leylands School, Hornsea.
Robinson, J. H.	Friends' School, Saffron-Walden.
Russell, J. F.	*d.* Parish Church Mid. Cl. S., Leeds.
Bailey, E.	Selhurst Park College, S.E.
Farmar, E.	17 Castle Street, Dover.
Carlyon, A. F.	St. Helen's College, Southsea.
Pope, V. S. E.	Southampton Boys' Coll. & High S.
Nicholson, J.	*ch.* High School for Boys, Bolton.
Harvey, J. O.	Midland Collegiate S., Edgbaston.
Rogers, J. J.	Wellington College, Salop.
Leach, H.	*ch.* Parish Church Mid. Cl. S., Leeds.
Lloyd, F. J.	Collegiate School, Aldershot.
Bull, G. T.	Private tuition.
Clarke, A. S.	West Cliff School, Ramsgate.
Farnfield, A. J.	Castle School, Guildford.
John, H. B.	Haverfordwest Grammar School.
Wornald, G.	Sutton Park School, Surrey.
Drew, T. H.	Bourne College, Quinton.
Simpson, G. R.	Commercial College, York.
Whittaker, E. G.	Scarborough Grammar School.
Ridley, G. P.	Hexham Modern School.
Soutter, A. G.	Vermont College, Clapton.
Hopkins, F. W.	Victoria Coll., Douglas, I. of Man.
Crighton, G. U.	Castle School, Guildford.
Neate, A. N	*d.* Wilsford House School, Devizes.
Cobb, L. M.	New College, Cliftonville, Margate.
Jeans, T. C.	Mercers' School, E.C.
Peebles, J.	Castle School, Guildford.
Pellow, C. T.	Southampton Boys' Coll. & High S.
Bidwell, B. W.	*d.* Clifton House, Scarborough.
Halsey, W.	Stamford Hill Collegiate School, N.
Morrison, H. P.	Charles I. Gram. S., Kidderminster.
Maddison, A. A.	Grammar School, Huntingdon.
Moore, F. A.	Private study.
Shorrock, L.	Royal Masonic Inst., Wood Green.
Buckley, W. M.	Grammar School, Belper.
Hart, G. L.	Belle Vue House, Norwich.
Meachen, G. N.	Stamford Hill Collegiate School.
Pickering, R.	Farnworth Grammar School.
Windeatt, F. H.	Totnes Grammar School.
Dougall, W. S.	Wellington College, Salop.
Hayman, A.	Totnes Grammar School.
Moxon, G. R.	Brudenell, Tunbridge Wells.
Linney, D.	Friends' School, Saffron Walden.
Pethick, E.	Stoke Public School, Devonport.
Bewsey, W.	Castle School, Guildford.
Dodd, A. H.	Middleton School, Bognor.
Marshall, E. G.	The Grammar School, Midhurst.
Parfait, L.	The Grammar School, Romsey.
Tennant, B. R.	Grosvenor College, Ostend.
Alliott, H. W.	Nonconform. Gram. S., Bp. Stortford
Cooper, C.	Bolton High School for Boys.
Spencer, C. E.	Anglo-French Coll., Finchley Road.
Sykes, E. L.	Paradise Ho. S., Stoke Newington.
Lee, H. W.	Castle School, Guildford.
Rose, L.	Grammar School, Belper.
Taylor, A.	The Choir S., Stratford-on-Avon.
Thew, T. W.	Milton College, Ullesthorpe.
Bateman, F. B.	Thanet College, Margate.
Bracey, H. G.	Middleton School, Bognor.
Cogswell, H.	Castle School, Guildford.
Hunton, E. B.	High School, Stockton-on-Tees.
Maides, M.	The Grammar School, Midhurst.
Vicker, P. E.	Pine House School, Wincanton.
Durance, E. J.	Bourne College, Quinton.
Eycars, A. E.	Byron House School, Ealing, W.
Hatch, S. W.	Avenue House School, Sevenoaks.
Patrick, E.	*d.* Malden College, New Malden.
Rothery, J. W.	Ghyll Bank College, Whitehaven.
Holden, S.	Castle School, Guildford.
Smith, A. W.	*d.* Charles I. Gram. S., Kidderminster.
Wenban, B. D.	Southdown College, Eastbourne.
Bernstein, M.	Jews' College, Tavistock Sq., W.C.
Brand, E. C.	St. John's College, Southend.
Leather, W.	Parish Church Mid. Cl. S., Leeds.
Saunders, J. P.	Cowper's House S., Huntingdon.
Tallboy, F. J.	The Grammar School, Midhurst.
Gregory, T.	The Grammar School, Southport.
Hayes, B	Tattenhall Schools, Chester.
Maclean, P.	Mount Radford School, Exeter.
Taylor, H.	The Bolton Grammar School.
Dell, F.	Friends' School, Saffron Walden.
Harland, E. S.	Scarborough Grammar School.
Morgan, H. M.	Milton College, Ullesthorpe.
Kay, R. C.	Farnworth Grammar School.
King, H. G.	West Cliff School, Ramsgate.
Mills, G.	The Choir S., Stratford-on-Avon.
Burns, H.	Ghyll Bank College, Whitehaven.
Cristin, J.	Beaumont House School, Jersey.
Starkey, H. W.	*d.* Nonconform. Gr. S., Bp. Stortford.
Wood, H.	Dudley Middle Class School.
Clarke, G. W.	Uplands, Scarborough.
Nunneley, E. E.	Milton College, Ullesthorpe.
Shannon, W. B.	Private tuition.
Syrett, C. G.	South Hackney College, N.E.
Watson, W. B.	High School, Stockton-on-Tees.
Bland, J. L.	Charles I. Gram. S., Kidderminster.
Doncaster, A. F.	Kendrick Middle School, Reading.
Ford, W. J.	Portland Grammar S., Plymouth.
Guerin, J.	Private tuition.
Hornby, H. L.	Clifton House, Scarborough.
Jones, E.	Grosvenor Ho. S., Overton, Ches.
Rangeley, H.	Chesterfield Grammar School.
Pescod, H.	The Grammar School, Midhurst.
Stedman, S. E.	Kendrick Middle School, Reading.
Clayton, E.	Grammar School, Tadcaster.
Coldicutt, F. C.	Bourne College, Quinton.
Home, P.	Dane Hill School, Margate.
Lloyd, A.	Wellington College, Salop.
Parish, P. W.	Bible Christian College, Shebbear.
Fortt, F. H.	Middle Class S., Weston-s.-Mare.
James, G. W.	Brighton House School, Clifton.
Smout, W. H.	Dudley Middle Class School.
Vincent, W. K. E.	Private tuition.
Hunter, A. H.	Snettisham Grammar School.
Inmons, W. J.	Apsley House School, Margate.
Johnson, H. E. A.	Malmesbury Ho. S., E. Dulwich.
Jones, A. H.	Kingsland School, Shrewsbury.
Johnson, W. G.	Polytechnic Intermediate S., W.
Lynn, W. E.	Kent College, Canterbury.
Newton, C. A.	Grammar School, Huntingdon.
Swann, E. C.	Scarborough Grammar School.
Vigor, J. A.	Polytechnic Intermediate S., W.
Walker, G. W.	Headingley Hill School, Leeds.
Wolter, P. E.	Hillmartin College, Camden Town.
Boyce, A.	Exmouth College.
Browne, W. V.	Warbreck College, Aintree.
Davie, H. W.	Private tuition.
Illingworth, W. A.	Trafalgar Square S., Scarborough.
Muriel, L. H.	Snettisham Grammar School.
Thorp, S. J.	Farnham Grammar School.
Youngman, A. G.	The Lowestoft High School.
Aylott, R. G.	High Cross Coll. S., Tottenham.
Blanchard, H.	Northampton House S., Salisbury.
Clapperton, T. J. M.	Pretoria House S., Folkestone.
Drayson, A. P.	Glenwood Ho. S., Winchmore Hill.
Hardy, E. C.	Polytechnic Intermediate S., W.
Heron, R. G.	Eastbourne Old School.
Holden, C. A.	Dane Hill School, Margate.
Hudson, G. A.	The College, Gildersome.
Knowles, W. T.	Private tuition.
Land, W.	Grammar School, Altrincham.
Rollinson, J. S.	*d.* Chesterfield Grammar School.
Samson, H. B.	*d.* Deal College.
Tomkins, C. A.	Holmwood, Bexhill.
de Villiers, J. H.	Christ's College, Finchley.
Watson, O. M.	Endowed Middle School, Ipswich.
Bone, E. S.	Castle School, Guildford.
Clark, F. G.	King Edward VI. School, Retford.
Curwood, B. D.	The Grammar School, Newbury.
Garlick, J. A.	62 Monkgate, York.
Greenhalgh, J. K.	The Bolton Grammar School.
Jolly, T. L.	Belle Vue House, Norwich.
Peel, A. J.	Victoria Park School, Manchester.
Riches, T. H.	Leek Grammar School.
Sanderson, W. E.	Hull and East Riding College.
Stokes, T. E.	Middle Class S., Weston-s.-Mare.
Turner, D. G.	Sidney Sussex House, Hastings.
Twentyman, J.	Grammar School, South Shields.
Abson, F.	York Street Academy, Wakefield.
Bush, J. A.	Wellesley College, Nottingham.
Gibb, D. C.	Private tuition.
Hickes, H. W.	St. John's College, Truro.
Ife, W. A.	Emanuel S., Wandsworth College.
Inman, P. E.	Askern College, Doncaster.
Johnson, R. K.	Battersea Grammar School.
Lambert, H. L.	Snettisham Grammar School.
Letcher, J. T.	Thornton House School, Redruth.
Robinson, C. W.	*d.* Chesterfield Grammar School.
Starkey, G.	South Hackney College, N.E.
Topping, W.	Cambridge House School, Wigan.
Vaughan, D. M. S.	Higher Grade School, Dowlais.
Wallis, W. E. J.	Farnham Grammar School.
Wilson, T. H.	Holloway College, N.
Woods, A. L.	Glencoe, Anglesea, Gosport.
Beck, S.	Charles I. Gram. S., Kidderminster.
Blake, C. W.	Crewkerne School.
Bowen, B. H.	Park Hurst School, Buxton.
Burtenshaw, J. M.	Sea House School, Eastbourne.
Danks, W. S.	Vermont College, Clapton.
Gill, E. L.	The Grammar School, Eccles.
Hardiman, H. T. C.	Charles I. Gram. S., Kidderminster.
Harrison, T. B.	Argyle House School, Sunderland.
Job, W. J.	Bible Christian College, Shebbear.
Kent, F. B. B.	Royal Masonic Inst., Wood Green.
Lloyd, A. E.	Rhodes House S., Cheetham Hill.
Tremeer, L. F.	Middle Class School, Barnstaple.
Bradshaw, P. E.	Aberdeen House, Ramsgate.

BOYS, THIRD CLASS—*Continued.*

Bullar, F. P.	2 Moorfields, Hereford.
Cawood, A.	*d.* Chesterfield Grammar School.
Crabtree, C. V.	Charles I. Gram. S., Kidderminster.
Dahl, W.	Durban House, Lee, S.E.
Maccall, W. T.	Kersal Glen S., Higher Broughton.
Mears, J.	Lord William's Grammar S., Thame.
Palmer, R.	Thanet College, Margate.
Parker, F. W.	Chesterfield Grammar School.
Ruddle, T. A.	Bible Christian College, Shebbear.
Savage, A. L.	St. George's College, Wimbledon.
Skinner, A. W.	King's College, Twickenham.
Wood, W.	Fairfield House College, Exeter.
Briggs, A.	Wilsford House School, Devizes.
Catchpole, W.	Endowed Middle School, Ipswich.
Dashper, F. C.	Private tuition.
Forster, J. M.	Old Elvet School, Durham.
Jordan, H. W. F.	Grammar School, Ongar.
Pain, C. V.	Avenue House School, Sevenoaks.
Pitt, A.	Horsham College.
Pix, C.	Norton College, Luton.
Porter, A. J.	St. John's College, Truro.
Stokoe, W. S.	High School, Rose Hill, Bowdon.
Toome, P.	Milton College, Ullesthorpe.
Whitfield, J.	Scarborough Grammar School.
Brittain, C. E.	St. Martin's Gram. S., Scarborough.
Brooke, T. R.	Charles I. Gram. S., Kidderminster.
Brown, E. V.	Wellesley College, Nottingham.
Carter, H. D.	College House School, Eastbourne.
Goddard, G.	Carter House School, Deal.
Hamlin, E. J.	Collegiate School, Bridgwater.
Hemingway, R. D'O.	Bewdley Grammar School.
Murray, J.	Ghyll Bank College, Whitehaven.
Payze, H.	St. John's College, Southend.
Reid, H. A. P.	Hornsey Park College, N.
Stuttard, T. H.	Grammar School, Burnley.
Wood, E. J.	The Western College, Harrogate.
Andrew, W. H.	Bickerton House School, Birkdale.
Balshaw, E. M.	Bolton High School for Boys.
Campbell, W. G.	Trinity College, Harrogate.
Cordingley, C.	Catholic Coll. Inst., Manchester.
Day, E. W.	Kendrick Middle School, Reading.
Dupont, A. H.	Taunton House School, Brighton.
Griffiths, D. T.	Swansea College.
Houghton, W. H.	*d.* Wellesley College, Nottingham.
Rose, W.	Grammar School, Belper.
Sands, P. B.	Emanuel S., Wandsworth Common.
Taylor, T. C.	Endowed Middle School, Ipswich.
Atkins, F. J.	Endowed Middle School, Ipswich.
Bevan, G. E.	Grove Park School, Wrexham.
Dwerryhouse, W.	Farnworth Grammar School.
Ford, J. E.	Northampton House S., Salisbury.
Fawdry, F. W.	Barbourne College, Worcester.
Gwinn, E.	Castle School, Guildford.
Hill, J. P.	Undercliff Collegiate S., Ventnor.
Old, H. A.	East Cornwall College, Liskeard.
Penman, J. O.	Grammar School, South Shields.
Phillips, S. F.	Bible Christian College, Shebbear.
Pidduck, E.	*d.* Claremont College, Blackpool.
Purnell, R.	Fortescue College, Radstock.
Robey, L. T.	St. John's College, Southend.
Rowe, W. F.	Truro College.
Tattersall, W. C.	Emanuel S., Wandsworth Common.
Wilcox, E. H.	Kent College, Canterbury.
Beverley, G. W. B.	Lucton S., Kingsland, Hereford.
Biondi, M. C. P.	Pine House School, Wincanton.
Capsey, B. H.	Wellington College, Salop.
Clarke, E. A.	Deal College.
Dash, R. J.	Kent County School, Birchington.
Dobson, W. A.	Mount Radford School, Exeter.
Duncan, R.	Parish Church Mid. Cl. S., Leeds.
Dunderdale, J. E.	Hindley Grammar School.
Guest, S. S.	Grove Park School, Wrexham.
Hayes, J. W.	Thanet College, Margate.
Handley, J.	Cathedral Choir School, Ripon.
Pfleiderer, O. G. O.	Immanuel Coll., Streatham Com.
Platt, G.	Grammar School, Belper.
Richardson, J. T.	Farnworth Grammar School.
Stedman, E.	Castle School, Guildford.
Thorp, J.	Camden Schools, Hull.
Appleby, E. B.	Argyle House School, Sunderland.
Brashier, C. J.	Licensed Victuallers' School, S.E.
Buckley, H. P.	Grammar School, Belper.
Outram, E. J.	Grammar School, Ongar.
Phillips, T. O.	Haverfordwest Grammar School.
Pilgrim, H. G.	Ousegate School, Selby.
Ransom, H.	Barbourne College, Worcester.
Richardson, H. L.	St. George's College, Wimbledon.
Slatter, J. T.	Chandos Gram. S., Winchcombe.
Vincent, E. A.	Undercliff Collegiate S., Ventnor.
Vine, G. H.	Mount Radford School Exeter.
Auty, G.	The Grammar School, Mirfield.
Dignasse, H. C.	Thanet College, Margate.
Fortt, A. B.	Middle Class S., Weston-s.-Mare.
Fortune, R. A.	Royal Masonic Inst., Wood Green.
Griffiths, W. M.	Grove Park School, Wrexham.
Groom, W.	Grove Park School, Wrexham.
Jellicoe, V. G.	Stamford Hill Collegiate School.
Keenan, G. B.	Vickery's, Southsea.
Matthews, H. E.	Portway High School, Bath.
Ryan, T. F.	Undercliff Collegiate S., Ventnor.
Stokoe, T. J.	2 Moorfields, Hereford.
Spalding, W. B.	Grosvenor College, Ostend.
Weir, L.	The Grange School, Halstead.
Wyrill, T. E.	Scarborough Grammar School.
Balls, C.	Hastings Grammar School.
Blagburn, J. W.	Hull and East Riding College.
Brown, B. M.	Grammar School, Belper.
Britton, E.	Upland College, Newington Green.
Caldwell, F. W.	Barbourne College, Worcester.
Davies, R. W.	Huntingdon House S., Teddington.
Deayton, H. J.	Huntingdon House S., Teddington.
Feak, L. S.	Catford Collegiate S., Lewisham.
Fearnside, W. S.	Castle School, Guildford.
Fox, E. B.	The Choir S., Stratford-on-Avon.
Irving, R.	Ghyll Bank College, Whitehaven.
Jephson, P.	Chesterfield Grammar School.
Kinsey, W. G.	Collett House, Bournemouth.
Langton, A. H.	Osborne House, Margate.
Luce, P. M.	Oxenford House, Jersey.
Turner, J.	Clifton House, Scarborough.
Walker, C. S.	Anglo-French Coll., Finchley Rd.
Weatherhead, M.	Snettisham Grammar School.
Barlow, G. H. P.	Raymond Ho., Bramley, Guildford.
Brayshaw, E.	Chesterfield Grammar School.
Evans, G.	St. George's College, Wimbledon.
Flitcroft, T. E.	Hindley Grammar School.
Gurney, A. J. H.	Upton School, Slough.
Houston, W. J.	Undercliff Collegiate S., Ventnor.
Hudson, S. R.	Catford Collegiate S., Lewisham.
Lainé, C. J.	Queen's School, Streatham.
Macdonald, W. K. H.	Henley Ho. S., St. John's Wood.
Morgan, J. W.	Lewisham Park School, S.E.
Lewis, C. R.	Farnworth Grammar School.
Owen, T. H.	Wellington College, Salop.
Pickett, P. H. S.	St. James' Collegiate S., Jersey.
Spike, F.	Glenwood Ho. S., Winchmore Hill.
Aiston, J. A.	Newcastle-on-Tyne Modern School
Attwood, F. G.	Kendrick Middle School, Reading.
Beare, E. E.	Beaumont House, Thornton Heath.
Campbell, R. W.	Strathmore House, Southport.
Carey J. G.	Brunswick House School, Windsor.
Dutton, H.	Farnworth Grammar School.
Exell, W.	Private study.
Goodenough, J. M.	Cowper's House S., Huntingdon.
Hinton, A. E.	South Hackney College, N.E.
Howard, H. J.	Thanet College, Margate.
Kennard, R.	Brunswick House, Maidstone.
Huxley, T. G.	Holt Academy.
Jeffrey, R. G.	Grammar School, Folkestone.
Jenkins, E.	Kurnella School, Bournemouth.
Langford, N. J.	Wellington College, Salop.
Newmarch, E. W.	Charles I. Gram. S., Kidderminster.
Robertshaw, A.	University School. Southport.
Sanchez, J.	Catholic Coll. Inst., Manchester.
Shimwell, T.	Albert Park School, Didsbury.
Simner, P. R. O. A.	Woodside House School, Sutton.
Swift, S.	The Western College, Harrogate.
Tadman, W. A.	Eton House School, Hull.
Taylor, F. J.	Collegiate School, Aldershot.
Weekes, R. C.	Avenue House School, Sevenoaks.
Banbury, R.	Bible Christian College, Shebbear.
Booth, H.	Anglo-French Coll., Finchley Rd.
Buxton, W.	Wirksworth Grammar School.
Collins, W. E.	Avenue House School, Sevenoaks.
Colls, S. R.	The Grammar School, Romsey.
Cresser, A. B.	Collegiate School, Bridgwater.
Doughty, W. H. J.	St. Andrew's School, Wells St., W.
Hardiman, G. R. A.	Charles I. Gram. S., Kidderminster.
Harris, H. W.	Oxenford House, Jersey.
Hollingsworth, A. E.	Emanuel S., Wandsworth Comm.
Kidger, F. J.	Ashley House School, Worksop.
Marsh, W. H.	Hindley Grammar School.
Parker, R. S.	Thanet College, Margate.
Rallinshaw, M.	Q. Eliz. Gram. S., Kirkby Lousdale.
Read, W. R.	Avenue House School, Sevenoaks.
Rush, H. J.	Grove House S., Tunbridge Wells.
Whitaker, F. E.	St. John's College, Truro.
Willis, A. H.	Trinity College, Harrogate.
Atkinson, J. M.	56 Prospect Road, Scarborough.
Bailey, D. G.	Charles I. Gram. S., Kidderminster.
Baker, G. J.	Castle School, Guildford.
Borrow, F. K.	Osborne House, Margate.
Braddock, J. E.	Hindley Grammar School.
Bradshaw, W. H.	Farnworth Grammar School.
Chorley, F. L.	Belmont House, Lee.
Edwards, E. B.	Chorlton High School, Manchester.
Fish, C. E.	The Grammar School, Midhurst.
Francis, F. W.	St. John's College, Southend.
Froud, W. J.	Brunswick House, Maidstone.
Goodland, J. E.	Private tuition.
Gould, W.	Kendrick Middle School, Reading.
Hyde, W. C.	Herne Bay College.
Lea, W.	Leek Grammar School.
Little, J. E.	West Cliff School, Ramsgate.
Lucey, F. E.	Royal Grammar S., Henley-on-T.
Matthews, P. H.	Royal Masonic Inst., Wood Green.
Merry, R. G.	Forest Hill Middle Class School.
Phillips, G. C.	The Choir S., Stratford-on-Avon.
Rudd, W. A.	Hull and East Riding College.
Russ, C.	Bible Christian College, Shebbear.
Smyrk, J. S. G.	Horsham College.
Whittaker, W.	Castle School, Guildford.
Williamson, F. T.	Grammar School, Ongar.
Wimbury, C. W.	Charles I. Gram. S., Kidderminster.
Wright, G.	Grammar School, South Shields.
Atkins, P. G.	Blenheim House School, Farcham.
Bettger, H. A.	Deal College.
Bowden, T.	Hart House School, Tregoney.
Carder, T. H.	Hoe Grammar School, Plymouth.
Carter, J.	Exmouth College.
Cowling, E.	Grammar School, Wallingford.
Crump, A. R.	Pine House School, Wincanton.
Edwards, W. E.	Avenue House School, Sevenoaks.
Edy, C. W.	Anglo-French College, Finchley Rd.
Galt, D. G. W.	Hull and East Riding College.
Gillett, H. P. F.	Grammar School, Folkestone.
Graham, D.	Royal Gram. S., Newcastle-on-Tyne.
Hawkins, H. M.	Queen's School, Streatham.
Hull, H.	The Grange School, Halstead.
Lewis, T. F.	Farnworth Grammar School.
Loader, T. H.	Dane Hill School, Margate.
Lovegrove, C. A.	Wilsford House School, Devizes.
Mercer, C. E.	Farnworth Grammar School.
North, F. J.	King Edward VI. School, Retford.
Parker, H.	The Western College, Harrogate.
Rawstorn, G. W.	Leylands School, Hornsea.
Seldon, E. E.	Private tuition.
Shardlow, W. H.	Chesterfield Grammar School.
Shaw, A. R.	Wellington College, Salop.
Smyth, E. H.	Hayle Grammar School.
Spooner-Hart, R.	Private tuition.
Stokes, W. B.	S. Aubyn's, Woodford Wells.
Whitehouse, A. B.	Charles I. Gram. S., Kidderminster
Budd, F. S.	Grammar School, Shepton Mallet.
Burdon, T. P.	Northgate S., Bury St. Edmunds.
Coates, H.	Marlborough Coll. S., Tuebrook.
Cunliffe, W. S.	Victoria Park School, Manchester
Denne, E.	Carter House School, Deal.
Fawkes, F. W.	Barbourne College, Worcester.
Hale, A. T. C.	The Choir S., Stratford-on-Avon.
Hannington, J. E. M.	Taunton House School, Brighton.
Harrison, W.	Grammar School, Burnley.
Jamieson, G. A.	Private tuition.
Jones, H. G.	Taunton's Trade S., Southampton
Lambert, A. W.	Newcastle-on-Tyne Modern School.
Larkum, W.	Belle Vue House, Norwich.
Lewis, W. H.	Ilfraeombe Grammar School.
Matterson, G. A.	Bilton Grange School, Harrogate.
Miller, G. W.	King Edward VI. School, Retford.
Myers, T. P.	The College, Harrogate.
Phillips, A. M.	Avenue House School, Sevenoaks.
Plews, A. C.	Maida Vale School, W.
Radbone, W. P.	Middle Class S., Weston-s.-Mare.
Rose, W.	E. Anglian S., Bury St. Edmunds.
Smith, T. J.	Milton College, Ullesthorpe.
Straker, L. V.	College House School, Eastbourne.
Timms, A. B.	College House School, Eastbourne.
Veale, C. J.	Hill House School, Totnes.
Whitaker, H. W.	Wellingborough Grammar School.
White, E. J.	Gillingham Grammar School.
Williamson, D.	Victoria Coll., Douglas, I. of Man.
Wiseman, F. B.	St. John's College, Southend.
Barker, J. D.	Warbreck College, Aintree.
Bond, F.	Licensed Victuallers' School, S.E.
Bradshaw, A.	Lyttelton Grammar S., Malvern.
Burcher, H. B.	Barbourne College, Worcester.
Duncan, E. H.	Snettisham Grammar School.
Harnett, J.	Lindenthorpe, Broadstairs.
Hogge, J. D.	Bickerton House School, Birkdale.
Johnson, F. W.	King Edward VI. School, Retford.
Le Huquet, T. J.	St. Martin's Commercial S., Jersey.
MacFadzen, T. H.	Etonhurst Prep. S., Weston-s.-Mare.
Micklethwait, J.	Grammar School, Belper.
Moser, J. N.	Skelsmergh House S., Margate.
Parsons, R.	Corsham School.
Porter, I. B.	Ghyll Bank College, Whitehaven.
Roberts, B. F.	The College, Harrogate.
Russell, F.	Warwick House, Southsea.
Sturley, W. R.	Walton Institute, Liverpool.
Taylor, G. E.	Holmwood, Bexhill.
Taylor, T. E.	The Choir S., Stratford-on-Avon.
Thomas, W. A.	Thornton House S., Redruth.
Turner, F. W.	Bible Christian Coll., Shebbear.
Williams, G. C.	Athenæum School, Llanelly.
Ashton, W. H.	Cowper's House S., Huntingdon.
Barker, J. H.	Parish Church Mid. Cl. S., Leeds.
Bass, H. E.	Byron House School, Ealing, W.
Brown, A.	St. Mary's Hall School, Cardiff.
Burnell, H. A.	Walton Institute, Liverpool.
Caink, A. H. E.	Sydenham College, S.E.
Coley, W. E.	Lewisham House S., Weston-s.-M.
Corbett, B. O.	Lord Williams' Grammar S., Thame.
Eycars, J. A. C.	Byron House School, Ealing, W.
Fletcher, M. R.	Grosmont, Dyke Road, Brighton.
Follows, B. M.	King Edward VI. School, Retford.
Ganderton, A. A.	Leylands School, Hornsea.
Gelder, F.	Doncaster Grammar School.
Hewer, E. S. E.	Paradise Ho., S., Stoke Newington.
Hooke, W. M.	Wirksworth Grammar School.
Jeeves, A. G.	Mead House School, Biggleswade.
Kenyon, W.	University School, Southport.
Kinchin, C. W.	Middle Class S., Weston-s.-Mare.
Noble, H. J.	Battersea Grammar School.
Pinniger, A. E.	Cleveland House S., Salisbury.
Pratt, R. J.	Ascham College, Clacton-on-Sea.
Taylor, G. W.	Brighton House School, Clifton.
Tebbutt, T. P.	Milton College, Ullesthorpe.
Barnfather, A. H.	Berkeley School, Hull.
Berg, E.	Anglo-French College, Finchley Rd.
Bowman, S. A.	Hexham Modern School.
Brocklesby, A. E.	The Collegiate School, Grimsby.
Brown, W. H.	College House S., West Croydon.
Coombs, W. R.	Chorlton High S., Manchester.
Dew, A. O.	Middle Class S., Weston-s.-Mare.
Evans, R. C.	Thornton House School, Redruth.
Hardy, H. G.	Kurnella School, Bournemouth.
Holroyd, C. E.	Headingley Hill School, Leeds.
Hornby, F. W.	Norton College, Luton.
Hunt, R.	Gillingham Grammar School.
Hutton, H. W.	Mead House School, Biggleswade.
Kinsman, A.	Hoe Grammar School, Plymouth.
Large, A. H.	Sunny Hill School, Streatham.
Latchmore, E. S.	Headingly Hill School, Leeds.
Laver, R.	Middle Class S., Weston-s.-Mare.
Manning, C. N.	Lord Williams' Grammar S., Thame.
Marsh, H. R.	Clifton Park School, Birkenhead.
Mosse, R. L.	Thanet College, Margate.
Newsholme, D. H.	Claremont College, Blackpool.
Reynolds, A.	Bewdley Grammar School.
Sankey, F. E.	Holmwood, Bexhill.
Smith, V.	The Choir S., Stratford-on-Avon.
Staines, J. F. A.	Private tuition.

BOYS, THIRD CLASS—*Continued.*

Steed, F. G.	Grammar School, Sudbury, Suffolk.
Sykes, A.	East Hardwick School.
Ash, A.	Bible Christian College, Shebbear.
Brooke, M.	Darfield College, East Acton.
Corkill, F. J.	Rhodes House S., Cheetham Hill.
Court, L.	The College, Gildersome.
Evans, C. R.	The School, Eaton Socon.
Daggers, C. D.	Barbourne College, Worcester.
Glascock, L. C. B.	Aberdeen House, Ramsgate.
Goodall, J.	Parish Church Mid. Cl. S., Leeds.
Hilton, R. L.	Wellington College, Salop.
Hopkins, S. C.	Snettisham Grammar School.
Kneebone, T. T.	St. Austell School.
Knowles, V. D.	Emanuel S., Wandsworth Common.
Kraus, A. E.	Albert Park School, Didsbury.
Morrison, A. S.	Middle Class S., Weston-s.-Mare.
Raby, R. C.	Chorlton High School, Manchester.
Ralph, W. W.	Ferrers Coll., New Wandsworth.
Roose, L. R.	Holt Academy.
Short, E. W.	Forest Hill Middle Class School.
Southgate, J. W.	Snettisham Grammar School.
Stone, R. O.	Lindenthorpe, Broadstairs.
Walker, H.	Wirksworth Grammar School.
Warren, H. G.	Competitive College, Bath.
Wreford, P. H.	Exmouth College.
Adams, C. E.	Rye College, Peckham Rye.
Alexander, A. G.	Corsham School.
Blyth, J. S.	Ascham College, Clacton-on-Sea.
Blomfield, S.	Avenue House School, Sevenoaks.
Bowmer, I.	Grammar School, Belper.
Butler, J.	Wilsford House School, Devizes.
Crofts, J. H.	Victoria Coll., Douglas, I. of Man.
Cunningham, E.	Taunton's Trade S., Southampton.
Dippie, C. R.	Scarborough Grammar School.
Dippie, J. S.	Scarborough Grammar School.
Garner, J. S.	Christ's College, Finchley.
Gifford, J. E.	Bible Christian College, Shebbear.
Hall, W.	Rosemont House, Newport, Salop.
Holland, W.	Barbourne College, Worcester.
Home, S. H. G.	Dane Hill School, Margate.
Hurden, A.	St. John's College, Truro.
Jefferiss, R. F.	International College, Rochester.
John, E.	Hayle Grammar School.
Lawrenson, W. N.	Yarm Grammar School.
Le Bas, H. M.	Beaumont House School, Jersey.
Liversidge, E.	King Edward VI. School, Retford.
Love, F. E.	Middle Class S., Weston-s.-Mare.
Maude, J. R.	Halifax New School.
Möller, H. L.	Argyle House School, Sunderland.
Pearson, J. W.	2 Moorfields, Hereford.
Perry, T.	Emanuel S., Wandsworth Common.
Rickard, G. L.	Hart House School, Tregoney.
Roberts, J. K.	27 Water Street, Rhyl.
Stratford, H. W.	Snettisham Grammar School.
Thackray, C.	The Grammar School, Eccles.
Wilshere, W. M.	Byron House School, Ealing, W.
Young, W.	Sea House School, Eastbourne.
Armitage, E. S.	West Cliff School, Ramsgate.
Browning, W.	Taunton's Trade S., Southampton.
Bugg, P. E.	Guildhall Middle S., Bury St. Eds.
Burnley, A. F.	Ilkley College.
Candy, W.	d. Malden College, New Malden.
Charter, H. J.	Belle Vue House, Norwich.
Crosland, W. P.	The Western College, Harrogate.
Day, T. H.	Brunswick House, Maidstone.
Dobell, G. B.	St. John's College, Truro.
Donnelly, W. T.	Farnham Grammar School.
Dundas, C. R.	The College, Addlestone.
Ferrar, A.	Licensed Victuallers' School, S.E.
Fletcher, A.	Grosmont, Dyke Road, Brighton.
Harding, T. W.	Grammar School, Ongar.
Hinton, F. H.	Claremont High S., Shrewsbury.
Hollis, J. W.	Emanuel S., Wandsworth Common.
Holmes, J. H.	Tattenhall Schools, Chester.
Long, H. W.	Wilsford House School, Devizes.
McGuffie, P. D.	Walton Institute, Liverpool.
March, R. J.	Bible Christian College, Shebbear.
Menzies, J. M.	Hart House School, Tregoney.
Noble, A. C.	Hull and East Riding College.
Peach, J.	Leck Grammar School.
Richards, A. W.	Belmont House, Lec.
Robinson, F. R.	East Anglian S., Bury St. Edmunds.
Rudkin, H. R. E.	Teignmouth Grammar School.
Smith, W. C.	St. Austell School.
Solly, E.	Carter House School, Deal.
Wigley, W. H. G.	Kendrick Middle School, Reading.
Wordsworth, H. T.	Wellesley College, Nottingham.
Anderson, J. W.	Strathmore House, Southport.
Baker, S. H.	Gillingham Grammar School.
Bles, G.	Norman Road School, Rusholme.
Chamberlain, E. G.	Vickery's, Southsea.
Clay, W.	Wellesley College, Nottingham.
Cruse, P.	Vickery's, Southsea.
Forster, S. J.	Epworth College, Rhyl.
Gates, T. A.	Grammar School, Middlesborough.
Gook, J. E.	Cowper's House S., Huntingdon.
Grace, F. R.	N. Camberwell High School.
Hanger, R. H.	Forest Hill Middle Class School.
Harris, F. C.	Lord Williams' Gram. S., Thame.
King, E. L.	Wellingborough Grammar School.
Knight, A.	The Grammar School, Midhurst.
Lucas, G. E.	Bourne College, Quinton.
Mitchell, S. J.	Great Ealing School, Ealing.
Passmore, J.	St. George's College, Wimbledon.
Peachy, T. W.	Ascham College, Clacton-on-Sea.
Pittock, E. W.	Kent College, Canterbury.
Preston, P. S.	Devonshire Place School, Bath.
Rush, F. O.	Grove House S., Tunbridge Wells.
Sibley, C.	The School, Eaton Socon.
Smith, A. P.	Avenue House School, Sevenoaks.
Stoton, E. H.	83 Montpellier Road, Brighton.
Strickland, G. F.	East Hardwick School.
Sutcliffe, W.	Brighton House Coll. S., Oldham.
Tanner, G.	Middle Class S., Weston-s.-Mare.
Taylor, R. S.	Egerton Park School, Bexhill.
Wood, W.	The Western College, Harrogate.
Bedford, F. B.	East Hardwick School.
Burrows, F. H.	The High School, Hastings.
Ferguson, H. S.	The Bolton Grammar School.
Flooks, F. A.	Wilsford House School, Devizes.
Franck, H. E.	Sea House School, Eastbourne.
Frankenstein, H.	Jews' College, Tavistock Sq., W.C.
Good, E. B.	Oxford House, Brighton.
Harvey, A. G.	Wirksworth Grammar School.
Hayes, J.	The Grammar School, Eccles.
Hoy, W. B.	Commercial School, Wymondham.
Julyan, T.	Hart House School, Tregoney.
Kelland, G. T.	Exmouth College.
Le Masurier, E.	Beaumont House School, Jersey.
Marsh, H. W.	Deal College.
Massey, A. F.	The Western College, Harrogate.
Morres, L. F.	Royal Gram. S., Henley-on-Thames.
Noke, F.	Barbourne College, Worcester.
Nunn, A. S.	Guildhall Middle S., Bury St. Eds.
Potter, M. H.	York Street Academy, Wakefield.
Rathborn, T. E.	Horsham College.
Riding, C. E.	Claremont College, Blackpool.
Scott, C. J. K. O.	The Grammar School, Romsey.
Stratford, A. D.	Snettisham Grammar School.
Thorp, W. O.	Headingley Hill School, Leeds.
Tucker, W. S.	Charles I. Gr. S., Kidderminster.
Valentine, J. H.	Farnworth Grammar School.
Waddington, R.	The Academy, Crewe.
Waithman, W. E.	The Choir S., Stratford-on-Avon.
Waldmeier, F.	Ilkley College.
Ware, C. H.	Herne Bay College.
Whitehouse, H. H.	Charles I. Gr. S., Kidderminster.
Ashcroft, J. S.	Charles I. Gr. S., Kidderminster.
Bailey, W. J.	Exmouth College.
Bigg, W. H.	Wellingborough Grammar School.
Broad, E. L.	Bible Christian College, Shebbear.
Bubb, G.	Catholic Coll. Inst., Manchester.
Bunney, T. B.	Royal Masonic Inst., Wood Green.
Campey, H. H.	The Collegiate School, Grimsby.
Camps, P. W. L.	E. Anglian S., Bury St. Edmunds.
Carter, A. J.	The School, Eaton Socon.
Clarke, A. J.	East Cornwall College, Liskeard.
Davies, W. S.	Mount Radford School, Exeter.
Dowse, F. J.	Wilsford House School, Devizes.
Fox, J. P.	West Cliff Prep. S., Bournemouth.
Gillham, F. K.	Mead House School, Biggleswade.
Greening, A. H.	Woodland House, New Southgate.
Handley, R. W.	Claremont College, Blackpool.
Harris, H. H.	Great Ealing School, Ealing.
Hartley, H. M.	Hull and East Riding College.
Hawthorn, H. W. J.	Wellington College, Salop.
Hollings, L. S.	Ilkley College.
Johnson, S.	Ascham College, Clacton-on-Sea.
Isaac, F. L.	83 Montpellier Road, Brighton.
Kingerlee, C.	Middle Class S., Weston-s.-Mare.
Knight, S. H.	Horsham College.
McIntyre, H. W.	Herne Bay College.
Mitchell, J.	Licensed Victuallers' School, S.E.
Partington, T.	The Grammar School, Eccles.
Phillips, H.	The Choir S., Stratford-on-Avon.
Pinniger, F. W.	Middle Class S., Weston-s.-Mare.
Pochin, J. H.	The College, Gildersome.
Roberts, R. M.	Farnworth Grammar School.
Rudge, W. M.	Upland College, Newington Green.
Russell, H. W.	High S., Springfield Mount, Leeds.
Smyth, R. H.	Victoria Coll., Douglas, I. of Man.
Tanner, H. C.	Southampton Boys' Coll. & High S.
Tracy, D.	Vermont College, Clapton.
Warschawski, H. S.	Castle Hill Avenue Ho., Folkestone.
Watts, W. E.	Wilsford House School, Devizes.
Wood, C. H.	Scorton Grammar S., Darlington.
Brewer, T. W. R.	Milton Villa S., Bexley Heath.
Brockway, W. J.	Gillingham Grammar School.
Burns, P.	Ghyll Bank College, Whitehaven.
Du Feu, A. S.	St. James' Collegiate S., Jersey.
Fothergill, H. C.	Deal College.
Freeman, R.	Hull and East Riding College.
Gifford, H. J.	Pine House School, Wincanton.
Govier, R. G.	Leek Grammar School.
Gowenlock, F.	Norton College, Luton.
Heywood, H. E.	Victoria College, Stroud Green.
Hill, H.	Kendrick Middle S., Reading.
Ingram, A. H.	2 St. Philip's Road, Surbiton.
James, F. E.	The Choir S., Stratford-on-Avon.
Johnson, E. C.	Private study.
Kidd, D. B.	Middle Class S., Weston-s.-Mare.
King, W. E.	Harleigh House, Bodmin.
Logan, G. J.	The Western College, Harrogate.
Lowe, J. H.	King Edward VI. School, Retford.
Maitland, P. A.	Emanuel S., Wandsworth Common.
Mansfield, A. E.	Barbourne College, Worcester.
Marks, W. R. N.	Harleigh House, Bodmin.
Nicholls, J. L.	Farnworth Grammar School.
Nunn, H.	Norman Road School, Rusholme.
Pemberton, E. W.	Warwick House, Southsea.
Perugia, H. A. H.	Byron House School, Ealing, W.
Rawlins, R.	Chesterfield Grammar School.
Rowlands, F. A.	Athenæum School, Llanelly.
Smith, R. T.	Licensed Victuallers' School, S.E.
White, A. F.	Forest Hill Middle Class School.
Arnott, T. M.	Newcastle-on-Tyne Modern School.
Britton, H. P.	King Edward VI. School, Retford.
Coles, A. W.	Bible Christian College, Shebbear.
Davison, W. H.	Seafield Acad., Newcastle-on-Tyne.
Du Val, B.	Victoria Park School, Manchester.
Eldridge, H. E.	Undercliff Collegiate S., Ventnor.
Fitzsimmons, E. P.	Holloway College, N.
Holford, G. B.	Bickerton House School, Birkdale.
Hudson, E. J.	York St. Academy, Wakefield.
Hull, G.	Catholic Coll. Inst., Manchester.
James, C. W. W.	Brighton House School, Clifton.
Johnson, J.	The Western College, Harrogate.
Jones, A. M.	Castle Hill School, Ealing Dean.
Judge, J. H. B.	Epworth College, Rhyl.
Keeley, T.	Rosemont House, Newport, Salop.
Liney, C. W.	Kendrick Middle School, Reading.
Moser, R. O.	Skelsmergh House S., Margate.
Newton, H.	Royal Masonic Inst., Wood Green.
Pullan, L.	Belgrave School, Scarborough.
Rhind, A. K.	Lindenthorpe, Broadstairs.
Rothwell, A.	Hindley Grammar School.
Salisbury, A. C.	Middle Class S., Weston-s.-Mare.
Shaw, T.	Snettisham Grammar School.
Smith, T.	Commercial School, Wood Green.
Tomlinson, C. W.	Lord Williams' Grammar S., Thame.
Vickridge, J.	Horsham College.
Wallis, F. C.	Holmwood, Bexhill.
Whitaker, L. V.	York Street Academy, Wakefield.
Barton, L. F.	Farnham Grammar School.
Dudley, E. C.	Rye College, Peckham Rye.
Eaton, F. R.	Belle Vue House, Norwich.
Edwards, D. R.	Private tuition.
Every, O.	Mount Radford School, Exeter.
Grant, L.	Emanuel S., Wandsworth Common.
Harrison, G.	Snettisham Grammar School.
Hemsted, R. W.	Glencoe, Anglesey, Gosport.
Henshaw, G. C.	Emanuel S., Wandsworth Common.
Hill, A. G.	Belle Vue House, Norwich.
Lashbrooke, H.	Caversham House School, Reading.
Lupton, A.	High S., Springfield Mount, Leeds.
Macfarlane, J. J. M.	Woodside House School, Sutton.
Marsh, H. E. T.	Grammar School, Ongar.
Owen, J. D.	Epworth College, Rhyl.
Pentelow, B.	Cowper's House S., Huntingdon.
Peters, W. E.	The Grammar School, Eccles.
Priddle, H. S.	Skelsmergh House S., Margate.
Riley, F. C.	Farnworth Grammar School.
Robson, W. E. P.	Bickerton House School, Birkdale.
Smith, F. W.	Grosmont, Dyke Road, Brighton.
Spray, R. G.	Hayle Grammar School.
Spreckley, T. C.	Licensed Victuallers' School, S.E.
Swanston, A. N. M.	Grosvenor College, Ostend.
Thomas, G. R.	Haverfordwest Grammar School.
Wares H. W.	Hull and East Riding College.
Attfield, A. H.	High School, Shrewsbury.
Averill, H. C.	Appleby Grammar S., Atherstone.
Bannerman, D. H.	Snettisham Grammar School.
Barker, F.	Goole Grammar School.
Bateman, J. B.	79 Lancaster Road, Notting Hill.
Bissell, A. H. H.	Rye College, Peckham Rye.
Bradfield, E. R.	Portway High School, Bath.
Brown, F.	Grove Park School, Wrexham.
Bruntou, H. C.	Anglo-French Coll., Finchley Rd.
Catton, T.	Victoria Park School, Manchester.
Clark, R. J.	Middleton School, Bognor.
Cohen, H.	High School, Stockton-on-Tees.
Cooper, T. R.	Ousegate School, Selby.
Drew, H. W.	Bourne College, Quinton.
Edmondson, G. J.	Deal College.
Elliott, A. McL.	Licensed Victuallers' School, S.E.
Greaves, S. C.	Chesterfield Grammar School.
Harris, W. S.	Bible Christian College, Shebbear.
Hart, E. S. I.	83 Montpellier Road, Brighton.
Hathorn, J. C. M.	Grosvenor College, Ostend.
Hickes, P. L.	St. John's College, Truro.
Hodges, A. A.	Grammar School, Shepton Mallet.
Ibotson, C. P.	St. John's College, Southend.
Keed, C. R.	S. Aubyn's, Woodford Wells.
Leftwich, A.	Haringay Park School, N.
Lewis, H. J.	Apsley House School, Margate.
Lloyd, T. H.	Waverley House School, Southport.
Longbottom, B.	Ilkley College.
Longman, W. H. D.	Pine House School, Wincanton.
Meatyard, W. H.	Collegiate School, Salisbury.
Norfolk, T. L.	Hull and East Riding College.
Norfolk, W. A.	Ilkley College.
Pallant, T. E.	High School for Boys, Sutton.
Phillips, I.	Farnham Grammar School.
Pickles, J. W.	Trinity College, Harrogate.
Pigeon, W. H.	Teignmouth Grammar School.
Pullar, E. J.	Immanuel Coll., Streatham Comm.
Read, F. W.	Taunton's Trade S., Southampton.
Rivis, T. C. L.	St. Helen's College, Southsea.
Taylor, H. O.	St. Martin's Gram. S., Scarborough.
Toupkins, R. J.	Newton Abbot Boys' School.
Warren, H.	Barbourne College, Worcester.
Westlake, B. B.	Brunswick House School, Windsor.
Woodhams, W. L.	Baythorn House School, Acton.
Wreathall, W. S.	Hull and East Riding College.
Adams, A. G.	Farnham Grammar School.
Aston, D. S.	Lewisham Ho. S., Weston-s.-Mare.
Averillo, B. E.	Stamford Hill Collegiate School.
Beale, H. F.	Andover Grammar School.
Bell, J. G.	Grammar School, South Shields.
Berry, T. D.	Halbrake S., Wandsworth Comm.
Betts, H.	Romford Grammar School.
Bowen, A.	Wellington College, Salop.
Button, W. J.	E. Anglian S., Bury St. Edmunds.
Carlé, F. C.	Summerleaze Coll. S., E. Harptree.
Clarke, H.	Vickery's, Southsea.
Dibble, H. W.	Forest Hill Middle Class School.
Edge, F. T.	Private tuition.
Field, W. G.	Kendrick Middle School, Reading.
Fielding, E.	Halifax New School.
Gale, H.	Middle Class S., Weston-s.-Mare.
Gee, J. R.	Wellesley College, Nottingham.
Gibb, J. F.	Nonconf. Gram. S., Bp. Stortford.
Gibberd, H.	Horsham College.
Harding, D. P.	Middleton School, Bognor.
Harding, H. M.	Snettisham Grammar School.
Hemingway, R. L.	Bewdley Grammar School.

BOYS, THIRD CLASS—*Continued.*

Hoult, W. B.	Epworth College, Rhyl.
Hughes, E. C.	Charles I. Gram. S., Kidderminster.
Ingle, H.	Cowper's House S., Huntingdon.
Inskip, F. H.	Mead House School, Biggleswade.
Kitson, G. T.	Barbourne College, Worcester.
Lock, F. E.	Wollaston Rd. School, Dorchester.
Meader, W. H.	Pine House School, Wincanton.
Moore, L.	Taunton's Trade S., Southampton.
Mortimer, E. H.	Oxenford House, Jersey.
Pashler, H.	Mead House School, Biggleswade.
Pike, G. H.	Glenwood Ho. S., Winchmore Hill.
Phillips, A. H.	Leek Grammar School.
Smith, H. L.	Lord Williams' Grammar S., Thame.
Smith, J.	Wellington School, Heaton Moor.
Staff, F. J.	Grammar School, Ongar.
Sykes, E.	Ilkley College.
Thomas, C. K.	Thornton House School, Redruth.
Wagner, W. G.	The Hermosa School, Ealing.
Walley, W. H.	The College, Gildersome.
Walter, H. G.	Forest Hill Middle Class School.
Watkins, R. K.	Bible Christian College, Shebbear.
Wilkes, P. B.	Competitive College, Bath.
Wiseman, C. H.	Kent College, Canterbury.
Woodgate, H. F.	Emanuel S., Wandsworth Common.
Woodland, E. J.	East Cornwall College, Liskeard.
Yeomans, W. H.	Brighton High School for Boys.
Atkinson, S. E.	Headingley Hill School, Leeds.
Blaney, J. A.	King's College, Twickenham.
Bucktrout, T. R.	Eton House School, Hull.
Burningham, A. W.	Farnham Grammar School.
Cox, F. W.	Farnham Grammar School.
Croggon, L. P.	Hart House School, Tregoney.
Carpenter, E. F.	Summerleaze Coll. S., E. Harptree.
Chapman, C. L. G.	The Collegiate School, Grimsby.
Dibben, A. F.	Westbourne Park College, W.
Dickinson, F. W.	Licensed Victuallers' School, S.E.
Eppes, D. D. R.	Uxbridge Grammar School.
Evans, R.	Bickerton House School, Birkdale.
Finch, J. E.	Kent College, Canterbury.
Goodwin, E. E. P.	High School, Shrewsbury.
Greenhalgh, J.	University School, Southport.
Hallett, F.	St. John's Choir S., St. Leonards.
Hainsworth, R. G.	The College, Gildersome.
Hope, J. C.	Sutton Park School, Surrey.
Jackson, F. W.	Walton Institute, Liverpool.
Jenkins, J. A. S.	Ghyll Bank College, Whitehaven.
Keighley, E. P.	Polytechnic Intermediate S., W.
Kislingbury, A. V.	Lord Williams' Grammar S., Thame.
Laycock, J. C.	Wellingborough Grammar School.
Lloyd, F.	Wellington College, Salop.
Maggs, L.	Northampton House S., Salisbury.
Matthews, L. C.	Claughton Coll. School, Birkenhead.
Newall, E.	Leek Grammar School.
Newby, F. C.	Ilkley College.
Normanton, R.	Commercial College, York.
Pickersgill, A. H.	East Hardwick School.
Ryder, L. S.	High S., Queen's Coll., Birmingham.
Saxelbye, J.	Hull and East Riding College.
Schofield, B.	The Grammar School, Mirfield.
Scotton, W.	Milton College, Ullesthorpe.
Simmonds, E. F.	Collegiate School, Salisbury.
Snowdon, W.	The Western College, Harrogate.
Stephens, H. E.	Totnes Grammar School.
Williamson, A. T.	Emanuel S., Wandsworth Common.
Williams, P. D.	Victoria Coll., Douglas, I. of Man.
Wesson, C. F.	Stamford Hill Collegiate School.
Axon, J.	St. John's College, Southend.
Batt, E. A.	Lindenthorpe, Broadstairs.
Bossy, F. A.	Beaumont House School, Jersey.
Bowker, J.	University School, Southport.
Brittain, R.	Hull and East Riding College.
Brooks, G.	Hope House S., New Southgate.
Brown, C.	Friends' School, Saffron Walden.
Brown, G. W.	Private tuition.
Burrow, A.	Maida Vale School, W.
Corben, H.	*d.* Brunswick House, Maidstone.
Eveling, R.	Warwick House, Southsea.
Cocks, H. W.	The College, Harrogate.
Cole, C.	Mayall College, Herne Hill.
Denton, J.	Ilkley College.
Donaldson, G. A. H.	Deal College.
Ganner, J.	Dudley Middle Class School.
Hale, P.	Grove House S., Tunbridge Wells.
Haas, F. A.	Great Ealing School, Ealing.
Iredell, C. E.	College House School, Eastbourne.
Jefferys, H.	Cromartie House School, Acton.
Knapman, G.	Ilfracombe Grammar School.
Lawrence, L. L.	Charles I. Gram. S., Kidderminster.
Moore, J.	Marlborough Coll. S., Tuebrook.
Newman, W.	Mead House School, Biggleswade.
Nixon, A. J.	Epworth College, Rhyl.
Pierpoint, A. W.	Caversham House School, Reading.
Pollard, E. J. S.	Licensed Victuallers' School, S.E.
Proctor, E. A.	Commercial S., Downham Market.
Roberts, P. G.	Everton College, Liverpool.
Sellwood, W. E.	Reading Collegiate School.
Scott, F. W.	Sunnyside H.S., Chorlton-c.-Hardy.
Scott, M.	Grammar School, South Shields.
Smith, G. A.	Skelsmergh College, Margate.
Smith, S.	Middle Class S., Barnstaple.
Staiuer, C. B.	Vickery's, Southsea.
Wilson, B. W. S.	East Anglian S., Bury St. Edmds.
Tate, A.	Trinity College, Harrogate.
Teacher, N. M.	Eversley, Clifton.
Thorne, H.	Grammar S., Sudbury, Suffolk.
Truscott, P. E.	Taunton's Trade S., Southampton.
Vidler, A. T.	The High School, Hastings.
Wall, R.	Guildhall Mid. S., Bury St. Edmds.

THIRD CLASS.—2ND DIVISION.

Alford, F. J.	Southampton Boys' Coll. and H. S.
Bennett, J.	Grammar School, Shepton Mallet.
Berry, H.	The Choir S., Stratford-on-Avon.
Birch, F.	Uxbridge Grammar School.
Blackmore, C. W. V.	Cleveland House School, Salisbury.
Bott, A. G.	The Academy, Crewe.
Cook, A. H.	Hindley Grammar School.
Cooke, J.	Manchester Commercial Schools.
Corbett, H. J. T.	Rosemont House, Newport, Salop.
Duggleby, F.	Snettisham Grammar School.
Dunkley, J. W.	Wellingborough Grammar School.
Ellis, H.	Wareside Endowed Grammar S.
Entwistle, N.	Upton School, Slough.
Friend, H. H.	Northampton House S., Salisbury.
Fuller, H. C.	Collegiate School, Hythe.
Green, E. C. A.	St. Nicholas Comm. S., E. Dereham.
Haynes, A. R. T.	Wellington College, Salop.
Ireland, T.	Farnworth Grammar School.
Kidner, G. H.	Lewisham Ho. S., Weston-s.-Mare.
Lord, E.	The College, Churwell, Leeds.
Lunt, W. B.	College House School, Eastbourne.
Maden, J. L.	Higher Grade School, Bacup.
McLauchlan, H.	Higher Grade School, Bacup.
Myhill, F. W.	St. Giles' College, Norwich.
Neal, H.	Petherton School, Highbury.
Pemberton, W.	Farnworth Grammar School.
Renton, W. F.	Trinity College, Harrogate.
Roberts, R. T.	Swansea College.
Sampson, F. D.	Brent Hill Collegiate School.
Smith, E. W.	Wykeham House School, Kilburn.
Stedman, H. J.	Farnham Grammar School.
Thorp, J.	Eton House School, Hull.
Turnham, P. G.	Licensed Victuallers' School, S.E.
White, H. J.	Barbourne College, Worcester.
Wight, J.	Wellingborough Grammar School.
Willson, J. P.	Cowper's House S., Huntingdon.
Young, W. F.	Avenue House School, Sevenoaks.
Alexander, A. H.	Grammar School, Devizes.
Billing, H. J.	Lindenthorpe, Broadstairs.
Boncey, C.	Ascham College, Clacton-on-Sea.
Broad, H. A.	3 Warfelton Terrace, Saltash.
Brown, R. H.	Holmwood, Bexhill.
Burrough, H. G.	Cleveland House School, Salisbury.
Burton, H. J. C.	Charles I. Gram. S., Kidderminster.
Carter, E. W.	Milton Grammar School, Hassocks.
Charge, C. W.	Gainford School.
Chown, J.	Exmouth College.
Clarke, H. G.	Gunnersbury College.
Dean, G. D.	Up-Holland Grammar School.
Dowding, H.	Pine House School, Wincanton.
Du Sautoy, H. E.	Southampton Boys' Coll. & High S.
Edwards, H. W.	Andover Grammar School.
Ellcome, H.	The Grammar School, Midhurst.
Froggatt, J. B.	The Western College, Harrogate.
German, L.	Bible Christian College, Shebbear.
Grierson, J. T.	The College, Gildersome.
Hall, W.	Old Elvet School, Durham.
Handley, J.	Cathedral Choir School, Ripon.
Harris, S. T.	Thornton House School, Redruth.
Hughes, W. E.	Grove House S., Tunbridge Wells.
Jefferson, C. T. S.	Emanuel S., Wandsworth Common.
Jenkins, E.	Portway High School, Bath.
Joyner, A. H.	Corsham School.
Leach, A.	Surrey House School, Margate.
Longworth, S. G.	Emanuel S., Wandsworth Common.
Morris, A.	The High School, Aberdare.
Pratt, E. A.	Holloway College, N.
Prout, J. S.	Wilson College, Stoke Newington.
Reid, R.	Parish Church Mid. Cl. S., Leeds.
Rice, C. S.	Henley House S., St. John's Wood.
Selby, S.	Werneth High School, Oldham.
Stickland, J. T.	Pine House School, Wincanton.
Tanner, R. E. S.	Corsham School.
Thompson, P. H.	The Choir S., Stratford-on-Avon.
Thorpe, H.	Highbury House S., St. Leonards.
Tomlinson, W. E.	Eton House School, Hull.
Turner, C. C. P.	Kingsland School, Shrewsbury.
Vallis, H. P.	Gillingham Grammar School.
Waud, W.	King Edward VI. School, Retford.
Webster, P. C. B.	Nonconf. Gram. S., Bp. Stortford.
Woodfin, N. C.	Lewisham High S., Weston-s.-Mare.
Wordsworth, F. E.	Wellesley College, Nottingham.
Wright, T. H.	Wellingborough Grammar School.
Young, R. A. M.	The Western College, Harrogate.
Badcock, O. M.	*d.* Lewisham Ho. S., Weston-s.-Mare.
Barry, F. E. H.	Oxford House, Brighton.
Billing, E. D.	West Cliff School, Ramsgate.
Boddy, C. A.	Vermont College, Clapton.
Bowsher, A.	Wilsford House School, Devizes.
Boys, R. M.	Snettisham Grammar School.
Bridge, H. N.	Higher Grade School, Bacup.
Burrell, H.	Wykeham House School, Kilburn.
Conley, W.	Grove House, Folkestone.
Davidson, I.	Great Ealing School, Ealing.
Day, L. A.	Deal College.
Dobson, W.	*d.* Wellington College, Salop.
Dyer, A. G.	Grammar School, Wallingford.
Emary, F. M.	Oxford House, Brighton.
Emnals, A. T.	Apsley House School, Margate.
Evans, R. F.	Harborne Vicarage, Birmingham.
Fairchild, G. C.	Emanuel S., Wandsworth Common.
Feather, W. H.	The College, Gildersome.
Fortescue, C. H.	Romford Grammar School.
Giblett, E. T.	Andover Grammar School.
Gray, R.	Battersea Grammar School.
Hole, J.	Portway High School, Bath.
Insley, H. C.	Oxenford House, Jersey.
James, J. F. W.	Holloway College, N.
Lawson, A. W.	Whitstable College.
Lewis, A. P.	Swansea College.
Lewis, W. H.	The High School, Aberdare.
Pearce, T.	Malden College, New Malden.
Pechey, N. J.	East Anglian S., Bury St. Edmds.
Richards, H. J.	Nonconf. Gram. S., Bp. Stortford.
Rhodes, P.	Ousegate School, Selby.
Roberts, W. T.	The College, Gildersome.
Rowcliffe, J. A.	Old Trafford School, Manchester.
Shedlock, G. J.	Private tuition.
Sillitoe, H. A.	Grammar School, Sudbury, Suffolk.
Smith, S.	Moorlands School, Bournemouth.
Smith, W. H.	Grammar School, Redditch.
Theobald, F. B.	Halifax New School.
Thornicraft, H. A.	Halbrake S., Wandsworth Common.
Tier, L. E.	Vickery's, Southsea.
Tee, B. F.	Kendrick Middle School, Reading.
White, C.	Oxford House, Brighton.
Wilkinson, W. H.	Trinity College, Harrogate.
Atkinson, E. S.	Osborne House, Margate.
Atkins, J. A.	The Choir S., Stratford-on-Avon.
Baggs, R. F.	Elm House Academy, Wareham.
Barnes, J.	Broughton S., Higher Broughton.
Bles, A.	Norman Road S., Rusholme.
Boniface, E. C. F.	Swindon High School.
Buxton, H. A.	Ashley House School, Worksop.
Buckland, L. S.	Andover Grammar School.
Caldwell, W. S.	Barbourne College, Worcester.
Calhaem, J. P.	Emanuel S., Wandsworth Common.
Causton, F.	The Grange School, Halstead.
Coulter, J.	International College, Rochester.
Dowding, T. B.	Pine House School, Wincanton.
Fletcher, T.	Grammar School, Drax, Selby.
Fletcher, P. F.	King Edward VI. School, Retford.
Garland, E. W.	Lewisham Ho. S., Weston-s.-Mare.
Garne, S. W.	Kent College, Canterbury.
Grayson, W. E.	Hart House School, Tregoney.
Griffiths, W. H.	Farnworth Grammar School.
Handler, F. M.	Marlborough College S., Tuebrook.
Harris, W. A.	Bourne College, Quinton.
Harding, W. D,	The Choir S., Stratford-on-Avon.
Harryman, J. W.	Ghyll Bank College, Whitehaven.
Hawker, W. S.	Collett House, Bournemouth.
Hawkins, E. J.	Teignmouth Grammar School.
Hodges, J.	The High School, Hastings.
Houghton, A. E.	Wellesley College, Nottingham.
Lear, W. C. H.	Pine House School, Wincanton.
Lenton, G.	Cowper's House S., Huntingdon.
Leonard, H. C.	Lewisham High S., Weston-s.-Mare.
Lozano, A.	Claremont College, Blackpool.
Michelmore, P. J. R.	Pine House School, Wincanton.
Morris, G. W.	Barbourne College, Worcester.
Myall, H.	Victoria College, Stroud Green.
Palmer, R.	Qn. Eliz. Gram. S., Kirkby Lonsdale.
Penwill, G. A.	Hill House School, Totnes.
Perman, E. G.	Uxbridge Grammar School.
Raper, J. T.	Scorton Grammar S., Darlington.
Rogerson, S. C.	Kent College, Canterbury.
Runton, P. T.	Hull and East Riding College.
Scott, E.	Grammar School, South Shields.
Shaw, N. N.	Qn. Eliz. Gram. S., Kirkby Lonsdale.
Sheppard, F.	Battersea Grammar School.
Simpson, W. J.	Charles I. Gram. S., Kidderminster.
Smith, F.	Caversham House School, Reading.
Vaudin, J. P.	Oxenford House, Jersey.
Watts, S. W.	Royal Masonic Inst., Wood Green.
Waterhouse, F. C.	East Hardwick School.
Westerton, W. S.	Cromartie House School, Acton.
Williams, T.	Wareside Endowed Grammar S.
White, H. G.	Corsham School.
Alexander, E. A.	Gunnersbury College.
Ashburner, H.	Commercial S., Barrow-in-Furness.
Bennett, S. C.	Farnham Grammar School.
Britton, F.	The College, Harrogate.
Buttifant, A. G.	Stoneleigh Coll., Stoke Newington.
Collier, J. E.	The College, Gildersome.
Collins, A. D.	Sutton Park School, Surrey.
Drayson, E. C.	Glenwood Ho. S., Winchmore Hill.
Foster, L.	King Edward VI. School, Retford.
Fryer, A.	Licensed Victuallers' School, S.E.
Glenn, T. L.	Fairfield House College, Exeter.
Gray, A. W.	Queen Mary's Lower S., Walsall.
Herrington, J.	Pine House School, Wincanton.
Hopps, W. E.	Trinity College, Harrogate.
Jolly, T. S.	Harleigh House, Bodmin.
Kay, S. V.	Bickerton House School, Birkdale.
Ker, W. P.	Snettisham Grammar School.
Maclean, P. A.	Appleby Grammar S., Atherstone.
Makin, F.	Grammar School, Rochdale.
Miller, R. H.	Lyttelton Grammar S., Malvern.
Mitchell, V.	College House S., Eastbourne.
Monsir, C. G.	Dane Hill School, Margate.
Moss, A. R.	Emanuel S., Wandsworth Comm.
Murnane, H. T.	The Academy, Norwich.
Parsons, J. J.	Middle Class S., Weston-s.-Mare.
Peacock, E.	Mayall College, Herne Hill.
Pegler, O.	Norton College, Luton.
Ratcliff, P. J.	International College, Rochester.
Rideout, J. W.	The Grammar School, Eccles.
Smalley, C. H.	Cowper's House S., Huntingdon.
Talbot, J.	Dane Hill School, Margate.
Thirsk, T.	Berkeley School, Hull.
Whatton, A. H.	Lyttelton Grammar S., Malvern.
Wood, R. B.	Grove Park School, Wrexham.
Wood, R. C.	Snettisham Grammar School.
Wright, J. M.	Everton College, Liverpool.
Ashton, J. C.	Halifax New School.
Bacon, A. L.	College House S., Eastbourne.
Bond, G.	Corsham School.
Branford, O.	Farnham Grammar School.
Brown, W. P.	*d.* The Grammar School, Eccles.
Burson, W. J. B.	Swindon High School.
Charlesworth, H.	Camden School, Hull.
Cockroft, T.	Grammar School, Burnley.
Cope, J. T.	Catford Collegiate S., Lewisham.
Cowen, J. G.	Fortescue College, Radstock.
Cranswick, C.	Ousegate School, Selby.
Cutler, G. W.	Gillingham Grammar School.
Daniel, H. C.	Thornham House, West Brighton.
Dicketts, S. F.	Halbrake S., Wandsworth Comm.
Dudgeon, T. S.	Cathedral Choir School, Ripon.

BOYS, THIRD CLASS—*Continued.*

Emsley, R.	University School, Southport.
Evans, R. G.	Grove Park School, Wrexham.
Everall, L.	Commercial School, Shrewsbury.
Fairholme, E. G.	Rugby House School, Eastbourne.
Farmer, R. C.	Warbreck College, Aintree.
Farran, R.	Hart House School, Tregoney.
Ferriday, F. G.	Wellington College, Salop.
Fletcher, C. W.	Lord Williams' Gram. S., Thame.
Grant, W. P.	Fair Oaks School, Wilmslow.
Green, H. W.	Osborne House, Margate.
Green, W. J.	Barbourne College, Worcester.
Harding, W. S.	Haslemere Grammar School.
Harvey, A. E.	Willow House College, Walsall.
Hawes, E. J.	Emanuel S., Wandsworth Comm.
Head, F. L.	Private tuition.
Horwood, E. J.	Royal Grammar S., Henley-on-T.
Hutchinson, W. H.	Hull and East Riding College.
Jones, W.	Athenæum School, Llanelly.
Keith, R. A. R.	Colleglate School, Hythe.
Kenyon, P. S.	The Grammar School, Eccles.
Lawrence, P. J.	Reading Collegiate School.
Le Dain, N. J. F.	Beaumont House School, Jersey.
Milsom, W. J.	Grammar School, Devizes.
Morley, G. H.	Nonconf. Gram. S., Bp. Stortford.
Norton, T. E.	Guildhall Mid. S., Bury St. Edmds.
Palmer, E.	Anglo-French Coll., Finchley Rd.
Pemberton, P. L.	Chorlton High School, Manchester.
Plummer, G. T.	Lord Williams' Gram. S., Thame.
Roberts, C. W.	Bourne College, Quinton.
Sedgwick, D. W.	Honton House, St. Leonards.
Sherborne, T. H.	Nonconf. Gram. S., Bp. Stortford.
Smith, J. R. C.	Taunton House School, Brighton.
Snow, F.	The College, Harrogate.
Speirs, G. B. A.	Ghyll Bank College, Whitehaven.
Swallow, G. W.	Walton Institute, Liverpool.
Taylor, E.	90 Falkner Street, Liverpool.
Watson, E.	York House School, Reading.
West, E.	Nonconf. Gram. S., Bp. Stortford.
White, H. W.	Apsley House School, Margate.
Wolfenden, H.	Bickerton House School, Birkdale.
Wood, E. D.	Grove House S., Tunbridge Wells.
Wootton, A. G.	Halbrake S., Wandsworth Comm.
Wright, G. R.	Caversham House School, Reading.

Allin, J. W.	Milton College, Ullesthorpe.
Austin, H. C.	Cromartie House School, Acton.
Baron, W. R. N.	Northgate S., Bury St. Edmunds.
Blake, M.	Norton College, Luton.
Bott, J. E.	Rosemont House, Newport, Salop.
Buckle, F. W.	Barbourne College, Worcester.
Clayton, J.	Private tuition.
Collard, H. J.	Pine House School, Wincanton.
Collihole, E. S.	Elm House Academy, Wareham.
Cordner, R.	Hillmartin College, Camden Town.
Dean, W. E.	Forest Hill Middle Class School.
Drane, J.	Belle Vue House, Norwich.
Feltham, W. C. A.	Pine House School, Wincanton.
Forster, G.	Gainford School.
Getliff, H.	Cathedral Choir School, Ripon.
Hamon, H. W.	Beaumont House School, Jersey.
Harvey, T. W.	South Hackney High School.
Hatton, C. E. G.	Brunswick House School, Windsor.
Holroyd, C. E.	The College, Harrogate.
Irish, H. E.	Lewisham House S., Weston-s.-Mare.
Jones, E. H.	Apsley House School, Margate.
Lewis, F. S.	Osborne House, Margate.
Locke, G. H.	Claremont College, Blackpool.
Lovatt, W. G.	Leek Grammar School.
Maud, B. J.	Nelson College, Lee, S.E.
Morrison, H. T.	Kent College, Canterbury.
Nicholson, J. F.	Chorlton High School, Manchester.
Oldfield, H. B. B.	Deal College.
Pendlebury, J.	Bolton High School for Boys.
Portsmouth, R.	Middle Class S., Weston-s.-Mare.
Potter, J. Y.	Claremont College, Blackpool.
Praed, H. M.	Grosvenor College, Ostend.
Pugh, H. M.	Dolgelley Grammar School.
Reed, C. E. N.	Bible Christian College, Shebbear.
Rolfe, R. A.	The Grammar School, Romsey.
Sampson, E.	Norman Road School, Rusholme.
Sanders, J. A.	Portway High School, Bath.
Sanford, L. V.	Sussex House School, Streatham.
Smither, H.	Farnham Grammar School.
Speed, E.	Mayall College, Herne Hill.
Toop, F. J.	The Grammar School, Midhurst.
Vallis, L. H.	Gillingham Grammar School.
Wade, G. N.	Lewisham House S., Weston-s.-Mare.
Wales, A. W.	Hull and East Riding College.
Wigmore, G.	37 Princes Square, Bayswater.
Woodward, R. G.	Cowper's House S., Huntingdon.

Ackroyd, H.	Mintholme House S., Southport.
Anderson, J. R.	Whitstable College.
Athron, H. V.	Cambridge House School, Wigan.
Bates, W.	Wellesley College, Nottingham.
Battersby, T.	Catholic Coll. Inst., Manchester.
Benjamin, E. H.	Private tuition.
Brough, W.	Hull and East Riding College.
Burcher, A. W.	Barbourne College, Worcester.
Chenhall, J. S.	Totnes Grammar School.
Cooban, O.	Walton Institute, Liverpool.
Cooper, C. B.	Royal Masonic Inst., Wood Green.
Corin, A. G. E.	Thornton House School, Redruth.
Coussens, C.	St. John's Choir S., St. Leonards.
Danby, W.	High School, Stockton-on-Tees.
Dean, S. E.	Forest Hill Middle Class School.
Dunford, T.	Newcastle-on-Tyne Modern School.
Foddy, F. T.	Hart House School, Tregoney.
Goddard, W. H.	Brunswick House, Maldstone.
Graves, S.	The College, Weston-super-Mare.
Grime, W. P.	Halifax New School.
Heath, P.	Allenby College, Derby.
Heymer, E. C.	Collegiate School, Aldershot.
Higginbotham, A.	University School, Southport.
Hood, W.	Upton School, Slough.
Hoyle, F. W.	Parish Church Mid. Cl. S., Leeds.
Humphreys, G. W.	Bible Christian College, Shebbear.
James, L.	Surrey House School, Margate.
Jennings, E.	Anglo-French Coll., Finchley Road.
Jeune, H. H. A.	St. John's College, Southend.
Jones, C. L.	Guildhall Mid. S., Bury St. Edmds.
Jukes, J. W.	Missionaries' Sons' S., Blackheath.
Loder, A. S.	Horsham College.
Martin, R. W.	Newton Abbot Boys' School.
Mutter, F. A. C.	Sydenham College, S.E.
Naylor, W. W.	Chas. I. Gram. S., Kidderminster.
Newton, E.	University School, Southport.
Nicholas, E. S.	Sydenham College, S.E.
Pike, H. W.	Lewisham House S., Weston-s.-Mare.
Pochin, F. H.	Wellingborough Grammar School.
Presant, F. S.	The College, Hendon.
Pulham, J.	Handel College, Southampton.
Reeve, J.	Fairfield House College, Exeter.
Robinson, G. L.	Old Elvet School, Durham.
Rowan, L.	Etonhurst Prep. S., Weston-s.-Mare.
Rowe, R. P.	St. Giles' College, Norwich.
Smithfield, F.	Scorton Grammar S., Darlington.
Speirs, W. C.	Ghyll Bank College, Whitehaven.
Stallard, H.	Beaumont House, Thornton Heath.
Tappenden, A. C.	Gunnersbury College.
Thevenard, C.	Surrey House School, Margate.
Udall, W.	Victoria Coll., Douglas, I. of Man.

Aitken, F. O.	St. Helen's College, Southsea.
Allix, J. P.	St. James' Collegiate School, Jersey.
Allen, M. J.	Cowper's House S., Huntingdon.
Bayne, J.	Wellington School, Heaton Moor.
Berry, C.	Halbrake S., Wandsworth Common.
Brownsmith, R.	Cliftonville College, Margate.
Benjafield, P. C.	Pine House School, Wincanton.
Bird, H.	The Halve, Trowbridge.
Borelli, A. V.	Farnham Grammar School.
Brooke, C. H. D.	Wellingborough Grammar School.
Bullock, T.	Goole Grammar School.
David, J. L.	Totnes Grammar School.
Dyer, T. A. S.	Aberdeen House, Ramsgate.
England, T.	Scarborough Grammar School.
Evans, L. E.	Grove Park School, Wrexham.
Farrer, G. G.	Grove House S., Tunbridge Wells.
Farrar, G. H. H.	Brighton House Coll. S., Oldham.
Fitch, F. C.	Grove Park School, Wrexham.
Gatensbury, F.	High School, Shrewsbury.
Gilbert, W. H.	The Academy, Crewe.
Gill, W. N.	Norton College, Luton.
Grinsley, F. W.	St. Asaph Grammar School.
Hamilton, G. E.	Yarm Grammar School.
Hannam, E.	Pine House School, Wincanton.
Horsley, F. J.	Scarborough Grammar School.
Hourie, J.	Grammar School, Middlesborough.
Huggett, A. H.	Brunswick House, Maidstone.
Large, H. J.	The Choir S., Stratford-on-Avon.
Lisle, W. J. S.	Fairfield House College, Exeter.
Love, G.	Devonshire Place School, Bath.
Norton, A. P.	Barbourne College, Worcester.
Martin, E. J.	Farnham Grammar School.
Mattocks, W.	Arnold College, W. Bournemouth.
Mitchell, A.	Highbury House S., St. Leonards.
Mitchell, J. E.	Ilkley College.
Morgan, T. I.	St. Helen's College, Southsea.
O'Neill, M. J.	Southampton Boys' Coll. & High S.
Parkin, C. F.	The Grammar School, Mirfield.
Rawlinson, E.	Commercial School, Astley Bridge.
Rigby, J.	Old Elvet School, Durham.
Routledge, E. B.	Praetoria House S., Folkestone.
Rosevear, T. W.	St. Austell School.
Rudkin, G. D.	Teignmouth Grammar School.
Ryan, H. S.	St. John's College, Southend.
Trantom, G.	Bickerton House School, Birkdale.
Saville, F. E.	High S., Springfield Mount, Leeds.
Vicary, L. C.	Ilkley College.
Winfield, A.	Grammar School, Burnley.
Williams, H.	Commercial School, Shrewsbury.
Woodgate, H. S.	Emanuel S., Wandsworth Common.
Wright, H. P.	Middleton School, Bognor.

Addiscott, G. A.	Hoe Grammar School, Plymouth.
Andrews, A.	Belle Vue House, Norwich.
Appleton, W.	Carter House School, Deal.
Barker, P.	Ascham College, Clacton-on-Sea.
Briscoe, J. F.	Corsham School.
Brown, C.	College School, Baldock.
Brown, S. H.	Wellingborough Grammar School.
Bunnett, F.	Wareside Endowed Grammar S.
Cheers, C. B.	Wellington College, Salop.
Clarkson, C.	Gainford School.
Colver, W. D.	Trinity College, Harrogate.
Cox, A. C.	Charles I. Gram. S., Kidderminster.
Crane, H. G.	Anglo-French Coll., Finchley Road.
Daglish, W.	Grammar School, South Shields.
Drennan, J.	Wellington College, Salop.
Eaton, W. S.	Ghyll Bank College, Whitehaven.
Ekins, W. E.	The School, Eaton Socon.
Elkins, L. G.	Kendrick Middle School, Reading.
Feltham, H. S. H.	Pine House School, Wincanton.
Ferguson, T. H.	Private tuition.
Foster, G. L.	Chesterfield Grammar School.
Fraser, H. R.	Kendrick Middle School, Reading.
Gerrish, C. F.	Oak House School, Axminster.
Good, F.	The Hermosa School, Ealing.
Handley, B.	Battersea Grammar School.
Hart, J. D.	Swindon High School.
Heath, W.	Pine House School, Wincanton.
Holland, W. H.	Deal College.
Hornby, W. P.	Emanuel S., Wandsworth Common.
Horrell, C.	Collegiate School, S. Woodford.
Huson, E. W.	Northgate S., Bury St. Edmunds.
Hutchinson, J. W	Goole Grammar School.
Jacobs, G. A.	High School, Shrewsbury.
Livesey, F.	Catholic Coll. Inst., Manchester.
Lord, T. E.	Higher Grade School, Bacup.
Martin, A. L.	Swindon High School.
Martin, H.	Farnworth Grammar School.
May, O. F.	Teignmouth Grammar School.
Parks, R. W.	Hannington High S., Eastbourne.
Parsons, A. C.	Selhurst Park College, S.E.
Payne, R. F.	Northgate S., Bury St. Edmunds.
Radley, R. W. J.	Selhurst Park College, S.E.
Raynsford, R. M.	The Hermosa School, Ealing.
Roberts, E. E. J.	Bourne College, Quinton.
Russell, E.	Sydenham College, S.E.
Russell, O. P.	Highbury House S., St. Leonards.
Sankey, G. G. J.	Aberdeen House, Ramsgate.
Sergant, E. E.	Ascham College, Clacton-on-Sea.
Simpson, G. L.	Brunswick House, Maidstone.
Smith, G.	Halifax New School.
Smith, J. E. S.	Kersal Glen S., Higher Broughton.
Stops, G. A.	Wellingborough Grammar School.
Walker, E. G.	King Edward VI. School, Retford.
Whitby, H.	Emanuel S., Wandsworth Common.
White, P.	Oak House School, Axminster.
Wood, H.	Norman Road School, Rusholme.

Allkin, H. W.	Denbigh Grammar School.
Archer, J.	Wellingborough Grammar School.
Beresford, W. M.	Chesterfield Grammar School.
Bradley, H. E. G.	Bible Christian College, Shebbear.
Brereton, S.	Belle Vue House, Norwich.
Butler, C. D.	Middle Class S., Weston-s.-Mare.
Champness, G. E.	Skelsmergh House School, Margate.
Champion, C. W.	Lewisham House S., Weston-s.-Mare
Chuter, A. G.	Andover Grammar School.
Clarke, P. P.	Sea House School, Eastbourne.
Cloud, A. T.	Private tuition.
Dolbel, W. J.	Oxenford House, Jersey.
Ellis, A. O.	Vickery's, Southsea.
Fairhead, C. H.	Ascham College, Clacton-on-Sea.
Foster, P.	Handel College, Southampton.
Gemmell, C. A.	Ilfracombe Grammar School.
Goodall, A.	The College, Gildersome.
Gray, A.	Ousegate School, Selby.
Halstead, H. B.	Higher Grade School, Bacup.
Hoyle, C. W.	Southampton Boys' Coll. & High S.
Hughes, A. H.	Brighton House School, Clifton.
Jackson, A.	Ellesmere School, Harrogate.
Jones, F. L.	Grove Park School, Wrexham.
Jones, H. M.	Lewisham Park School, S.E.
Kenyon, W.	Bolton High School for Boys.
Pavillet, H. F.	Maida Vale School, W.
Pollitt, A.	Emanuel S., Wandsworth Common.
Ramage, S. J.	Dane Hill School, Margate.
Reed, A. J.	St. Martin's Gram. S., Scarborough.
Rogers, J.	Northampton House S., Salisbury.
Rees, L. B.	Castle School, Guildford.
Rive, L.	St. James' Collegiate S., Jersey.
Smallwood, R. A.	Sydenham College, S.E.
Soulsby, J. S.	Eton House School, Hull.
Standley, H. P.	Private tuition.
Taylor, D.	University School, Southport.
Thomson, J. A.	Grammar School, Ongar.
Waller, P. G.	East Hardwick School.
Walpole, B. W.	St. Peter's College, St. Leonards.
Wiseman, W. R.	Kent College, Canterbury.
Woodcock, C.	Wellingborough Grammar School.
Workman, S. B.	116 St. Owen Street, Hereford.
Wright, A. G.	Battersea Grammar School.
Young, G. S.	Teignmouth Grammar School.

Andrews, H. C.	East Cornwall College, Liskeard.
Armstrong, A.	Blenheim House School, Fareham.
Aviolet, W. T.	Mount Radford School, Exeter.
Bartlett, C. M.	Stoke Preparatory School.
Beecroft, H.	Eton House School, Hull.
Belham, R. J. D.	Cleveland House S., Salisbury.
Bell, E. N.	Private tuition.
Beswick, T. C.	Bolton High School for Boys.
Birkett, J. H.	King Edward VI. School, Retford.
Brown, H. F. S.	Henley House S., St. John's Wood.
Burgess, C. E.	The Choir S., Stratford-on-Avon.
Dyson, H. L.	King Edward VI. School, Retford.
Dyson, L.	King Edward VI. School, Retford.
Easton, C. J.	Sutton Park School, Surrey.
Eatough, J. T.	Mintholme House S., Southport.
Entwistle, C. E.	Werneth Academy, Oldham.
Fitzgerald, G. J.	Halbrake S., Wandsworth Common.
Gillitt, W.	Wellingborough Grammar School.
Gray, K. T.	Worthing Collegiate School.
Gray, P. B.	Buxton College, Stratford.
Griffiths, A. G.	Private tuition.
Hall, W.	Old Elvet School, Durham.
Hansen, S.	St. Mary's Hall School, Cardiff.
Hill, E.	Wareside Endowed Gram. School.
Howson, W. H.	Ghyll Bank College, Whitehaven.
Husband, A. E. N.	East Cornwall College, Liskeard.
Knapman, F.	Teignmouth Grammar School.
Lewis, F.	Stamford Hill Collegiate School.
Marshall, E. W.	Woodland House, New Southgate.
Mercer, J.	Moorlands School, Bournemouth.
Montgomery, W. O.	Lonsbury College, Upper Clapton.
Morford, W. H.	Byron House School, Ealing, W.
Nash, P. J.	Farnham Grammar School.
Needham, F.	Milton College, Ullesthorpe.
Pearce, J.	Bible Christian College, Shebbear.
Potter, H. A.	High S., Queens Coll., Birmingham.
Pratt, R. H.	Grammar School, Middlesborough.
Price, J. J.	Tredegar Grammar School.
Prior, S.	Avenue House School, Sevenoaks.
Pyefinch, A. E. H.	Camden Schools, Hull.
Quarmby, J. W.	Bourne College, Quinton.
Ruoff, F. H.	Castle Hill School, Reading.
Scott, E. H.	Grammar School, Burnley.
Smith, P. C.	Holmwood, Bexhill.

BOYS THIRD CLASS—*Continued.*

Studdard, J. A.	Forest Hill Middle Class School.
Summerfield, D.	Newcastle-on-Tyne Modern School.
Taylor, J.	Grammar School, Ongar.
Threlfell, R. L.	Barbourne College, Worcester.
Withers, C. M.	Laurel Bank S., Higher Broughton.
Woollaud, L. M.	Exmouth College.

Asheroft, F.	Farnworth Grammar School.
Atkinson, J. W.	Halifax New School.
Baker, L. A.	Emanuel S., Wandsworth Common.
Barrett, E. F.	Anglo-French Coll., Finchley Road.
Borton, L. W.	Vermont College, Clapton.
Bray, J. A.	Halifax New School.
Brown, D.	St. Mary's Hall School, Cardiff.
Bullen, C. A.	St. John's College, Truro.
Caffyn, H.	Grove House S., Tunbridge Wells.
Chenhall, J. W.	Totnes Grammar School.
Cosans, G. E.	Grammar School, South Shields.
Cummins, F.	Collegiate School, Ambleside.
Davie, G.	Eversley, Clifton.
Davies, E.	Walton Institute, Liverpool.
Dobson, E.	Wellington College, Salop.
Elstob, J. H.	Farnworth Grammar School.
Goodman, H. J.	Vickery's, Southsea.
Gwatkin, H. R.	Taunton House School, Brighton.
Hanson, B. S.	The College, Gildersome.
Holmes, G. J.	South Hackney High School.
Hope, W. N.	Halbrake S., Wandsworth Common.
Horncastle, A. R.	St. John's College, Southend.
Hulme, T. H.	Kent College, Canterbury.
John, E. G.	Park Villa School, Dorrington.
Johnson, J. R.	Claremont College, Blackpool.
Legge, C. P.	St. Asaph Grammar School.
Lewis, F. W.	Lyttelton Grammar S., Malvern.
Lewis, J. L.	Charles I. Gram. S., Kidderminster.
Ley, H. M.	Gillingham Grammar School.
Maggs, P.	Northampton House S., Salisbury.
Mather, T. H.	Newcastle-on-Tyne Modern School.
McBride, F.	Epworth College, Rhyl.
Mundy, A. S.	Private tuition.
Munro, J. E.	Lindenthorpe, Broadstairs.
Murrell, S.	Commercial School, Shrewsbury.
Neighbour, G. M.	Royal Grammar S., Henley-on-T.
North-Smith, S.	The College, Harrogate.
Rhodes, P.	The Western College, Harrogate.
Rigby, R. McV.	Milton College, Ullesthorpe.
Rugg, F. F.	East Anglian S., Bury St. Edmunds.
Russell, P. R.	Southampton Boys' Coll. & High S.
Rutter, J. S. R.	The Grammar School, Eccles.
Scullard, G. H.	Taunton's Trade S., Southampton.
Shipley, W.	Grammar School, Drax, Selby.
Smallman, A. H.	2 Hilton Street, Higher Broughton.
Smith, F.	Redland Hill House, Clifton.
Spanton, W. M.	Deal College.
Stone, E.	Stamford Hill Collegiate School.
Sugden, W. E.	St. Asaph Grammar School.
Sutcliffe, J. G.	The College, Gildersome.
Swiss, H. S.	Stoke Preparatory School.
Taylor, D.	Horsham College.
Thorpe, A. T.	Snettisham Grammar School.
Townsend, A. E. M.	The Lowestoft High School.
Trible, E. J.	Bible Christian College, Shebbear.
Trolove, C. E.	Wellingborough Grammar School.
Wackrill, G.	Horsham College.
Wales, W.	Thornton House School, Redruth.
Ward, E. S.	Chesterton House S., Weybridge.
West, J. H.	Caversham House School, Reading.
Widdicombe, E. H.	Heavitree Collegiate S., Exeter.
Wingrave, H. A.	Thanet College, Margate.
Woolley, A.	Wellesley College, Nottingham.

Allin, T. H. R.	Milton College, Ullesthorpe.
Bate, H. B.	Wellington College, Salop.
Bennett, F. S.	Grosvenor House S., Overton, Ches.
Berry, J. F.	Halifax New School.
Bohm, R. D.	Baythorn House School, Acton.
Bruce, J.	Aberdeen House, Ramsgate.
Campbell, G. A.	Trinity College, Harrogate.
Campbell, R. S.	Eton House School, Hull.
Clarke, W. E.	Castle Street, Guildford.
Clegg, J. N.	York Street Academy, Wakefield.
Conn, A.	The Chandos Gram. S., Winchcombe.
Crook, W. J.	Beaumont House School, Jersey.
Danby, C. K.	High School, Stockton-on-Tees.
Dean, W.	Exmouth College.
Dew, E. C.	Lewisham Ho. S., Weston-s.-Mare.
Dibben, C.	Taunton's Trade S., Southampton.
Ferguson, H. S.	Grammar School, Ongar.
Gallewski, M.	Argyle House School, Sunderland
Goodby, A. W.	Commercial School, Shrewsbury.
Green, R. F.	Kendrick Middle School, Reading.
Hadden, W. E.	Dane Hill School, Margate.
Hawkins, H. J.	Barbourne College, Worcester.
Holmon, S. T.	Totnes Grammar School.
Horner, W. R.	Kent College, Canterbury.
Jones, N. S.	All Saints' School, Southend.
Lawson, E. C.	Castle Hill School, Ealing Dean.
McNeil, A.	University School, Southport.
North, H. H.	Battersea Grammar School.
Quick, G. H. J.	Fairfield House College, Exeter.
Rivers, J.	Upton School, Slough.
Ryall, G. B.	Corsham School.
Smith, N. D.	St. Austell School.
Skillings, J. W.	Byron House School, Ealing, W.
Sudbury, P.	Malden College, New Malden.
Trantield, E.	The College, Weston-super-Mare.
Varley, C. G.	Gunnersbury College.
Westley, S.	Cowper's House S., Huntingdon.

Allen, L. C.	Heaton Lodge School, Coln Bridge.
Beaumont, E. G. E.	Sussex House School, Streatham.
Bevan, W. H.	Grove Park School, Wrexham.
Boatfield, E. V.	Bible Christian College, Shebbear.

Bonner, A. A.	York Street Academy, Wakefield.
Brebner, P.	Halbrake S., Wandsworth Common.
Cannell, P. G.	Victoria College, Douglas, I. of Man.
Channon, F.	Collegiate School, S. Woodford.
Clarke, H.	Cathedral Choir School, Ripon.
Cochran, J. A.	Sea House School, Eastbourne.
Cottrell, W. L.	Commercial School, Astley Bridge.
Creighton, C.	Norman Road School, Rusholme.
Crump, H. J.	Lewisham House S., Weston-s.-Mare.
Digby, W. P.	Guildhall Mid. S., Bury St. Edmds.
Franckeiss, J. H.	Vickery's, Southsea.
Franklin, A. E.	Lonsbury College, Upper Clapton.
Gethin, W. G.	Charles I. Gram. S., Kidderminster.
Haslam, A. V.	The College, Gildersome.
Haswell, H. C.	Stoke Preparatory School.
Hinchliffe, E. W.	Mintholme House S., Southport.
Hinde, F. W.	King Edward VI. School, Retford.
Hoddinott, H. W.	Pine House School, Wincanton.
Hodge, E.	The Western College, Harrogate.
How, J. S.	Cowper's House S., Huntingdon.
Hyland, W. L.	Mayall College, Herne Hill.
Ironfield, W.	Commercial School, Astley Bridge.
Kettlewell, G. H.	Ilkley College.
Lotery, J.	Beaufort College, St. Leonards.
Margrie, E.	Exmouth College.
Nairn, C. E.	Ilfracombe College.
Nassif, V. E.	Deal College.
Osborn, P. J.	Nonconf. Gram. S., Bp. Stortford.
Paine, G. H.	Skelsmergh College, Margate.
Peace, E.	Qn. Eliz. Gram. S., Kirkby Lonsdale.
Pepper, J.	East Hardwick School.
Pickavant, H.	University School, Southport.
Pike, J. G.	Missionaries' Sons' S., Blackheath.
Richardson, A.	Taunton's Trade S., Southampton.
Salter, H. C.	Kent College, Canterbury.
Stein, A. G.	Dane Hill School, Margate.
Stewart, B. B.	Harborne Vicarage, Birmingham.
Wynhall, W. R.	Taunton's Trade S., Southampton.

Allen, E.	Grammar School, Sudbury, Suffolk.
Allen, H. I.	Praetoria House S., Folkestone.
Allen, W. H.	Wykeham House School, Kilburn.
Anderton, P. B.	King Edward VI. School, Retford.
Ashworth, J.	The College, Gildersome.
Askham, F. W. E.	Wellingborough Grammar School.
Austwick, W.	Horsham College.
Barker, A. W.	Chesterfield Grammar School.
Beeton, T. G.	Fairfield House College, Exeter.
Blackburn, W. E.	East Hardwick School.
Bliss, T.	Stamford Hill Collegiate School.
Collins, P. W.	Castle School, Guildford.
Craggs, H. W.	High School, Stockton-on-Tees.
Crozier, H. D.	Belmont House, Lee.
Ellis, J. W.	Private tuition.
Gardner, H.	The Choir S., Stratford-on-Avon.
Gent, F. R.	Grammar School, Middlesborough.
Goadby, H.	Royal Grammar S., Henley-on-T.
Grayson, M. H.	Eton House Comm. S., Sheffield.
Green, J.	Hindley Grammar School.
Harrison, G. W.	West House College, Congleton.
Hartley, A. H.	York Street Academy, Wakefield.
Hartnoll, P. O'B.	The Hermosa School, Ealing.
Hedley, J. P.	Newcastle-on-Tyne Modern School.
Helm, B. A. M.	Missionaries' Sons' S., Blackheath.
Hellon, W. J. D.	Ghyll Bank College, Whitehaven.
Higlett, P. H.	Castle School, Guildford.
Hodgkinson, C. W.	Uxbridge Grammar School.
Hodgson, H.	Eton House School, Hull.
Hope, A. H.	Grammar School, Middlesborough.
Kelly, H. H.	St. Helen's College, Southsea.
King, E. R.	Haringay Park School, N.
Leckenby, W.	Private tuition.
Longhurst, G. E.	Englefield, Westgate-on-Sea.
Marsom, J. S.	Mead House School, Biggleswade.
Mundy, W. S.	Bible Christian College, Shebbear.
Ottoway, H.	Rocklea, West Hill, Sydenham.
Parr, H. J.	Halbrake S., Wandsworth Com.
Pascoe, W. J. E.	St. Austell School.
Pollard, P.	Hart House School, Tregoney.
Poulton, R.	Cromartie House School, Acton.
Radcliffe, E. A. T.	Sydenham College, S.E.
Robinson, C. L.	The Grammar School, Eccles.
Silver, H. S.	Reading Collegiate School.
Spencer, T.	Higher Grade School, Bacup.
Stibbs, E. H.	Polytechnic Intermediate S., W.
Taylor, F.	Worthing Collegiate School.
Theobald, T. W.	Kent College, Canterbury.
Thomas, N.	Surrey House School, Margate.
Vines, C. S.	Farnham Grammar School.
Way, H. O.	Falkland Park School, Torquay.
Wright, E. M.	Beaumont House School, Jersey.
Wood, E.	Wellington College, Salop.

Abbott, E. W.	Commercial School, Wood Green.
Angier, S. G.	College House School, Eastbourne.
Arbuthnot, A. C.	Private tuition.
Beavis, D. C.	Taunton's Trade S., Southampton.
Bourne, J. W.	Rosemont House, Newport, Salop.
Bowcher, F. H.	Lindenthorpe, Broadstairs.
Cawley, F.	The Grammar School, Eccles.
Comyn, C. H. F. W.	The High School, Hastings.
Cooke, E. L.	Henley House S., St. John's Wood.
Davies, E. E.	High School, Shrewsbury.
Dunmore, W. H.	Collegiate School, Salisbury.
Fitzgerald, T. O.	Grammar School, Folkestone.
Galpin, H.	Pine House School, Wincanton.
Gegg, G. W.	High Street Academy, Fareham.
Green, A.	University School, Southport.
Griffith, G. M.	Totnes Grammar School.
Hart, W.	Taunton's Trade S., Southampton.
Holman, C.	Skelsmergh House School, Margate.
Humphrey, G. P.	62 Monkgate, York.
Jones, E. W.	Swansea College.
Kendrew, W.	High School, Runcorn.

Leech, C. H.	Deal College.
Lee, J. H.	East Hardwick School.
Lee, W.	Exmouth College.
Legh, A. H.	High School, Shrewsbury.
Maitland, J.	The Hermosa School, Ealing.
Mead, G.	Springfield College, Acton.
Mullen, J. W.	Eastbourne Old School.
Page, F. L.	Commercial S., Downham Market.
Palehin, T.	Wareside Endowed Grammar S.
Pawson, A. A.	Farnham Grammar School.
Payne, F.	Commercial School, Shrewsbury.
Pollitt, E.	Emanuel S., Wandsworth Common.
Potter, J.	Brunswick House, Maidstone.
Rashleigh, W. J. A.	Parbrook Collegiate School.
Ross, G.	St. Mary's Hall School, Cardiff.
Sheldon, J.	Wellesley College, Nottingham.
Smith, C. O.	Amerley High School.
Turner, H. E. C.	Bible Christian College, Shebbear.
Twamley, T. J.	Uxbridge Grammar School.
Verity, C. F.	The Western College, Harrogate.
Warburton, A. S.	Farnworth Grammar School.
Woolston, W. G.	Wellingborough Grammar School.
Wythes, J. H.	Barbourne College, Worcester.

Agate, L.	Horsham College.
Andrewartha, C. E.	Thornton House School, Redruth.
Bayley, H.	111 Lloyd St., Greenheys, M'chester.
Bickers, S.	The College, Gildersome.
Bowcock, W. H.	Leek Grammar School.
Brown, J. R.	Castle Hill School, Ealing Dean.
Broome, H.	Victoria Park School, Manchester.
Bungey, R.	Westfield House S., Hungerford.
Butter, B. T.	Lewisham House S., Weston-s.-Mare
Chapman, G.	College House School, Eastbourne.
Cooke, H. B.	Charles I. Gram. S., Kidderminster.
Coleman, A. W.	Horsham College.
Duncan, C. L.	Southampton Boys' Coll. & High S.
French, A.	Warbreck College, Aintree.
Granger, F. H.	Private tuition.
Garner, J. R.	Manchester Commercial Schools.
Hamilton, J.	Ghyll Bank College, Whitehaven.
Hannam, W. J.	Kendrick Middle School, Reading.
Hinchliff, F.	The Hermosa School, Ealing.
Irish, C. J.	Oak House School, Axminster.
Jones, A. J.	Willow House College, Walsall.
Kirkconel, W. E.	Ghyll Bank College, Whitehaven.
King, T.	Yarm Grammar School.
Loader, E. S.	Lord Williams' Gram. S., Thame.
Lucas, A. H.	Snettisham Grammar School.
Morgan, G.	Collett House, Bournemouth.
Moseley, L.	Beaufort College, St. Leonards.
Murray, W. P.	Cambridge House School, Wigan.
Nicholson, G. H.	Halifax New School.
Nixon, H. C.	Nonconf. Gram. S., Bp. Stortford.
Orwin, C. S.	Sutton Park School, Surrey.
Paterson, R. H.	St. Helen's College, Southsea.
Phillips, P.	Romford Grammar School.
Ralph, O. G. C.	Deal College.
Richardson, J. R.	Kingston School, Hull.
Rowlinson, H. C.	Cliftonville College, Margate.
Sissons, O. H.	Hull and East Riding College.
Slack, G. B.	Nonconf. Gram. S., Bp. Stortford.
Thomas, B.	Leylands School, Hornsea.
Thurston, J. W.	Commercial School, Wymondham.
Townsend, A. J. H.	Eton House School, Hull.
Turney, G. P.	Salway House School, Leyton.
Watson, E.	East Hardwick School.
Ward, H.	The Grammar School, Eccles.
Watson, G. A.	Rugby House School, Eastbourne.
Weston, A.	Royal Grammar S., Henley-on-T.
Williams, W. H.	St. George's Gram. S., Plymouth.

Ashford, H. F.	Hill House School, Totnes.
Bagley, E. A.	Ilkley College.
Bayley, J. B.	Leek Grammar School.
Bowes, G. W.	Grammar School, Ongar.
Burrett, F. B. S.	South Hackney High School.
Carter, F. N.	The Grammar School, Romsey.
Clarke, J. M.	Kersal Glen S., Higher Broughton.
Clayton, C. E.	Warwick House, Southsea.
Crole-Rees, H. D.	St. John's College, Southend.
Davis, J. A.	Newcastle-on-Tyne Modern School.
Elliott, W.	Mayall College, Herne Hill.
Fitton, W. S.	Wykeham House School, Kilburn.
Forshaw, J.	King Edward VI. School, Retford.
Greiz, J.	Anglo-French Coll., Finchley Road.
Grumley, S. E.	Oxenford House, Jersey.
Harris, D.	Swansea College.
Hardwick, A. C.	Salway House School, Leyton.
Haywood, H. M.	Mayall College, Herne Hill.
Hender, S. J.	Bible Christian College, Shebbear.
Hoult, G.	Ashley House School, Worksop.
Hoyle, J. P.	The College, Harrogate.
Isaacs, J. O. R.	St. George's Gram. S., Plymouth.
Isherwood, H.	Commercial School, Astley Bridge.
Jones, T. W.	Uxbridge Grammar School.
Kelham, S.	Sunny Hill School, Streatham.
Leary, G. E.	Ashted School, Birmingham.
Lockyer, C. J.	Private tuition.
Montgomery, R. E.	Lonsbury College, Upper Clapton.
Nicholls, W. H.	Holloway College, N.
Oliver, H.	Norton College, Luton.
Pearse, A. E.	Missionaries' Sons' S., Blackheath.
Porter, C. J.	Taunton's Trade S., Southampton.
Robson, A. G.	Gainford School.
Sharland, E. J.	Holmwood, Bexhill.
Senior, R. L.	High Street Academy, Fareham.
Smith, W. S.	The Douglas Coll. S. Cheltenham.
Stormont, P. H.	Emanuel S., Wausdworth Common.
Thompson, H. S.	The Choir S., Stratford-on-Avon.
Taylor, B. R.	Halbrake S., Wandsworth Common.
Tillman, F. J.	St. John's College, Truro.
Trenery, A.	Walton Institute, Liverpool.
Tubbs, W.	Taunton's Trade S., Southampton.
Walton, J.	Apsley House School, Margate.

BOYS, THIRD CLASS—*Continued.*

Warburton, G.	King Edward VI. School, Retford.
Watson, A. E.	Milton College, Ullesthorpe.
Watson, P. A. F.	The Hermosa School, Ealing.
Westmoreland, E.	Snettisham Grammar School.
Wotton, E. W.	Grammar School, Shepton Mallet.
Wroth, S.	Totnes Grammar School.

Anning, H. M.	Teignmouth Grammar School.
Bartholomew, G. W.	Etonhurst Prep.S., Weston-s.-Mare.
Bedforth, H. A.	Belle Vue House, Norwich.
Black, A. M.	Grosmont, Dyke Road, Brighton.
Blundell, F. W. J.	Charles I. Gram. S., Kidderminster.
Bray, F.	The Western College, Harrogate.
Broadbent, J. B.	Royal Masonic Inst., Wood Green.
Brown, S.	Apsley House School, Margate.
Bush, J. G.	Grove Park School, Wrexham.
Clarke, W. L.	Grammar School, Shepton Mallet.
Collier, H. J.	University School, Southport.
Conway, S. C.	Blenheim House School, Fareham.
Curgenven, L. W.	Osborne House, Margate.
De Gruchy, G. N.	St. Martin's Commercial S., Jersey.
Edie, H.	Byron House School, Ealing, W.
Edwards, T. B.	St. Austell School.
Etherton, G.	Horsham College.
Forster, J. E.	Hull and East Riding College.
Funnell, F.	Eastbourne Old School.
Greenstreet, H. C.	Dane Hill School, Margate.
Hilton, W. H. L.	Wellington College, Salop.
Lance, H. W.	Balham High School, S.W.
Moore, E.	Wellington College, Salop.
Pearce, C. H.	Leylands School, Hornsea.
Protheroe, D. T.	Grove Park School, Wrexham.
Ratsey, G. E.	Handel College, Southampton.
Reid, W. S.	Grammar School, Wallingford.
Simpson, H.	The Grammar School, Mirfield.
Spackman, F. A.	Cathedral Choir School, Ripon.
Statham, W. F.	Epworth College, Rhyl.
Steele-Boyce, W.	Anglo-French Coll., Finchley Road.
Taylor, H.	Wellington School, Heaton Moor.
Turnell, C.	The School, Eaton Socon.
Tusting, J. G.	Cowper's House S., Huntingdon.
Webster, C. H.	Thanet College, Margate.
Wilkin, S. S.	Nonconf. Gram. S., Bp. Stortford.
Willcock, M. J. R.	Bible Christian Coll., Shebbear.

THIRD CLASS.—3RD DIVISION.

Armstrong, E. G.	Borthwick House, Bournemouth.
Barnes, T. T.	Bible Christian College, Shebbear.
Barry, F.	Malden College, New Malden.
Bates, R. F.	Battersea Grammar School.
Benest, E. W.	Beaumont House School, Jersey.
Bradford, R. J.	The Hermosa School, Ealing.
Burnell, W. J.	Walton Institute, Liverpool.
Cadman, E. J.	Wellington School, Heaton Moor.
Carpenter, W. C. M.	Grammar School, Folkestone.
Cartwright, W.	The Grammar School, Garston.
Clegg, G. H.	Grammar School, Burnley.
Cook, H.	King Edward VI. School, Retford.
Cooke, A. H.	Alexandra House, Newport, I.W.
Cooke, T. W.	Farnworth Grammar School.
Coopper, H. T.	Bible Christian College, Shebbear.
Corbett, E. W.	Wellington College, Salop.
Dyer, F. W.	Southampton Boys' Coll. & High S.
Ellis, S.	Bible Christian College, Shebbear.
Fawcett, H. J.	Apsley House School, Margate.
Ferguson, L. T.	Ghyll Bank College, Whitehaven.
Gubb, T. W.	Highbury House S., St. Leonards.
Hammond, H. S.	Churchill House, Dover.
Herridge, J.	Gillingham Grammar School.
Hopkins, A.	Gillingham Grammar School.
Hudson, J. J.	Snettisham Grammar School.
Jackson, R. H.	Ellesmere School, Harrogate.
Jenkins, D. E.	Mansell Street School, Briton Ferry.
Jones, A. L.	Tredegar Grammar School.
Josa, H. L. J.	The College, Addlestone.
La Fayne, D. N.	Dane Hill School, Margate.
Lucas, F. C.	Snettisham Grammar School.
Meredith, J.	St. Asaph Grammar School.
Moore, A. L.	Charles I. Gram. S., Kidderminster.
Mungeam, E. W.	Collegiate School, Hythe.
Nimmo, J. H.	Beaumont House School, Jersey.
Payne, J. H.	Commercial School, Shrewsbury.
Rowse, W. J.	Caversham House School, Reading.
Saunders, E. T.	Charing Cross School, St. Heliers.
Sawyer, C.	Grammar School, Wallingford.
Shapland, H.	Ilfracombe College.
Shinner, E. G.	Polytechnic Intermediate S., W.
Smith, E. C.	Cowper's House S., Huntingdon.
Smith, M. R.	Wykeham House School, Kilburn.
Sykes, A.	Catholic Coll. Inst., Manchester.
Tope, E. W.	Hoe Grammar School, Plymouth.
Wickham, J. R.	Trafalgar House S., Manchester.
Woodford, W.	Gillingham Grammar School.

Adams, F. P.	Oxford House, Brighton.
Barugh, J.	High School, Stockton-on-Tees.
Buckland, P. J.	Anglo-French Coll., Finchley Road.
Campkin, M. S.	Southampton Boys' Coll. & High S.
Collard, C. F.	Kent County School, Birchington.
Crawford, H. C.	St. Martin's Gram. S., Scarborough.
Critchley, V. F.	Kendrick Middle School, Reading.
Davis, J.	High School, Shrewsbury.
Dearling, W. E.	Apsley House School, Margate.
Dixon, B. R.	Dane Hill School, Margate.
Fairholme J.	Brunswick House, Maidstone.
Greig, G.	Eversley, Clifton.
Hare, S.	Private tuition.
Hyde, W.	Maida Vale School, W.
Jenkin, J. B. L.	St. John's College, Truro.
Jenkins, J. G.	Apsley House School, Margate.
Jones-Parry, G. L.	Grove Park School, Wrexham.
Kidgell, H. J.	Kendrick Middle School, Reading.
Lewis, R.	Warlingham School, Surrey.
Lister, W. H.	Private tuition.
Maxwell, W.	New Coll., Cliftonville, Margate.
Meatyard, R. E.	Gillingham Grammar School.
Nicholls, A. E.	Lonsbury College, Upper Clapton.
Pamphilon, S. E.	Nonconf. Gram. S., Bp. Stortford.
Pearson, J. M.	Qn. Eliz. Gram. S., Kirkby Lonsdale.
Phillips, H. M.	Greenhill, Tenby.
Risien, P. A.	Deal College.
Roberts, F. H.	Cambridge House School, Wigan.
Russell, J. E.	Nelson College, Lee, S.E.
Scott, E. C.	Goole Grammar School.
Sherborne, J.	Redland Grove, Clifton.
Southall, F. L.	Belle Vue House, Norwich.'
Thomson, H.	Sunny Hill School, Streatham.
Tusting, T. R.	Cowper's House S., Huntingdon.
Wheeler, W. E.	Castle School, Guildford.

Atkinson, F.	Osborne House, Margate.
Barnett, D. B.	Maida Vale School, W.
Barr, A. G.	Thornham House, West Brighton.
Bleasdale, R.	Claremont College, Blackpool.
Bennett, T. L.	Wellington College, Salop.
Bradbeer, W. F.	Fairfield House College, Exeter.
Brown, E. W.	Darfield College, East Acton.
Cadbury, G.	Harborne Vicarage, Birmingham.
Cameron, W. P.	Henley House S., St. John's Wood.
Clarke, G. A.	Beaumont House School, Jersey.
Coates, W. H.	Belvoir Road School, Bristol.
Coventry, C. F.	Albert Parker School, Didsbury.
Dale, H. D.	College House S., Eastbourne.
Davies, E. R.	Hoole Collegiate School, Chester.
Endersby, F. E.	Lord Williams' Gram. S., Thame.
Engley, A. B.	Lonsbury College, Upper Clapton.
Fountaine, C. D.	Lord Williams' Gram. S., Thame.
Gaydon, H.	Stamford Hill Collegiate School.
Gray, T. B.	Formby College, Liverpool.
Hamilton, A.	Sunny Hill School, Streatham.
Harrod, A. C.	Gunnersbury College.
Harvey, S. W.	Kent College, Canterbury.
Ilton, G.	Victoria Collegiate School, Erith.
James, W. E.	Paradise Ho. S., Stoke Newington.
Hey, W. M.	Aberdeen House, Ramsgate.
Lott, W. E.	38 Tavistock Place, Plymouth.
Loveland, A.	St. George's Grammar S., Plymouth.
Marsden, A.	Beaumont House School, Jersey.
Martin, A.	Stamford House S., Eastbourne.
Maxton, A. C.	Vermont College, Clapton.
Müller, K. W.	Sutton Park School, Surrey.
Parratt, W. B.	Cathedral Choir School, Ripon.
Pearse, A. J.	Missionaries' Sons' S., Blackheath.
Penso, L.	Maida Vale School, W.
Pike, E.	The Grammar School, Midhurst.
Pincus, W. G.	Ilkley College.
Porter, R. E. A.	Kent College, Canterbury.
Quérée, H. C.	Charing Cross School, St. Heliers.
Raahange, U. P. W.	Eldon College, Hull.
Robinson, J. H.	Wellingborough Grammar School.
Saunders, E. G.	Hill House School, Totnes.
Sevening, P.	Ilfracombe Grammar School.
Townshend, F.	Upton School, Slough.
Warr, F. H.	Teignmouth Grammar School.
Withers, F. S.	Bourne College, Quinton.
Wood, W. J. F.	The Douglas Coll. S., Cheltenham.

Aspinall, H. F.	Royal Masonic Inst., Wood Green.
Bedford, F. H.	Lewisham Ho. S., Weston-s.-Mare.
Beeston, A. L. D.	Anerley High School.
Bottomley, A.	Halifax New School.
Cowx, F.	East Hardwick School.
Clarkson, W. G.	Greenhill, Tenby.
Davison, A. E.	Cowper's House S., Huntingdon.
Dodimeade, J.	Grammar School, Shepton Mallet.
Green, E. J.	Osborne House, Margate.
Harland, W. S.	High School, Stockton-on-Tees
Harris, O. M.	Great Ealing School, Ealing.
Hancox, R.	Malden College, New Malden.
Hughes, R.	St. Asaph Grammar School.
Jagger, F. P.	Halifax New School.
King, J.	Hart House School, Tregoney.
Knibb, T. W. H.	Battersea Grammar School.
Lake, H. C.	Private tuition.
Lock, F. W.	Alexandra House, Newport, I.W.
May, H.	The Grange School, Halstead.
McLeod, G. D.	Swansea College.
Moule, T. J.	St. George's Gram. S., Plymouth.
Munby, J. W.	Berkeley School, Hull.
Needham, F. G.	Milton College, Ullesthorpe.
Nicholas, C. E.	Walton School, Llangollen.
Oldman, H. R. D.	Osborne House, Margate.
Ollerhead, J.	Grove Park School, Wrexham.
Pegler, E. C.	Private tuition.
Pinnock, J. C.	Uxbridge Grammar School.
Perrin, J. T.	Brunswick House, Maidstone.
Peterson, R. P.	Beverley House School, Barnes.
Purser, C.	Mead House School, Biggleswade.
Rawlinson, J. H.	The Grammar School, Garston.
Russell, F. J.	Willow House College, Walsall.
Stovold, E.	High School for Boys, Sutton.
Smith, W.	Manor House, Clapham.
Steel, C. B.	Tredegar Grammar School.
Tee, C. W.	St. Aubyn's, Woodford Wells.
Thomas, H. V.	Thornton House School, Redruth.
Thomas, W. H.	Mount Radford School, Exeter.
Trafford, V. L.	Leek Grammar School.
Turnbull, R. F.	Vermont College, Clapton.
Upton, A. W. F.	New Coll., Cliftouville, Margate.
Westgate, L.	Belle Vue House, Norwich.
White, T. B.	Southampton Boys' Coll. & High S.
Wrigley, W.	Stamford Hill Collegiate School.
Wood, G. A.	Ilkley College.

Blackburn, H.	Trinity College, Harrogate.
Black, A. M.	Halbrake S., Wandsworth Common.
Boughey, W. O.	Albert Park School, Didsbury.
Boocock, W. E.	Halifax New School.
Boyes, H.	The Choir S., Stratford-on-Avon.
Brailsford, L. E.	Selhurst Park College, S.E.
Brackett, W. N.	Sea House School, Eastbourne.
Brownsword, E.	Wellington School, Heaton Moor.
Collitt, W. S.	Cathedral Choir School, Ripon.
Denny, W.	Farnworth Grammar School.
Dixon, J. E.	The College, Gildersome.
Dobson, A. C.	Ilkley College.
Drummond, E. H.	Vermont College, Clapton.
Goldsmith, B. K.	Victoria Coll., Douglas, I. of Man.
Grant, W. A.	King Edward VI. School, Retford.
Hallett, C. O.	Lewisham Ho. S., Weston-s.-Mare.
Harding, S. J.	Forest Hill Middle Class School.
Harding, W. E.	Dane Hill School, Margate.
Hiller, L.	Berkeley School, Hull.
Holmes, J. D. W.	Grammar School, Wallingford.
Johnson, R. B.	The College, Addlestone.
Lamb, H. J.	2 St. Philip's Road, Surbiton.
Lewis, W.	Holt Academy.
Lowe, H.	Grove Park School, Wrexham.
Mainwaring, T. C. F.	Hornsey Park College, N.
McLeavy, H.	Eton House School, Hull.
Morland, H.	Private tuition.
Puttick, W. L.	Haslemere Grammar School.
Roberts, A.	Commercial School, Shrewsbury.
Rolinson, F.	Commercial School, Shrewsbury.
Samuel, H. W.	Grove Park School, Wrexham.
Sare, T. H.	Mayall College, Herne Hill.
Short, F. C.	Taunton's Trade S., Southampton.
Smith, W. S.	Collegiate School, Salisbury.
Wilson, G. E.	The Southern Coll., Pannal Ash.
Wilson, J. A.	Streatham School.
Wiles, E P.	Glenwood Ho. S., Winchmore Hill.
Worsley, E. J.	University School, Southport.

Adams, S. J.	Eton House Com. School, Sheffield.
Ayre, C.	Goole Grammar School.
Baldwin, W.	Grove Place School, Rochdale.
Barrow, E. T. E.	Commercial S., Downham Market.
Batchelar, W.	Worthing Collegiate School.
Beech, S. J.	Oakfield House, Balsall Heath.
Bransbury, H. A.	Vickery's, Southsea.
Brogden, T. F.	Belgrave School, Scarborough.
Brown, A. H.	Intermediate S., Burton-on-Trent.
Brown, E. J.	Forest Hill Middle Class School.
Cammell, H. W.	The Collegiate S., Saltburn-by-Sea.
Castle, C.	Kendrick Middle School, Reading.
Davisson, P. F. D.	International College, Rochester.
Eastwood, C. W.	East Hardwick School.
Elliott, T.	Hart House School, Tregoney.
Elphick, J. H.	Paignton School.
Fisher, R. W.	Exmouth College.
Franck, J. E.	Sea House School, Eastbourne.
Halstead, H. C.	Higher Grade School, Bacup.
Harris, W.	Redland Hill House, Clifton.
Hayes, H.	Farnham Grammar School.
Heir, A. E.	Brunswick House School, Windsor.
Hodgson, N. B.	Emanuel S., Wandsworth Common.
Irwin, S. E.	Victoria Coll., Douglas, I. of Man.
Lea, W.	High School, Shrewsbury.
Luckin, W.	Horsham College.
Middleton, W.	52 Westbourne Road, Sheffield.
Musgrave, E. H.	Independent College, Taunton.
Nichols, C.	Sydenham College, S.E.
Parker, H.	Guildhall Mid. S., Bury St. Edmds.
Percival, S. T.	Southampton Boys' Coll. & High S.
Pewtress, C. P.	Lewisham Park School, S.E.
Profit, J. W.	Bolton High School for Boys.
Pye, W. H.	Warbreck College, Aintree.
Read, H. S.	Grammar School, Shepton Mallet.
Reason, A. O.	Trinity College, Harrogate.
Rivett, F.	Norman Road School, Rusholme.
Rowell, J. B.	Deal College.
Shaul, P. J.	Battersea Grammar School.
Shaw, S. A.	Broughton S., Higher Broughton.
Smith, J.	Grammar School, West Bromwich.
Taylor, P. W.	Leamington Collegiate School.
Thompson, J. H.	Bickerton House School, Birkdale.
Topp, J.	Anglo-French Coll., Finchley Road.
Turner, G.	Wellingborough Grammar School.
Warburton, P. G.	The Grammar School, Eccles.
Welch, F.	Bible Christian College, Shebbear.
White, C.	Corsham School.
Wright, S. G.	East Hardwick School.

Adams, R.	Alstonefield, Ashbourne.
Adams, G. S.	St. Peter's College, St. Leonards.
Barnett, J. C. W.	Lewisham Ho. S., Weston-s.-Mare.
Bradshaw, A. E.	Aberdeen House, Ramsgate.
Bruce, T. L.	Aberdeen House, Ramsgate.
Bryan, A.	The College, Churwell, Leeds.
Bluett, P. E.	Leek Grammar School.
Cable, J.	Cleave's Endowed School, Yalding.
Coles, H. E.	East Anglian S., Bury St. Edmunds.
Cook, H.	Belmore House School, Cheltenham.
Cooper, A.	Kent College, Canterbury.
Cooper, F. L.	Deal College.
Davey, J.	Thornton House S., Redruth.
Fisher, C. S.	Osborne House, Margate.
Fram, J.	Hornsey Park College, N.
Goldney, P.	Grosmont, Dyke Road, Brighton.
Gordon, H. P.	Rugby House School, Eastbourne.
Guest, H.	Manor House, Clapham.
Haine, A. G.	Parbrook Collegiate School.
Hollis, W.	Victoria Collegiate School, Erith.
Howson, J. M.	Ghyll Bank College, Whitehaven.
Jackson, J.	The Grammar School, Eccles.
Jay, E.	Beaufort College, St. Leonards.
Johnson, G. H.	The Western College, Harrogate.
King, T. G.	Victoria College, Stroud Green.
Lowthian, H. D.	Sydenham College, S.E.

BOYS, THIRD CLASS—*Continued.*

Parker, J. C.	Wellingborough Grammar School.
Pittock, P. E.	Kent College, Canterbury.
Read, W. J. L.	Swindon High School.
Simpson, F. A.	Grammar School, Burnley.
Sim, E. A.	Collegiate School, Aldershot.
Smith, W. O.	University School, Southport.
Steed, F. O.	Grammar School, Sudbury, Suffolk.
Tinker, T. S.	University School, Southport.
Worth, E. L.	Grove Place School, Rochdale.
Worthington, J.	Norton College, Luton.
Wooster, B. E.	Lord Williams' Grammar S., Thame.
Allen, A.	St. Mary's Hall School, Cardiff.
Barlow, J. M. S.	Taunton House School, Brighton.
Barnard, E. A.	Great Ealing School, Ealing.
Bennett, C. T.	Apsley House School, Margate.
Bodenham, C. F.	Wellington College, Salop.
Bower, W.	Ilkley College.
Button, A. E.	Stamford Hill Collegiate School.
Carter, W. B.	Summerleaze Coll. S., E. Harptree.
Cook, W.	King Edward VI. School, Retford.
Cotching, T.	Horsham College.
Crewes, W. C.	St. John's College, Truro.
Cross, S. H.	St. George's Gram. S., Plymouth.
Davies, W. R.	Bolton Grammar School.
Donald, P. A.	St. Helen's College, Southsea.
Forward, W. G.	Oak House School, Axminster.
Goodchild, W. J.	Kendrick Middle School, Reading.
Hearne, W.	Gunnersbury College.
Hoskiug, G.	Teignmouth Grammar School.
Inman, S. G.	Gillingham Grammar School.
Instone, A. P.	Wellington College, Salop.
Jones, A. H.	Selhurst Park College, S.E.
Kelley, F. O.	Bible Christian College, Shebbear.
Knowling, P.	Upton School, Slough.
Martin, D. F.	York Street Academy, Wakefield.
Malkin, J. P. D.	West House College, Congleton.
Morty, J. M.	Grammar School, Wallingford.
Nice, T. H.	Guildhall Mid. S., Bury St. Edmds.
Nichols, H. J.	Leamington Collegiate School.
Northcote, S. S.	York Street Academy, Wakefield.
Pedley, J. H.	Lord Williams' Grammar S., Thame.
Penny, J. R.	Lewisham Hi. S., Weston-s.-Mare.
Pigott, J. E. G.	Missionaries' Sons' S., Blackheath.
Simons, C. L.	Sydenham College, S.E.
Spencer, H.	West House College, Congleton.
Tillman, A. E.	St. John's College, Truro.
Waterman, W. R.	Northampton House S., Salisbury.
Walker, A. G.	Park Hurst School, Buxton.
Walters, L.	Grove House, Folkestone.
Williams, H.	The College, Weston-super-Mare.
Wood, A.	The Grammar School, Mirfield.
Allen, C. T.	Wykeham House School, Kilburn.
Bailey, R. N.	Missionaries' Sons' S., Blackheath.
Bell, G. H.	Laurel Bank S., Higher Broughton.
Bingham, W. R.	Forest Hill Middle Class School.
Carr, G.	Sydenham College, S.E.
Cooper, F. W. A.	Selhurst Park College, S.E.
Davies, T. R. G.	High School, Shrewsbury.
Earp, W.	West House College, Congleton.
Evans, H. S.	Upton School, Slough.
Ferguson, J.	Sunny Hill School, Streatham.
Grubb, D. H.	Kent College, Canterbury.
Haines, W. J. F.	Lewisham House S., Weston-s.-Mare.
Hairsine, H.	Grammar School, Drax, Selby.
Harris, W. E.	Handel College, Southampton.
Holmes, J. E.	Ashley House School, Worksop.
Janson, R.	Anglo-French College, Finchley Rd.
Johnson, W. T.	Oxford House, Brighton.
Law, F.	Anglo-French College, Finchley Rd.
Lees, N.	Claughton Coll. S., Birkenhead.
Longley, E. H.	High School, Barnsley.
Llewellin, J. H.	Wellington College, Salop.
Maye, J.	Totnes Grammar School.
Mellowdew, J. W.	Bickerton House School, Birkdale.
Merrick, E. L.	Private School, Walton-on-Thames.
Nicholls, H.	Grammar S., Sudbury, Suffolk.
Oliver, R.	Scorton Grammar S., Darlington.
Perrett, G. H.	Middle Class S., Weston-s.-Mare.
Pertwee, T. B.	Sydenham College, S.E.
Ruoff, P. O.	Castle Hill School, Reading.
Sanderson, C. L.	Scarborough Grammar School.
Southernwood, P.	Lord Williams' Gramar S., Thame.
Stockwell, C. J.	Encombe School, Reading.
Sturgess, H.	St. Helen's College, Southsea.
Thomas, A.	Swansea College.
Toogood, L. H.	Eton House School, Hull.
Tomlinson, J. H.	The College, Gildersome.
Townsend, W. W.	Hanham Court School, Bristol.
Walden, W. H.	Collett House, Bournemouth.
Williams, J. H.	27 Water Street, Rhyl.
Westoby, E. I.	Grammar S., Sudbury, Suffolk.
Adams, C. H.	St. Peter's College, St. Leonards.
Adams, G.	Alstonefield, Ashbourne.
Andrews, T.	St. Asaph Grammar School.
Baker, O.	Harborne Vicarage, Birmingham.
Barrow, H. J.	Warbreck College, Aintree.
Brown, J. H.	Berkeley School, Hull.
Bush, F.	Osborne House, Margate.
Clarkson, F. M.	Byron House School, Ealing, W.
Dean, H.	Mayall College, Herne Hill.
Dorey, J. H.	College House School, Eastbourne.
Dowelly, J.	Deal College.
Ferguson, R. W.	Bourne College, Quinton.
Fleming, W. E.	Allerton House, Watford.
Gilbert, J. B.	The Hermosa School, Ealing.
Harris, C. E.	Wellington College, Salop.
Hart, H.	Taunton's Trade S., Southampton.
Langley, A. S.	Darfield College, East Acton.
Meikle, H.	Uplands, Scarborough.
Miles, H. A.	Norton College, Luton.
Paige, H. P.	Norton College, Luton.
Purkis, W. G.	Northgate S., Bury St. Edmunds.
Skinner, D.	Malden College, New Malden.
Snelgrove, T. P.	Grammar School, Shepton Mallet.
Soane, H. W.	The High School, Waltham Cross.
Stevens, W. E.	Deal College.
Tillett, E. W.	Snettisham Grammar School.
Bilbie, A.	Summerleaze Coll. S., E. Harptree.
Carder, J. A.	Romford Grammar School.
Colwell, W. T. R.	Rutland County S., Uppingham.
Columbine, A. E.	Springfield College, Acton.
Courtier, H.	Apsley House School, Margate.
Dean, C.	Heaton Lodge School, Coln Bridge.
De Ville, F.	Battersea Grammar School.
Drapes, E. H. A. T.	Emanuel S., Wandsworth Common.
Dunbar, J. M.	Wareside Endowed Grammar S.
Elliott, B. T.	Lewisham Ho. S., Weston-s.-Mare.
Feak, P. A.	Catford Collegiate S., Lewisham.
Fraser, L. K.	New College, Cliftonville, Margate.
Hart, G.	Farnham Grammar School.
Hoare, J.	Independent College, Taunton.
Keevil, C. P.	Malden College, New Malden.
Lewis, F.	Warlingham School, Surrey.
Marrow, A. C.	Hoe Grammar School, Plymouth.
Marshall, H.	Taunton's Trade S., Southampton.
Mallard, A. J.	Hoole Collegiate School, Chester.
Maw, W. H.	Hoylake School.
Palmer, G. M.	St. John's College, Truro.
Richards, A. E.	Broughton S., Higher Broughton.
Rodier, J. H.	Albert Park School, Didsbury.
Rogers, R. E. C.	Bible Christian College, Shebbear.
Steel, C.	Belmore House S., Cheltenham.
Thorpe, R. O.	Hope House, New Leeds.
Towgood, E.	Kendrick Middle School, Reading.
Ames, E.	Portway High School, Bath.
Appleton, G. M.	Raymond House, Bramley, Guildfd.
Black, J. R.	Springfield College, Acton.
Brookes, A.	Broughton S., Higher Broughton.
Cooke, W. R.	Independent College, Taunton.
Coles, H. J.	Pine House School, Wincanton.
Cronkshaw, J. S.	Lord Williams' Grammar S., Thame.
Creasey, H. S.	Highbury House S., St. Leonards.
Dishart, W. F.	The Academy, Crewe.
Gillman, R. W.	Lord Williams' Grammar S., Thame.
Good, W. E.	New Coll., Cliftonville, Margate.
Griffith, W.	Lucton S., Kingsland, Hereford.
Howarth, J. A.	Higher Grade School, Bacup.
I'Anson, H. C.	The Southern College, Pannal Ash.
Jackson, W.	Anerley High School.
Jeune, H. P.	St. Martin's Commercial S., Jersey.
McLeavy, W.	Eton House School, Hull.
Nicholson, J. G.	Halifax New School.
Patterson, F. J.	High School, Stockton-on-Tees.
Poole, H. L.	Grammar School, Folkestone.
Ramsden, R.	Halifax New School.
Smith, F. H.	Borthwick House, Bournemouth.
Smith, H. C.	Dane Hill School, Margate.
Stone, A. D.	Highbury House S., St. Leonards.
Swales, E.	Up-Holland Grammar School.
Williams, C. A.	Arnold College, W. Bournemouth.
Wood, C. J. B.	Wellingborough Grammar School.
Adey, S. W.	Battersea Grammar School.
Alford, C. C. G.	Victoria College, Strond Green.
Angus, J.	Anglo-French Coll., Finchley Road.
Bencke, A. E.	Vickery's, Southsea.
Bedale, C. L.	The Grammar School, Eccles.
Bletsoe, M. B.	Wellingborough Grammar School.
Burgoyne, T. L.	Falkland Park School, Torquay.
Byrne, H. C.	Claughton Coll. S., Birkenhead.
Deverell, H. G.	Lewisham Ho. S., Weston-s.-Mare.
Ellis, S. R.	Missionaries' Sons' S., Blackheath.
Ferguson, R.	Highfield School, Rock Ferry.
Fowler, H. B.	Highbury House S., St. Leonards.
Goldberg, M.	Belmore House S., Cheltenham.
Grierson, G. F. A.	Broughton S., Higher Broughton.
Hall, H. F. W.	Battersea Grammar School.
Highman, E. W	Northampton House S., Salisbury.
Maskery, T.	Leek Grammar School.
Pescod, F. E.	Nelson College, Lee, S.E.
Phillips, H.	Warlingham School, Surrey.
Starey, H. N.	Battersea Grammar School.
Thompson, H. E.	11 Lee Crescent, Edgbaston.
Weller, W. G.	New Coll., Cliftonville, Margate.
Whitaker, J. E.	Devonshire Place School, Bath.
Worth, A. J.	Independent College, Taunton.
Andrews, S.	Warbreck College, Aintree.
Baker, A.	Stamford Hill Collegiate School.
Beers, H. E.	Wellingborough Grammar School.
Braithwaite, R.	Broughton S., Higher Broughton.
Cowan, J. C.	The Grammar School, Garston.
Dayson, J. W.	Ghyll Bank College, Whitehaven.
Engel, L.	Warlingham School, Surrey.
Floyd, H. W.	Worthing Collegiate School.
Harrison, A. W.	Commercial School, Shrewsbury.
Hicks, T. R. S.	Bible Christian College, Shebbear.
Hughes, E. J.	St. Martin's Gram. S., Scarboro'.
Hughes, L.	Catholic Coll. Inst., Manchester.
Jenkins, H. B.	Lewisham Ho. S., Weston-s.-Mare.
Marsh, F. E.	Wollaston Rd. School, Dorchester.
Meriton, G. F.	Wilson College, Stoke Newington.
Moss, W. B.	Kent College, Canterbury.
Mummery, H. H.	Grongar House, Margate.
Philpott, W. T.	Warbreck College, Aintree.
Pope, E.	Surrey House School, Margate.
Raison, C.	Sea House School, Eastbourne.
Rowcliffe, E. C.	Charing Cross School, St. Heliers.
Taylor, I. H.	The Grammar School, Eccles.
Sykes, J. T.	King Edward VI. School, Retford.
Thompson, H.	Yarm Grammar School.
Butler, F.	Castle Hill School, Ealing Dean.
Collings, T. H. O.	Raymond House, Bramley, Guildfd.
Coulshed, W.	Cambridge House School, Wigan.
Rushton, R.	University School, Southport.
Crowther, J. L.	Halifax New School.
Drinkwater, G. W.	Wellington College, Salop.
Duncan, R.	Horsham College.
Elliott, G. J.	York Street Academy, Wakefield.
Floyd, C. R.	Worthing Collegiate School.
Gillitt, T.	Wellingborough Grammar School.
Green, A. W.	Dane Hill School, Margate.
Heath, C. R.	Claughton Coll. S., Birkenhead.
Jaffe, D.	Warlingham School, Surrey.
Jones, S. H.	Ilfracombe Grammar School.
Jones, E. C.	Westbourne Park College, W.
Kerschskin, L. G.	Halbrake S., Wandsworth Common.
Kershaw, R. P.	Rhodes House S., Cheetham Hill.
Luscombe, J.	Hill House School, Totnes.
Mason, A. C.	Anglo-French Coll., Finchley Road.
McConnell, A.	The Herrick School, Lewisham.
Morris, J. T.	Commercial School, Shrewsbury.
Murnane, C. J.	The Academy, Norwich.
Rich, H.	Lord Williams' Grammar S., Thame.
Riley, W.	The Southern Coll., Pannal Ash.
Sharman, F. H.	Lewisham High S., Weston-s.-Mare.
Spearman, J.	Beaumont House School, Jersey.
Tripp, T. T.	West House College, Congleton.
Wintle, W.	Private tuition.
Witten, J.	St. Kenelm's School, Cowley.
Woodward, R. H.	Charles I. Gram. S., Kidderminster.
Woodthorpe, T. A.	Intermediate S., Burton-on-Trent.
Axtell, J.	Malden College, New Malden.
Beers, H. E.	Wellingborough Grammar School.
Botten, C.	The Herrick School, Lewisham.
Bradford, W.	Old Elvet School, Durham.
Calder, F. S.	Redland Grove, Clifton.
Carpenter, F. C.	Camberwell Grammar School.
Dadswell, P. W.	International College, Rochester.
Dale, W. A.	Gainford School.
Deane, J. F.	Lord Williams' Gram. S., Thame.
Evans, B.	Nonconf. Gram. S., Bp. Stortford.
Gardner, W.	Catholic Coll. Inst., Manchester.
Gibbons, E.	Carter House School, Deal.
Harbottle, E. J.	Mount Radford School, Exeter.
Johnson, E. J.	Grammar School, Devizes.
Laver, J. G.	Middle Class S., Weston-s.-Mare.
Lewis, C. D.	Tredegar Grammar School.
Lewis, F. W.	Treverbyn Board S., St. Austell.
Leigh, H. S.	Rhodes House S., Cheetham Hill.
Ludlam, T. H.	Intermediate S., Burton-on-Trent.
Middleton, E. J.	Apsley House School, Margate.
Nightingale, C. T.	Taunton House School, Brighton.
Orr, W. G.	Commercial S., Downham Market.
Phillips, A. H.	Thornton House School, Redruth.
Priestman, H.	Ilkley College.
Scott, W. P.	Clevely Hall School, Plymouth.
Schenkenwald, V.	Stamford Hill Collegiate School.
Storey, B.	Berkeley School, Hull.
Tennet, H. L.	Ilkley College.
Townsend, P.	Gillingham Grammar School.
Wright, S. J.	Claughton Coll. S., Birkenhead.
Yetts, W. P.	Cambridge Lodge, Worthing.
Bentall, R. H.	Farnham Grammar School.
Bernard, C.	Redland Hill House, Clifton.
Bluett, H. L.	Leek Grammar School.
Chappell, W. P.	Victoria College, Stroud Green.
Fulford, J.	East Hardwick School.
Helson, W.	Fairfield House College, Exeter.
Hollis, A.	Emanuel S., Wandsworth Common.
Hoperoft, G. E.	Albert College, Shirley.
Hutchins, G.	Cromartie House School, Aeton.
Lock, A. E. L.	Battersea Grammar School.
Rains, S. G.	Intermediate S., Burton-on-Trent.
Semmenel, H. L.	Commercial School, Wymondham.
Sharman, S.	Wellingborough Grammar School.
Willis, E. G. T.	Bible Christian Coll., Shebbear.
Woodhams, P. P.	International Coll., Rochester.
Ayres, P.	Kendrick Middle S., Reading.
Bradbury, H.	Highfield School, Newnham.
Davis, C.	Beaufort College, St. Leonards.
Eaton, R. W.	Sydenham College, S.E.
Green, F.	Catholic Coll. Inst., Manchester.
Halfhead, R. N.	College House S., Eastbourne.
Lawton, F.	Collegiate School, S. Woodford.
Lupton, W. J.	Collegiate School, Accrington.
Nancarrow, S. H.	Hoe Grammar School, Plymouth.
Rees, W. D.	The High School, Aberdare.
Richardson, H. R.	Missionaries' Sons' S., Blackheath.
Roads, F. G.	Lord Williams' Grammar S., Thame.
Spraggon, J. R.	Hexham Modern School.
Tootell, C. G.	King Edward VI. School, Retford.
Wells, A. M.	Anglo-French Coll., Finchley Road.
Wells, E. E.	Battersea Grammar School.
Wilson, T. B.	South View, Ironbridge, Salop.
Worcester, W. G. G.	Taunton House School, Brighton.
Arno, S.	Thanet College, Margate.
Barnard, H.	Rocklea, West Hill, Sydenham.
Batten, A. H. F.	St. Kenelm's School, Cowley.
Beasley, J. C.	Wellingborough Grammar School.
Eacott, R. G.	King Edward VI. School, Retford.
Evans, G.	The High School, Aberdare.
Gibson, A.	Anglo-French Coll., Finchley Road.
Goodman, R. R.	Baythorn House School, Acton.
Henriques, E. C. Q.	Laurel Bank S., Higher Broughton.
Keene, H.	Battersea Grammar School.
Kirkby, E. G.	Formby College, Liverpool.
Pickering, H. W.	The Grammar School, Garston.
Reid, E.	Collegiate School, S. Woodford.
Robinson, H. B.	Grammar School, Pontypool.
Rossiter, P. J.	Oakfield House, Balsall Heath.

BOYS, THIRD CLASS—*Continued.*

Skeffington, J. G.	Battersea Grammar School.
Turner, H.	Bourne College, Quinton.
Brown, A. J.	New College, Cliftonville, Margate.
Bullock, A. B.	Rugby House School, Eastbourne.
Carter, C. C.	Polytechnic Intermediate S., W.
Eustace, N.	The Herrick School, Lewisham.
Falkner, G. E.	N. Camberwell High School.
Grove, H.	Kendrick Middle School, Reading.
Harris, H.	The Herrick School, Lewisham.
Hughes, H.	St. Asaph Grammar School.
Jones, C.	Commercial School, Shrewsbury.
Kennard, W.	Collegiate School, S. Woodford.
Lockwood, J. H.	Denbigh Grammar School.
Paris, R. A.	The Academy, Norwich.
Patterson, F.	Victoria Park, S. Manchester.
Pulbean, R. D.	The Herrick School, Lewisham.
Reynolds, H. E.	Sydenham College, S.E.
Stott, M. H.	Grove Place School, Rochdale.
Sykes, W. H.	King Edward VI. School, Retford.
Turner, E. J.	Kingsland School, Shrewsbury.
Turner, W. G.	Kingsland School, Shrewsbury.

The following obtained Special Certificates, having each obtained a General Certificate at a former Examination.]

Alexander, R.	*d.*	The Grammar School, Eccles.
Dewdney, A. V.	*d.*	Hill House School, Totnes.
Eve, A. E.	*d.*	Brunswick House, Maidstone.
Hatton, W.	*d.*	Anglo-French College, Finchley Rd.
Le Riche, A. J. P.	*f.*	Private study.
Stead, H.	*ch.*	Parish Church Mid. Class S., Leeds.
Stevens, C.	*ger.*	Private tuition.
Walton, P. C.	*ch.*	Southampton Boys' Coll., High St.

PASS LIST OF CANDIDATES FOR CERTIFICATES OF PROFICIENCY IN MERCANTILE SUBJECTS.

Barton, G. W.	The Royal Grammar School, Sheffield.
Berger, O.	Catholic Collegiate Institute, Manchester.
Colman, H. C.	Nonconformist Gram. S., Bishop Stortford.
Eyres, J.	Wilsford House School, Devizes.
Hickson, A.	Catholic Collegiate Institute, Manchester.
Hindley, J. C.	The Grammar School, Eccles.
Kingdon, F. M.	Nonconformist Gram. S., Bishop Stortford.
Lord, Z. M.	The Grammar School, Eccles.
Massey, J.	Catholic Collegiate Institute, Manchester.
Payne, P. J.	Nonconformist Gram. S., Bishop Stortford.
Pearce, S. L.	Nonconformist Gram. S., Bishop Stortford.
Walmsley, G. E.	The Grammar School, Eccles.
Wheeling, W.	Catholic Collegiate Institute, Manchester.

GENERAL CLASS LIST—GIRLS.

N.B.—The small italic letters denote that the Candidate to whose name they are attached obtained a Special Certificate in the subjects specified.

(*For list of abbreviations see page* 98.)

FIRST CLASS.—HONOURS DIVISION.

Foster, B. I.	*s.e.l.*	West Ham High S. for Girls.
Davies, G.	*a.l.ch.d.*	St. Catherine's, Cardiff.
Roberts, N. L.	*s. e. ger. d. mu.*	The Westlands, Scarborough.
Awburn, K. E.	*s. ger. mu. p.*	Westwood Coll. S., Scarborough.
Stanley, E.	*s. d.*	Park S., Higher Broughton.
Porter, M.	*s.e.a.f.p.*	Collingwood College, Lee, S.E.
Masom, A.	*s.e.h.mu.*	Private tuition.
Smith, J. C.	*s.f.mu.*	Clarence House, Filey.
Marzials, F. A.	*s.f.d.*	Clarence House, Filey.
Warne, E. G.		Collingwood College, Lee, S.E.
Smith B.	*s.f.ger.d.*	Park S., Higher Broughton.
Richardson, L.	*s.f.p.*	The College, Huddersfield.
Butler, R.	*p.*	Arundel House, Tisbury.
Burgess, M. E.	*e.*	S.E. District Coll., Kennington.
Fielder, M. C.	*s. e. d. mu.*	Braybrooke College, Hastings.
Clark, E.		Slepe Hall, St. Ives, Hunts.
Churley, H. K.	*ger.*	Park S., Higher Broughton.
Lamb, M. S.	*s. ch.*	Private tuition.
Churley, A. M.	*s.ger.*	Park S., Higher Broughton.
Roberts, D. M.	*s.mu.*	Handsworth Ladies' College.
Wicks, I.	*e p.*	Merton College, Croydon.

FIRST CLASS.—PASS DIVISION.

Iredell, E.	*s.f.d.p.*	Merton College, Croydon.
Webster, M.	*s. g. nat. p.*	Parish Church Mid. Cl. S., Leeds.
Stone, F. R.	*s.f.ger.*	The Hermitage, Glastonbury.
Rutley, B.	*s.f.ger.d.*	Merton College, Croydon.
Burgis, C. M.	*s.e.d.*	Stamford Hill High School, N.
Ryan, W.	*s. p.*	Private tuition.
Jensen, T.	*e.f. d.*	Merton College, Croydon.
Sherborne, S. A.	*s.d.*	Longford Girls' School, Bristol.
Innes, G. M.	*s.e.d.p.*	Eastbourne House, Devizes.
Wellburn, K.	*s.*	Westwood Coll. S., Scarborough.
Burnett, B. M.	*f.*	Howard College, Bedford.
Johnston, M.	*mu.*	The Westlands, Scarborough.
Noakes, K. M.		Albert Villa, Ramsgate.
Wildblood, A.	*s. e. nat.*	Parish Church Mid. Cl. S., Leeds.
Coleman, A. E.	*s.e.p.*	Westwood Coll. S., Scarborough.
Patching, M.	*d.*	Jerningham House, Tunb. Wells.
Goldsmith, A. M.	*ger.*	Edinburgh House, Midhurst.
Hendry, M. H.		Collingwood College, Lee, S.E.
Chambers, M.	*mu.*	Eton House, Sheffield.
Cooper, M.	*e. d.*	Merton College, Croydon.
Mossop, M.	*s. e.*	Woking High School for Girls.
Butler, M. C.	*e.ger.p.*	Private tuition.
Lace, L.	*s.*	Lezayre House, Ramsey, I. of Man
Furness, M. E.	*s.*	44 Shakespeare St., Nottingham.
Rogers, E. A.	*s.e.f.ger.mu.*	Private tuition.
Master, M. L.	*ger.*	Private tuition.
Belilios, R.		Maida Vale School, W.
Codling, A. D.	*mu.*	St. Anne's High S. for Girls.
Todd, M. M.	*mu.*	High School for Girls, Hornsea.
Lotz, A. L.	*d.*	Maidenhead High School.
Masom, E.		Private tuition.
Bowsher, E.		Eastbourne House, Devizes.
Mabbs, B. M.	*s.bk.*	Stroud Green High School, N.
Farrant, G.	*s.*	Parish Church Mid. Cl. S., Leeds.
Foster, B. S.	*e. a.*	Coopers' Girls' School, Bow, E.
Lloyd, M.	*d.*	Holt Academy.
Smyth, C. J.	*d.*	The Ladies' College, Wellington.
Casserley, E. M.	*e.f.*	Penphrase, Cromwell Road, Brighton.
Dobie, A.		Girls' Grammar S., Keighley.
Haskew, E. H.	*s.*	The Ladies' College, Wellington.
Lock, A. J.	*s.f.*	Alexandra House, Newport, I.W.
Gould, F. M.	*d.*	Eton House, Sheffield.
Lewis, C.		South London Coll., Brixton Rd.
Hennell, M. D.	*s.d.*	Park Mansion, St. Leonards.
Hare, K. A.		Chestnut House, Lincoln.
Harris, E. L.	*s.e.f.*	Braybrooke College, Hastings.
Mahlendorff, L.	*f.ger.d.*	The Laurels, Wetherden.
Black, K.		Collingwood College, Lee, S.E.
Grundy, E.	*d. mu.*	The Westlands, Scarborough.
Palmer, E. M.	*f.*	Private tuition.
Longden, E. A.	*e.d.*	Eton House, Sheffield.
Turnbull, A. S.	*s.d.*	Parish Church Mid. Cl. S., Leeds.
Sandford, A. J.	*f.*	Branscombe House S., Exeter.
Chapman, A.		Weirfield School, Taunton.
Mould, F. L.	*s.*	Brockley High School, S.E.
Cramp, M.		Merton College, Croydon.
Cramp, H.		Merton College, Croydon.
Goodman, G.		Weirfield School, Taunton.
Greasley, F.	*s.*	Parish Church Mid. Cl. S., Leeds.
Dean, M.		St. Peter's House, Chichester.
Mukle, L.	*d.*	Weirfield School, Taunton.
Benham, A. M.	*e.*	Park Mansion, St. Leonards.
Martin, A. F.		Park S., Higher Broughton.
Mason, W.	*s.*	St. John's High S., Foxley Road.
Bewley, C. L.		Kingsholme S., Weston-s.-Mare.
Booth, F. M. E.	*s.e.*	St. Katherine's, Eastbourne.
Hare, M. A.	*ger.*	Private study.
Hicks, G. M.		Red Maids' School, Bristol.
Thomas, S. E.		Ystwith House S., Aberystwith.
Attenborough, H.	*s.*	St. Agnes' School, East Grinstead.
Jacobsohn, F. A.		Slepe Hall, St. Ives, Hunts.
Byers, M. E.		Stanley House, Stockton-on-Tees
Berry, K.		The College, Huddersfield.
MacGivney, A.	*d.*	Convent of Loreto, Hulme.
Frearson, A.		Sunny Bank School, Haulgh.
Keene, E.		Stamford Hill High School, N.
Mayoss, E.		Alexandra College, Shirley.
Goodman, M.		Weirfield School, Taunton.
Burnett, H.		High S., Queen's Coll., B'ham.
Pearson, J.		The Ladies' College, Wellington.
Turner, M. A.		The Westlands, Scarborough.
Parlett, M.		Victoria Crescent Coll. S., Jersey.
Ratcliffe, M. A.		The Laurels, Canterbury.
Ranschke, M.		Parish Church Mid. Cl. S., Leeds.
Cutbush, R. M.	*s.*	Mecklenburg House, Putney.
Dannatt, E.		The College, Huddersfield.
Coles, R. M.		Grosvenor Ladies' College, Bath.
McCarthy, M. J.		Private tuition.
Faraker, C. C. C.	*s.ger.*	Clyde Villa, Kilburn.
Kelly, H. M.	*ger.*	Sydenham College for Ladies.
Martin, M. A.	*d.*	Alexandra House, Newport, I.W.
Brymer, A. M.		West Ham High S. for Girls.
Crennell, K.	*s.*	Lezayre House, Ramsey, I. of Man
Driver, E. G.		Malvern House, Lewisham Pk.
Holmes, J.		Priory House School, York.
Walter, K.	*ger.*	Pembroke House S., Bedford.
Cobley, M.		Private tuition.
Probyn, H.		Private tuition.

SECOND CLASS.—1ST DIVISION.

Winter, H. D.	*s. g. p.*	Cambridge House, Clifton, York.
Amery, A. M.	*s. e. p.*	Maidenhead High School.
Stevinson, H. M.	*mu.*	Westwood Coll. S., Scarborough.
Davison, E. W.		Kensington High School, W.
Bosward, K.		Trinity Hall, Southport.
Barton, E. A.		Ennoor Lodge Collegiate S., Leeds.
Hicks, A. M.		Ascham College, Clacton-on-Sea.
Lucas, D.		St. Helier's College, Shifnal.
Simmons, E. L.	*s.ger.*	Elm House Collegiate S., Enfield.
Haworth, H.	*mu.*	Park House School, Bowdon.
Etherington, R.		Falkland Park Coll. S., Torquay.
Read, M.		Milford House, Newport, Mon.
Gleave, L. G.		Trinity Hall, Southport.
Methven, A.	*mu.*	Northbury House, Bury-St.-Ed's.
Wellburn, M. E.		Westwood Coll. S., Scarborough.
Lennard, E.	*mu.*	The College, Whitby.
Martin, P.		The Hollies, Edgbaston.
Hoare, W. C.	*d.*	Alexandra College, Shirley.
Jacobs, B. H.	*d.*	The Laurels, Canterbury.
Bournes, H. M.	*e.ger.*	Private tuition.
Leathley, M. E.		Trinity Hall, Southport.
Conery, G.		Convent of Loreto, Hulme.
Clegg, B. M.		Trinity Hall, Southport.
Kirk, N.		The College, Huddersfield.
Townshend, L. H.	*d.*	Greycoat Hospital S., Westminster.
Golding, A. M.		Stoke Newington High School.
Comerford, J.		Convent of Loreto, Hulme.
Rust, G. R.		Lonsdale House School, Norwich.
Lingard, M.		Park School, Higher Broughton.
Matthews, D. B.	*d.*	Grey Coat Hospital S., Westminster.
Sergeant, W. H.	*d.*	Queen Elizabeth's S., W. Kensington.
Churchill, G.		Royal School, Bath.
Dodd, G. H.		Trinity Hall, Southport.
Pollard, C. I.		Hanover House School, Ryde.
Brown, E. J.		Haddo School, Scarborough.
Brown, M. C.		Hanover House School, Ryde.
Burdon, M.		Trinity Hall, Southport.
Goodall, A. I.		The High School, Altrincham.
Storer, G.		Milford House, Newport, Mon.
Fosbery, M.	*d.*	High S. for Girls, Kidderminster.
Puzey, M. J.	*d.*	Heathfield House, Norton, Malton.
Bickerstaffe, A. M.		Northlands, Blackpool.
Bodkin, J. M.	*d.*	Private tuition.
Atkinson, A.		Merton College, Croydon.
Gloag, H.		Cambridge House S., Battersea Pk.
Gray, F. E.	*s. d.*	Thornbeck House, Darlington.
Nicholson, M. F. J.		Trinity Hall, Southport.
Robinson, E.		26 Ashley Road, N.
Dixon, H. A.		Select School for Girls, Filey.
Harrison, E.		Eton House, Sheffield.
Badger, K.	*d.*	Slepe Hall, St. Ives, Hunts.
Dimond, E. J.	*e. bk.*	North Bristol School for Girls.
Page, C.		Mount Eyrie, Southport.
Sands, L.		Parish Church Mid. Class S., Leeds.
Figgis, E. D.		Kingsholme S., Weston-s.-Mare.
Gayner, E. S.		6 Boughton Street, Sunderland.
Gray, L.		Friends' School, Saffron Walden.
Kemp, M.		Merevale House, Newport, Mon.
Simpson, A.	*ger.*	High School for Girls, York.
Wiltshire, M. M.		St. Catherine's, Cardiff.
Horsey, C. N.		Stoke Newington High School.

GIRLS, SECOND CLASS—*Continued.*

Bailey, E. M.	*d.*	Lonsdale House School, Norwich.
Chambers, M. N.	*d.*	Maria Grey S., Fitzroy Square, W.
Gibbs, E. J.		26 Ashley Road, N.
Gowan, M.		Longford Girls' School, Bristol.
Hunt, E. I.		17 Hill Lane, Southampton.
Jones, E. B.		Coopers' Girls' School, Bow, E.
Raves, L. A.	*d.*	Green Mount School, Morley.
Butcher, B. L.		Park School, Higher Broughton.
Falloon, H. W.		Clapham Park Ladies' College, S.W.
Merrick, M.	*d.*	Polytechnic Girls' School, W.
Beswick, A.		Trafalgar Square S., Scarborough.
Ingleby, W. A.		Parish Church Mid. Class S., Leeds.
Swithinbank, E. A.		Parish Church Mid. Class S., Leeds.
Wilson, M.		Huish Girls' School, Taunton.
Wood, A. W.	*ger.*	Denham House, Ramsgate.
Bowman, N.		Mowbray School, Sunderland.
Brierley, H.	*d.*	The High School, Gravesend.
Britten, L. M.	*d.*	Com. & Coll. Training S., Maidenh'd.
Bartholomew, C. G.		Fonthill College, Great Malvern.
Odery, K. M.		Trinity Hall, Southport.
Simpson, A. J.		Claremont House S., Kensington.
Thomas, A. E.		Private tuition.
Cox, M. F.		Hartington Place School, Carlisle.
Denby, E. A.		Field House, Heaton Chapel.
Hahn, M. A. E.		Camden School for Girls.
Jones, C. M.		Norwood House, Liverpool.
Miller, H. R.		Duncan House, Clifton.
Barter, B. M.		St. Catherine's, Cardiff.
Darrock, E. L.	*d.*	Princess Helena College, Ealing.
Noble, C. L.		Coopers' Girls' School, Bow, E.
Pigg, E. M.		Private tuition.
Sims, E. M.		Belmont House, Langley.
Smith, M.		Northlands, Blackpool.
Bedells, A. M.		Slepe Hall, St. Ives, Hunts.
Helyar, E. M.		Private tuition.
Marriott, M. P.		Sydenham College for Ladies.
Mortimer, G. C.		The Manor House, Albrighton.
Norton, E. M.		Girls' High School, Bournemouth.
Shears, M. B.		26 Ashley Road, N.
Warrell, H.		St. Bernard's, Southsea.
Barber, F.	*mu.*	Private tuition.
Buckley, L.		Buena Vista, Weston-super-Mare.
Illingworth, A. M.	*e.*	Trafalgar Square S., Scarborough.
Lay, G. M.		Royal Bay Terrace S., Gorey, Jersey.
Marshall, G.		The College, Huddersfield.
Nightingale, M. L.	*d.*	Oakfield School, Handsworth.
Penn, M. A.		Trinity Hall, Southport.
Steer, A.		Burlington Mid. Class Girls' S., W.
Thompson, M. A.		1 Trafalgar Terrace, Coatham.
Bridger, F.		Merton College, Croydon.
Comely, T. A.		Enville Street School, Stourbridge.
Levell, E. J.		The Chestnuts, Knighton.
Meyer, F. R.		Western House School, Nottingham.
Milne, L. B. R.		Salem House College, Sunderland.
Slater, M.		Grosvenor Ladies' College, Bath.
McIntyre, A.		Ashburnham House, Southborough.
Swire, G.	*mu.*	Sydenham College for Ladies.
Young, C.		Beaumont House School, Llanelly.
Brander, J.		Sydenham College for Ladies.
English, M.		Oakhurst, Ealing.
Hutchings, M. K.		Grosvenor Ladies' College, Bath.
Johnson, C. M.		Select School for Girls, Filey.
Perkins, A. L.		Trinity Hall, Southport.
Turquand, G. M.	*d.*	York House, Newbury.
Baker, M. L.		Woodstock School, Windsor.
Evans, W. M.		Woolwich and Plumstead High S.
Farler, I.		Kingsholme S., Weston-s.-Mare.
Alexander, M. H.		Milton Mount College.
Duncan, A. M.		Athol House, Southport.
Griffiths, M. A.		Grosvenor Ladies' College, Bath.
Harrison, A.		The Grange, Buxton.
Sherlock, E.		Royal School, Bath.
Smith, H.	*d.*	St. Helier's Coll., Wellingborough.
Tonkin, M. H.		Mayfield House, Marlborough.
Fordham, F.		Howard College, Bedford.
Gage, J. A.		Larchmont, Yatton.
Hankins, H.	*d.*	Stoke Newington High School.
Moseley, M. A.		Blandford House School, Braintree.
Smith, G.		Athol House, Southport.
Taylor, M.		Anglo-French Coll., Up. Norwood.
Culverwell, N. M.		St. Margaret's, Bristol.
Manson, N. H.		High School, West Bromwich.
Parkinson, L.		Girls' Grammar School, Halifax.
Parsons, A.		Girls' High School, Bridgwater.
Prince, G. E.		High School for Girls, Hornsea.
Wright, K. E.		St. Margaret's, Bristol.
Allin, F.		High School, Newton Abbot.
Beckwith, H. C.		Camden School for Girls.
Bomford, F. E.		Court House, Atch Lench, Evesham.
Lomax, M. S.		Private tuition.
Mapplebeck, J. A.		The Ladies' College, Derby.
Scholes, E. M.		The Grange, Buxton.
Thompson, E. D.		1 Trafalgar Terrace, Coatham.
Whittam, F.		Crouch Hill High S. for Girls, N.
Baynham, A. C.		Arrow House, Kington.
Croft, H.		Westwood Coll. S., Scarborough.
Davis, G. A.		Dunmarklyn, Weston-s.-Mare.
Francis, R. B.		Red Maids' School, Bristol.
Gouldbourn, A. M.		The Ladies' College, Wellington.
Hindley, M.		Royal School, Bath.
Smith, M. L.		Grosvenor Ladies' College, Bath.
Thomson, E.		Norfolk House, Gosport.
Waddell, C.	*d.*	Mowbray School, Sunderland.
Weston, E. A. W.	*d.*	Longford Girls' School, Bristol.
White, S. J.		The Briars, Edgbaston.
Allsop, H. C.		Jerningham House, Tunb. Wells.
Dunkley, A. L.		Maida Vale College for Ladies, W.
Learoyd, B. M.		Private tuition.
Tart, B.		St. Mary's Road, Leamington.
Teviotdale, M. B.		The Crescent School, Norwich.
Thompson, K. W.		Wellesley College, Colchester.
Ugarte, M.		Convent of Loreto, Hulme.
Williams, M. F. C.	*mu.*	The Hawthorns, Ealing Common.
Graeff, F. C.	*ger.*	Germania College, Canonbury.
Heaton, L. M.		Handsworth Ladies' College.
Lass, E.		Blandford House S., Braintree.
Robinson, M.		Whinrey House College, Ealing.
Stanford, F.		9 The Grove, Clapham Common.
Fox, M. M. S.		The Hawthorns, Ealing Common.
Fryer, E.	*mu.*	Kingsholme S., Weston-s.-Mare.
Good, M. B.		Collingwood College, Lee, S.E.
Lucas, E.		Malvern House School, Brockley.
Tapley, M. A.	*s.*	Holmwood Ho., South Hill Pk., N.W.
Barker, M. E. B.		Mowbray School, Sunderland.
Batchelor, M.		Park S., Higher Broughton.
Bridgland, B.		Jerningham House, Tunb. Wells.
Buckley, A.		Girls' High School, Stalybridge.
Buckman, C. M.	*d.*	Belmont, Dover.
Cowderoy, E.		Kendrick House, Brighton.
Ensor, H. A.	*mu.*	Mayfield House, Marlborough.
Everest, A.		Merevale House, Newport, Salop.
Herdman, M.		Belmont House, Leicester.
Jones, E. M. C.		Slepe Hall, St. Ives, Hunts.
Lee, M.		The College, Huddersfield.
Vinall, L. E.		High S., Glenholm, Burgess Hill.
Bedford, K. M.		St. Michael's School, Lewes.
Bruce, A. A.		Coopers' Girls' School, Bow, E.
Budd, E.		St. Bernard's, Southsea.
Daniell, M. S. C.		Blandford Girls' School.
Hughes, F.		Girls' Collegiate School, Carmarthen.
Hunter, W.	*d.*	Girls' High S., Bury St. Edmunds.
Hyde, M. E.	*d.*	Field House, Heaton Chapel.
Jones, K.		The High School, Gravesend.
Linney, L.		Friends' School, Saffron Walden.
MacKern, A.		The Ladies' College, Derby.
Mahon, E. M.		Queen Eliz. S., W. Kensington.
Pring, E.		Buckland House, Axminster.
Roos, K.		Eagle College, Hornsey.
Sale, E.		Convent of Loreto, Hulme.
Skipworth, A. P.	*d.*	Princess Helena College, Ealing.
Wildblood, G. E.		The Ladies' College, Wellington.
Corbett, C.	*d.*	The Heath Girls' S., Knutsford.
Griffin, M. W.		The Manor House, Albrighton.
Henslowe, C. F. M.		Private tuition.
Ingram, H. M.		Stanmore House, Weston-s.-Mare.
Janes, E.		Alexandra College, Shirley.
Parkes, S. J.		St. Bernard's, Southsea.
Rawlings, M.		Melbourne House, Hackney.
Savage, M.	*d.*	Girls' High School, Spring Grove.
Thacker, C.		Oakfield, Wolverhampton.
Williams, E. G.		St. Catherine's, Cardiff.
Bull, C. E.		Private tuition.
Davies, M.		St. David's School, Carnarvon.
Dent, I.		High School, Holyhead.
Frodsham, I.		Albert Villa, Ramsgate.
Fry, A. W.		Acock's Green Ladies' Coll. School.
Hengler, E. M.		Norwood House, Liverpool.
O'Neill, B. A.	*s.*	Private tuition.
Raby, M.	*mu.*	Mount Eyrie, Southport.
Robinson, M. C.		N.E. Dist. Coll., Stoke Newington.
Ash, A.		Merevale House, Newport, Salop.
Britten, E. E.		Comm. and Coll. S., Maidenhead.
Cloke, G. M.		The Laurels, Canterbury.
Duggan, M. M.		Severn Bank, Shrewsbury.
Hull, A.		Maria Grey S., Fitzroy Square, W.
Armitage, M.		Parish Church Mid. Cl. S., Leeds.
Baker, A. L.		The Hawthorns, Ealing Common.
Byers, A. E.	*s.*	Stanley House S., Stockton-on-Tees.
Howard, E. G.		Dartmouth Girls' School.
Lavington, E. M.		Mayfield House, Marlborough.
Patterson, E. A.		Girls' Grammar School, Halifax.
Phillips, E. A.		Norwood House, Liverpool.
Sanftleben, C.		17 Tavistock Place, Plymouth.
Sedgwick, M.		The College, Huddersfield.
Symonds, C. M.		Ladies' College, Woolstone.
Robertson, E. N. G.		Rossell House School, Paignton.
Bowker, G.		88 Bloomsbury, Manchester.
Cantelo, B.		High Street, Shanklin, I.W.
Dyson, E.		St. Helier's Coll., Wellingborough.
Hankin-Turvin, E. M.		86 Ladbroke Grove Road, W.
Knieper, J.	*ger.*	Ashbourne, Harrogate.
Matthews, C. A.		Clyde Villa, Kilburn.
Miller, I. K.		Anglo-French Ladies' S., Bristol.
Wilson, K. A.	*d.*	Slepe Hall, St. Ives, Hunts.
Kilvington, M.		2 Victory Terrace, Coatham.
Leverington, M.		Camden House, Biggleswade.
McEnery, T.		Newnham House, Sherborne.
Mullett, E. M.		Granville College, West Croydon.
Gaudin, A. T.		Wesley House School, Jersey.
Halliday, R. G.		Maria Grey S., Fitzroy Square, W.
Linnett, A.		Camden School for Girls.
Meager, E.		Holdstock Coll., Upper Holloway.
Stocker, F.		Ladies' S., Thornpark, Teignmouth.
Timmis, M. M.		Howard College, Bedford.
Wood, K. A.		East Southsea Collegiate School.
Butchard, J. D.		The High School, Gravesend.
Jepson, C. H.		Deansgate House, Grimsby.
Piper, M. G.	*d.*	7 Hyde Terrace, Tollington Park.
Portsmouth, M. T.		Private tuition.
Pownall, A. M. A.		Anstey Villas, Alton, Hants.
Sexton, E. M.		Girls' Grammar S., Wallingford.
Shaw, A.		The College, Huddersfield.
Smith, J.		St. Helier's Coll., Wellingborough.
Thomas, A. E.		Norwood House, Liverpool.
Thompson, A. M.		Mount Devon Lodge, Scarborough.
Timpson, F.		Angus House, Kettering.
Tong, E.		High School, Farnworth.
Williams, F. M.		St. Catherine's, Cardiff.
Williams, M.		Grosvenor Ladies' College, Bath.
Young, C.	*d.*	Home Leigh, Staines.
Botterill, L.		Mecklenburg House, Putney.
Bowen, M.		Milford House, Newport, Mon.
Brightwell, T.		Park High S., St. Margarets, S.W.
Burlington, M.		Ghyll Bank College, Whitehaven.
Cary, A. F.		The Lymes, Sudbury, Suffolk.
Ford, E.		Twickenham College.
Gairdner, R. A.	*d.*	Camden School for Girls.
Macoc, F. B.		Coopers' Girls' School, Bow, E.
Stansfield, M. H.		Girls' Grammar School, Keighley.
Tong, H. M.		14 Marquess Road, Canonbury, N.
Worger, A. M.		Private tuition.
Acton, E. M.		Ronton Vicarage, Eccleshall.
Ames, M. E.		Anstey Villas, Alton, Hants.
Board, M. E.	*s.*	Duncan House, Clifton.
Callis, V.	*d.*	Park High S., St. Margarets, S.W.
Carter, A. M.	*mu.*	Chess Vale House School, Chesham.
Dent, M.		Clifton House School, Worcester.
Hancock, B. C.		47 Ladbroke Grove, W.
Joy, E. A.		St. John's, Eastbourne.
Lawes, A. M.		9 Royal Terrace, Northampton.
Morford, E.		Alexandra College, Shirley.
Parker, F. M.		Girls' High School, Spring Grove.
Rawlinson, H. V.	*d.*	The High School, Altrincham.
Sampson, A. M.		Private tuition.
Townshend, K.		Hurst House, Watford.
Couzens, E. R.		Alexandra College, Taunton.
Dawson, K.		High School for Girls, Hornsea.
Denny, I. H.		Parish Church Middle Cl. S., Leeds.
Fisher, L. H.		Private tuition.
Helyar, A. M.		Private tuition.
Higman, H.		High Street House School, Taunton.
Lockhart, E.		Elson House, Leytonstone.
Nathan, R.		Elgin College, Maida Vale, W.
Rawlinson, E. C.		Private tuition.
Rooth, K. M.		The Terrace, Chesterfield.
Timmis, E. A.		Girls' Grammar School, Leek.
Townsend, G. A.		The Laurels, Canterbury.

SECOND CLASS.—2ND DIVISION.

Allan, M.		Russell House, Plymouth.
Boissy, S. de	*f. d.*	St. Mary's School, Chelsea.
Bonwick, E. C.		Fonthill College, Great Malvern.
Burgess, L.		Hillersdon House, Barnes.
Caldwell, A. L.		Anglo-French Ladies' S., Bristol.
Clark, W. G.		Carisbrooke House, Twickenham.
Collier, E.		Trebovir House, South Kensington.
Dawson, A.		4 Cumberland Gardens, St. Leonards.
Gait, E. M.		Milford House, Newport, Mon.
Gunston, E. W.		Cambridge House S., Battersea Pk.
Hall, G. M.		Princess Helena College, Ealing.
Hutchinson, A. M.		Collingwood College, Lee, S.E.
Kitching, B. M.		Mount Pleasant School, Barnsley.
Leith, C. E.		The County Schools, St. Helens.
Marsden, J.		Milton Mount College.
Mellish, M.		50 St. John's Park, Highgate Hill.
Pigg, M. C.		Private tuition.
Porter, E. M.		26 Ashley Road, N.
Sissons, F. M.		Linden Hall, Clapham Road.
Wilkinson, D.		Mecklenburg House, Putney.
Wilson, M. F.		Belmont House School, Boston.
Wolfe, B. A.		Private tuition.
Barker, M. J.		Brook Lea, Ilkley.
Bonner, S.		Malvern House School, Birkdale.
Dearle, E. A.		Ellesmere Coll., Sydenham Rd., S.E.
Edmondson, H.		Park School, Higher Broughton.
Fergusson, E.		Neotsbury School, Scarborough.
Fowles, S. F.		Heyop House, Axminster.
Le Gros, L.		The Grange, Buxton.
Marcoso, B. M.		Gloucester House School, Kew.
Rolfe, B.	*d.*	Ripley House, Bury St. Edmunds.
Rowney, M.		Glebe Place S., Stoke Newington.
Siarey, M.		Queen's College, Acton.
Wheeler, L. M.		Victoria High S., Tollington Pk.
Baines, F.		Cashiobury House, Southend.
Baker, K.		Wilderness House S., Tiverton.
Coleby, E. M.		Mecklenburg House, Putney.
Copeland, E. M.		Moravian Ladies' School, Ockbrook.
Elkin, J. E.		Westbourne House, Southampton.
Foulds, M.		The Laurels, Nottingham.
Hatt, C. E.		Stamford Hill High School, N.
Hawkins, M. I.		Collingwood College, Lee, S.E.
High, B. M.		Royal Masonic Inst., Battersea.
Sauber, I. E.	*ger.*	Birklands, Holland Pk. Gardens, W.
Williams, E. J.	*d.*	Princess Helena College, Ealing.
Bach, P. B.		Westbourne House, West Cowes.
Blades, J.		26 Ashley Road, N.
Bomford, E. M.		Court House, Atch Lench, Evesham.
Collins, A.		The Hermitage, Glastonbury.
Langridge, K.		New Castle House, Lewes.
Ledsham, L. M. C.		Norfolk House, Gosport.
Lewis, F.		Ladies' College, Penarth.
Horne, C. E.		The Ladies' College, Wellington.
Hunter, A. L.		Elmleigh, York.
MacArthur, E. B.		Private tuition.
Rochat, F.		High S., Glenholm, Burgess Hill.
Wooldridge, F. E.		Athelstan College, Folkestone.
Banham, E. A.		Coopers' Girls' School, Bow, E.
Croft, E. C.		Granville House, East Hardwick.
Finch, A. M.		21 Home Park Villas, Stoke.
Hosmer, A.		Belmont, Dover.
Morison, A. L.		Moseley High School for Girls.
Nockall, K. E. M.		Surrey House School, Norwich.
Shawyer, D.		Merton College, Croydon.
Watt, E.		136 Brooke Rd., Stoke Newington.
Wiltshire, M.		Crescent House School, Bedford.
Winkfield, A.		Crofton House School, Fulham Rd.
Barrett, E. M.		Everard House S., King's Lynn.
Cowan, M.		Malvern House School, Birkdale.
Dreyfus, A. C.		Camden School for Girls.
Green, J. R.		Girls' High School, Bridgwater.
Hyde, M.		136 Brooke Rd., Stoke Newington.

GIRLS, SECOND CLASS—*Continued.*

Lawes, A. J.		Malvern House, Reading.
Lucking, B. A.		36 St. Peter's Sq., Hammersmith.
Macdonald, E. G.		Walthamstow Hall, Sevenoaks.
Mercer, E. A.		25 Rhodes St., Halifax.
Methven, M. A..		Ladies' College, Woolstone.
Royle, E. F.		West House High S., Forest Hill.
Wilkinson, L.		Braybrooke College, Hastings.
Allen, E. R.		Private study.
Bobby, L.		Moreton House School, Dunstable.
Crighton, F. O.		Private tuition.
Davies, E. J.	*d.*	St. David's School, Carnarvon.
Ebel, M. A.		Rectory Place School, Woolwich.
Harding, E. E.		Carrick House, Brampton.
Holmes, M.		Troston Lodge, Southfields, S.W.
Jenkins, K.	*d.*	Kenilworth College, Hastings.
Littlewood, H.		The College, Huddersfield.
Roberts, J. L. C.		The High School, Gravesend.
Wilson, E. H.		Carrick House, Brampton.
Wran, A. L.		21 Home Park Villas, Stoke.
Brown, A. F.		Twickenham College.
Coles, F.	*p.*	Burlton House, Reading.
Lewis, H.		Grosvenor Ladies' College, Bath.
Pagny, M. E. M.		Alexandra House School, Clifton.
De Rue, L. J.		Wesley House School, Jersey.
Sanders, A.		Pembroke House, Lee, S.E.
Smith, F.		Univ. Coll. for Ladies, Avenue Rd.
Stains, E. M.	*d.*	Sydenham College for Ladies.
Wardhaugh, A. A.		Westbourne, Sheffield.
Auderson, M. E.		Holywell College, Weston-s.-Mare.
Bulstrode, L. M.		Private tuition.
Burton, W. A.		Surrey House School, Norwich.
Butler, A. M.		Parish Church Middle Cl. S., Leeds.
Careless, B. A.		Elmhurst, Broxbourne.
Daw, I. M.		St. Catherine's, Cardiff.
Edkins, E. M.		Burlington Middle Cl. Girls' S., W.
Griffiths, G.		North Bristol School for Girls.
Halstead, M.		The College, Huddersfield.
Lowe, K. E.		Field House, Heaton Chapel.
Polglase, E. J.		W. Cornwall College, Penzance.
Stafford, W. M.		Grosvenor Ladies' College, Bath.
Stanser, K.		Gresham House, Northampton.
Startup, R. M.		Mayfield House, Marlborongh.
Tindall, M.		Merton College, Croydon.
Ash, J. M.		S.E. District College, Kennington.
Capon, E. D.		Royal Masonic Inst., Battersea.
Elmes, E.		Howard College, Bedford.
Fiander, H.		Charlemont House, Bromwich.
Jaques, A. F.		Cambridge House S., Battersea Pk.
Law, M. F.		Avonbank House, Bath.
Thatcher, A.		Granville House, Aylesbury.
Candler, W.		Holmedune, Blundellsands.
Chambers, L. B.	*mu.*	Mayfield House, Marlborongh.
Gibbon, W. M.		St. Mary's Road, Leamington.
Hill, E. E.		Camborne House S., Tottenham.
Hooper, M. F.		Leybourne House S., Aylesbury.
Jones, F.		Bath High School for Girls.
Judson, A.		Malvern House School, Blockley.
McKenzie, M.		Crouch Hill High S. for Girls, N.
Perry, F.		Crouch Hill High S. for Girls, N.
Richards, H. T.		Coopers' Girls' School, Bow, E.
Smith, F. A.		Holdstock College, Up. Holloway.
Townsend, M. F.		Girls' Coll. & High S., Southampton.
Wale, N. A.		Howard College, Bedford.
Welsford, M. F.		High School, Waltham Cross.
Barber, B.		4 Jesmond Rd., Newcastle-on-Tyne.
Carrad, E.		High S., Queen's Coll., Birmingham.
Gibson, C. P.		Girls' High School, Bridgwater.
Harry, M.		West Cornwall College, Penzance.
Matthews, C.		Olney House, Hastings.
Miles, A. R.		Alexandra College, Shirley.
Nelson, K.		Collingwood College, Lee, S.E.
Partridge, E.		Devonia House School, Exeter.
Rogerson, A. M.		The Hawthorns, Ealing Common.
Slinn, A. M.		Milton House School, Plympton.
Smallwood, E. V.		Sydenham College for Ladies.
Topham, L.		Ashbourne, Harrogate.
Arnold, E. M.		Milton Mount College.
Ashfield, G.		Ellerslie Ladies' S., Bromsgrove.
Brooks, M.		Mecklenburg House, Putney.
Clack, M.		Red Maids' School, Bristol.
Dickinson, M. J.		Moseley Ladies' College.
Gee, D.		Chess Vale House S., Chesham.
Jones, M. L.		Betley Ladies' College.
Sayer, E.		Rossell House School, Paignton.
Spencer, F. J.		Huish Girls' School, Taunton.
Wallis, G. W.		High School for Girls, Hornsea.
Watton, J. L.		The Hollies, Edgbaston.
Davies, M.		St. Andries, Penarth.
Davis, R.		Belmont, Dover.
Dawkins, G.		Collingwood College, Lee, S.E.
Gosling, G.		4 St. Ann's Park Terr., Wandsworth.
Horne, E. M.		Malvern House School, Blockley.
Lavender, F.		Private tuition.
Moss, F. S.		Burlington Middle Cl. Girls' S., W.
Robson, B. A.		Bushnell House, Stockwell Rd., S.W.
Scott, J. E.		Private tuition.
Taylor, F. E.		The Westlands, Scarborough.
Willson, E. M.		Broomfield School, Kew.
Brown, E.		Southolme High S., Whalley Range.
Clarson, N.		The Ladies' College, Wellington.
Collins, E.		Convent of Loreto, Hulme.
Frewer, F.	*d.*	Lynton House School, Margate.
Guthrie, A. B.	*d.*	Field House, Heaton Chapel.
Jarmain, G. E.		7 Hyde Terrace, Tollington Park.
Nursey, E.		Mowbray School, Sunderland.
Rose, E. E.		Landaff House School, Norwich.
Wrench, E. H.		Eversley House, Chester.
Bremner, A. J.		21 Home Park Villas, Stoke.
Cariss, M.		Hill House S., Downham Market.
Chambers, E. K.		Mayfield House, Marlborough.
De Caux, M. S.		Lonsdale House School, Norwich.
Drayton, M.		Weirfield School, Taunton.
Edwards, E. E.		Ashley House, Newbury.
Evans, C. A. L.		Ashleigh House, Tutbury.
Fielden, C. E.		Milton Mount College.
Goodman, M. K.		Brighthelmston, Birkdale.
Gordon, A. M.		36 St. Peter's Sq., Hammersmith.
Heywood, E. S. A.		Private tuition.
Neele, F. H.		Rathmore, Clifton.
Wakeham, M.		Victoria Road School, Harborne.
Wall, F. A.		St. Agnes College, Moseley.
Ward, M. L.		Kensington House, Birkenhead.
Webber, G.		Royal School, Bath.
Young, K. F.		Stoke Newington High School.
Donnet, C.		St. Catherine's, Cardiff.
Duncan, E.		Montagne House S., Weymouth.
Evans, R. J.		Univ. Coll. for Ladies, Avenue Rd.
Fry, C. M.		St. Peter's House, Chichester.
Gray, M. E.		St. Lawrence Coll., N. Kensington.
Holford, J.		Arundel House, Brixton.
Judd, V. A.		Queen's College, Twickenham.
Le Feuvre, L.		Halcyon House, St. Heliers.
Leonard, D.		Moorlands School, Bournemouth.
Palmer, F. L.		Morningside, Hastings.
Pearce, E. M.		Howard College, Bedford.
Pinto, L. S.		174 Church St., Stoke Newington.
Sandiford, T. T.		Eversley House School, Bognor.
Thompstone, R. S. B.		Girls' Collegiate S., Macclesfield.
Watson, E. A.		Beech Tree House, Aldridge.
Woods, E.		Kingsholme S., Weston-s.-Mare.
Allsop, K.		Jerningham House, Tunb. Wells.
Barnes, M. M.		Collegiate S. for Girls, Norwich.
Grassom, F.		Acton Lodge, Cheltenham.
Gourley, L. A.		Private tuition.
Hall, B. E.		East Southsea Collegiate School.
Jones, M. E.		The Ladies' College, Wellington.
Little, F. E.		Ladies' Coll., Savile Park, Halifax.
Moss, L.		Royal School, Bath.
Pincombe, L. K.		Royal Masonic Inst., Battersea.
Rickman, G.		Beethoven House, Northampton.
Smart, E. M.		Olney House, Hastings.
Smith, T.		St. Mary's School, Chelsea.
Speakman, H.		Higher Grade School, Atherton.
Twemlow, E. E.		Park School, Higher Broughton.
Blanchflower, E. M.		Ripley House, Bury St. Edmunds.
Callier, N. G.		Trinity Hall, Southport.
Clarke, A. J.		Scarsdale House, Streatham Hill.
Cotterill, L. M.		Handsworth Ladies' College.
Howell, N.		Braybrooke College, Hastings.
Newell, E. M.		Holywell College, Weston-s.-Mare.
Sandison, H. M.		Mayo High School for Girls, W.C.
Thomson, M. L.	*d.*	Camden School for Girls.
Wilson, E. M.		Hemdean House, Caversham.
Young, F. V.		44 Shakespeare St., Nottingham.
Brownscombe, E.		Everard House S., King's Lynn.
Burkill, N.		Cambridge College, Twickenham.
Corkill, K.		Lezayre House, Ramsey, I. of Man.
Court, A.		Merwald House School, Walmer.
Cowing, W. E.		Girls' High School, Spring Grove.
Davies, E. L.		Private tuition.
Dobson, M. B.		Princess Helena College, Ealing.
Headley, J. G.		Fonthill College, Great Malvern.
Holroyd, A. M.		Ladies' Coll., Savile Park, Halifax.
Jones, A. V.		St. Catherine's, Cardiff.
Martin, M. E.		Morningside, Hastings.
Newton, M.		Parish Church Mid. Cl. S., Leeds.
Payton, A. E.	*d.*	The Ladies' College, Wellington.
Pearce, C. M. I.		Portsea Collegiate School.
Smallman, M. E.		Portland St. Ladies' S., Manchester.
Smith, L. H. K.		West House High S., Forest Hill.
Topham, F.		Ashbourne, Harrogate.
Tyler, T.		Bishopsgate Girls' School, E.C.
Wild, E.		14 Marquess Road, Canonbury, N.
Woodrow, H. E.		Wellington College, Hastings.
Child, A.		Univ. Coll. for Ladies, Avenue Rd.
Drake, E. M.		Oakley High Class S., Southsea.
Golding, K. E.		Clarendon House, New Cross.
Harding, E. A.		The Datchelor Collegiate S., S.E.
Hargreaves, C.		Holly Terrace School, Liverpool.
Kitchiner, E. M.		Warehousemen & Clerks' S., Purley.
North, N.		Everard House S., King's Lynn.
Peet, M. E.		Private tuition.
Raven, S. J.		44 Shakespeare St., Nottingham.
Renshaw, C. M.		West Bank School, Sheffield.
Toovey, G.		Troston Lodge, Southfields, S.W.
Breuer, C.		Private tuition.
Cooper, E. F. E.		Camden School for Girls.
Croot, E.		Grosvenor Ladies' College, Bath.
Cumming, E. B.		Ashby House S., St. John's, S.E.
Dean, B. J.		Royal Masonic Inst., Battersea.
Derriman, M. E.		Avonbank House, Bath.
Garland, M. K.		East Southsea Collegiate School.
Good, M.		Collingwood College, Lee, S.E.
Helyar, L. N.		Private tuition.
Howard, E. H.		Lyndhurst, Upper Norwood.
Kitts, G. A.		Salem House College, Sunderland.
Ockenden, M.		Penphrase, Cromwell Rd., Brighton.
Pears, E.		Girls' High School, Spring Grove.
Shaw, F. M.	*d.*	The High School, Gravesend.
Sibley, E.		Prospect House, St. Neots.
Wigan, A.		Clayton College, Peckham.
Wright, E.		Blandford Girls' School.
Bennett, I. M.		Ashbourne, Harrogate.
Burnside, C. L.		Darwen College, Buckhurst Hill.
Chambers, M.		Broomgrove School, Sheffield.
Christensen, M.		Northumberland House, Tottenham
Collier, E.		Ripley Ladies' School, Derby.
Facon, E. A.		Girls' Grammar School, Leek.
Ford, E. M.		Crescent House School, Bedford.
Ford-Smith, E.		Wynthrop Coll., Ashton-on-Mersey.
Furness, C. M.		44 Shakespeare St., Nottingham.
Gardiner, B. T. P.		The Laurels, Nottingham.
Grosjean, N.		Chester House, West Hampstead.
King, B. K.		Camden School for Girls.
Macneill, J. M.		Kensington House, Birkenhead.
Mendelssohn, E.		Trebovir House, S. Kensington.
Morton, A. L.		Trinity Hall, Southport.
Nash, M. E.		Mayo High School for Girls, W.C.
Pickman, G.		Merton College, Croydon.
Ranson, G.		Merton College, Croydon.
Simpson, E.		Elmleigh, York.
Thurlow, E. O.		Elizabethan School, Framlingham.
Vining, E. R.		Pemberton Coll., Upp. Holloway.
Angell, Z.	*d.*	Crofton House S., Fulham Road.
Boardman, G.		Field House, Heaton Chapel.
Burton, E.		103 Hagley Road, Edgbaston.
Candler, A. M.		Camden School for Girls.
Church, L. E.		Grosvenor Ladies' College, Bath.
Cole, A. I.		Alexander House, Newport, I.W.
Edleston, A.		The Mount House, Cheetham Hill.
Edney, E. C.		Farrington House, Chichester.
Gillie, E. A.		4 Endsleigh Gardens, N.W.
Harris, J.		Merevale House, Newport, Salop.
Meech, M. K.		14 Marquess Road, Canonbury, N.
Osmond, G. J.		Brean Down House S., Burnham.
Wright, E.		City of Durham School for Girls.
Bradbear, A.		136 Brooke Rd., Stoke Newington.
Brownjohn, M. E.	*d.*	N.E. Distr. Coll., Stoke Newington.
Carr, E. M.		St. Margaret's, Bristol.
Clarkson, E. F.		Oakfield, Wolverhampton.
Coates, A. L. J.		Cairnbrook College, Woodford.
Gutherless, O. M. M.		Girls' Grammar S., Wallingford.
Hale, E. M.		Hamilton House, Holloway.
Hall, E. S. J.		Royal Masonic Inst., Battersea.
Leigh, M.		Ellesmere Coll., Sydenham Rd., S.E.
Lile, E. M.		Hill House Coll., Haverfordwest.
Millson, B.		The Terrace, Chesterfield.
Moore, F.		Woolwich & Plumstead High S.
Oliphant, J. H.		Private tuition.
Palmer, A.		Park High S., St. Margarets, S.W.
Sealy, H. J.		Gloucester House Coll. S., Tetbury.
Shelton, B. H.		Broomfield School, Kew.
Smith, L.		Handsworth Ladies' College.
Taylor, L. M. R.		268 Camden Road, N.
Thompson, E. G.		Arundel House, Brixton.
Barugh, S. M.		High School, Stockton-on-Tees.
Benson, M.		Leyton House, Clifton.
Bryant, L. H.		2 Duke Street, Bath.
Caven, A.		St. Helier's Coll., Wellingborough
Emms, A. I.		Milston Villa, Fareham.
Hawksworth, A.		St. Cecilia's School, Derby.
Little, M. E.		Clifton House School, Worcester.
Parsons, F. M.		Longford Girls' School, Bristol.
Perry, S. E.		Handsworth Ladies' College.
Reade, M. V.		Kenhurst, South Hill Park, N.W.
Stapley, F. E.		Cambridge House, Guildford.
Teague, L. H.		Redbrooke School, Camborne.
Waring, L. F. M.		Ellesmere Coll., Sydenham Rd., S.E.
Abbott, L.		Grange College, Leominster.
Blake, L.		Girls' High School, Spring Grove.
Clarke, E. M.	*d.*	Carlisle House School, Deal.
De Gruchy, K. M.		Elson House, Leytonstone.
Eveling, F. M.	*mu.*	Oakley High-Class S., Southsea.
Hulme, C. M.		Girls' Collegiate S., Macclesfield.
McMillan, C. A.		Royal Masonic Inst., Battersea.
Ranshaw, E. A.		Brunshaw Seminary, Burnley.
Robinson, E. A.		Camden School for Girls.
Styles, C.		Trebovir House, S. Kensington.
Verey, R. A.	*d.*	Private tuition.
Vialou, J. C.		7 Hyde Terrace, Tollington Park.
Widdowson, M. M.		Girls' Collegiate School, Sleaford.
Bowcher, S.		Twickenham College.
Carver, A. E.		Mecklenburg House, Putney.
Lockyer, L.		Royal School, Bath.
Noble, E. C.		Alexandra College, Shirley.
Reuss, B. E.		The Westlands, Scarborough.
Solomon, A.		158 Alexandra Road, N.W.
Aldersey, B. M.		Private tuition.
Applebee, C. M. K.		Ormond House, Paignton.
Cousins, M. A.		Bryntysilio, Carnarvon.
Derrick, E. M.		North Bristol School for Girls.
Früh, L. C.		Royal Masonic Inst., Battersea.
Gammell, E. M.		Camden School for Girls.
Hill, E. A. M.		Haddo School, Scarborough.
Michell, A.		Longford Girls' School, Bristol.
Bowcher, E.		Lansdown College, Notting Hill.
Brundrit, B.		Bedford College, Liverpool.
Burrough, E.		Merton College, Croydon.
Casswell, A.		Pembroke House School, Bedfor
Edwards, S. J.		St. Catherine's, Cardiff.
Fitzgerald, G.		Polytechnic Girls' School, W.
Johnston, A. M.		The Grange, Buxton.
Rutley, E.		Collingwood College, Lee, S.E.
Spence, F.		"Belmont," Harrogate.
Stevenson, M.		Univ. Coll. for Ladies, Avenue Rd.
Winfield, M.		Brunshaw Seminary, Burnley.

SECOND CLASS.—3RD DIVISION.

Alston, F. M.		76 Guildford St., Bury St. Edmunds.
Beecroft, A. J.		Howard College, Bedford.
Nowell, F. D.		Garfield House S., Paignton.
Tomlinson, E. F.		Field House, Heaton Chapel.
Alexander, E. K.		Coopers' Girls' School, Bow, E.
Burgis, E.		Girls' Grammar S., Wallingford.
George, K. S.		Collegiate S. for Girls, Norwich.
Greaves, G. H.		High S. for Girls, Kidderminster.
Haine, M. E.		Parbrook Collegiate School.
Hawes, M. L.		Carisbrooke House, Twickenham
King, E.		Red Maids' School, Bristol.
Mann, A. E.		Coopers' Girls' School, Bow, E
O'Neill, F.		Convent of Loreto, Hulme

GIRLS, SECOND CLASS—*Continued.*

Powell, A. B. C.	Amble College, Streatham.
Reid, A. M.	Private tuition.
Taylor, G.	1 Clyde Terrace, Hull.
Taylor, M.	St. Agnes' School, East Grinstead.
Yates, K.	Haddo School, Scarborough.
Brown, A.	Coopers' Girls' School, Bow, E.
Carlton, M. C.	Oakwood House, Brighton.
Gibson, M. S.	Oakhurst, Great Grimsby.
Jenkins, B.	Collegiate School, Abergavenny.
Lawry, H. A.	West Cornwall College, Penzance.
Lawton, L.	Eton House, Sheffield.
Mullins, I. F.	Montagne House S., Weymouth.
Reed, M. M.	Camden School for Girls.
Vernon, M.	The Manor House, Uttoxeter.
Addison, H.	Kingsholme S., Weston-s.-Mare.
Burrough, C.	Merton College, Croydon.
Cogan, F. C.	Atherfield House, Clifton.
Dare, F.	Dunmarklyn, Weston-s.-Mare.
Dyas, M. D.	21 Home Park Villas, Stoke.
Edwards, E.	High School, Tenterden.
Harrington, H. L. N.	Girls' High S., Bury St. Edmunds.
Munn, L. E.	21 Alma Road, Sheerness.
Paull, E. K.	Stoke Newington High School.
Peace, L.	Malvern House School, Blockley.
Pocock, E.	Alexandra College, Shirley.
Slatter, L.	Anglo-French Ladies' S., Bristol.
Stewart-Jones, P.	Private tuition.
Whitfield, M.	Westwood Coll. S., Scarborough.
Beardmore, E. A.	Alstonefield, Ashbourne.
Blyth, D. E.	Barrow Ho., Barrow-on-Humber.
Brown, W.	Proprietary School, Dudley.
Dover, J.	Eton House, Sheffield.
Dunlop, H. K.	Haddo School, Scarborough.
Ellerby, E. M.	Coopers' Girls' School, Bow, E.
Image, M. D.	The High S., Bury St. Edmunds.
James, A.	Court Ho., Atch Lench, Evesham.
Landsberger, F. A.	Penge High School for Girls.
Robinson, L. J.	Park School, Higher Broughton.
Wellard, M.	Coopers' Girls' School, Bow, E.
Whiteley, L.	Private tuition.
Brandreth, A. F.	St. John's, Eastbourne.
Callis, E. M.	Oak House, Leamington.
Cochrane, C. M.	Sydenham College for Ladies.
Culverhouse, F. L.	Grosvenor Ladies' College, Bath.
Dean, M. S.	Brooklyn House, Wellington, Salop.
Fitch, M. A.	Private tuition.
Greene, M. H.	Brighton House, Edgbaston.
Hog, M. T.	Ladies' College, Woolstone.
Hunter, F. M.	Private tuition.
Martyn, A. A.	31 Torrington Place, Plymouth.
Riches, E. L.	Watlington House, Downham.
Steele, M. E.	Westbourne House, Southampton.
Wight, M. M.	*d.* Gt. Harrowden Hall, Wellingboro'.
Woods, A.	*d.* Woking High School for Girls.
Woods, B. A.	26 Ashley Road, N.
Baker, L. L.	St. Katharine's S., Lloyd Sq., W.C.
Bell, A.	Brunshaw Seminary, Burnley.
Betts, A. H.	Lindenan School, Chichester.
Brown, A. M.	26 Ashley Road, N.
Burkill, B.	Private tuition.
Cargill, F. K. N.	Sinclair Coll., W. Kensington Pk.
Chambers, A. M.	The Beeches, Franche, Kidd'nster.
Death, M. S.	High Class S. for Girls, Beccles.
Dunman, W. H.	31 Torrington Place, Plymouth.
Earnshaw, H.	Eton House, Sheffield.
Gibson, M. E.	Fairfield Head Ho., Chesterfield.
Hammond, M. E.	Royal Masonic Inst., Battersea.
Hellyer, E. B.	Camden School for Girls.
Herbert, H. R.	Milton Mount College.
Hirsch, M. M.	Germania College, Canonbury.
Jenkins, M. C.	Private tuition.
Markham, E.	Gresham House, Northampton.
May, K. B.	Girls' High School, Spring Grove.
Robinson, M.	High School, Sidney Place, Cork.
Simmons, E. M.	Lonsdale House School, Norwich.
Smith, K.	West House High S., Forest Hill.
Teare, M. R. S. B.	High School, King's Lynn.
Trembath, H. M.	Girls' High School, Spring Grove.
Amoore, C.	Townley House, Ramsgate.
Blakely, M. G.	Normanhurst, W. Bournemouth.
Davy, L. M.	Private tuition.
Ford, H. B.	Private tuition.
Hill, E. M.	High School, Stockton-on-Tees.
Johnston, M. S.	Brent Hill Collegiate S., Hanwell.
Martin, A.	Hanover House School, Ryde.
Molloy, H.	Convent of Loreto, Hulme.
Morris, M.	47 Springbank, Hull.
Ochsenbein, A. L.	Royal Masonic Inst., Battersea.
Roughton, L. K.	Malvern House School, Blockley.
Samways, C. B.	Gloucester House Coll. S., Tetbury.
Stockton, L. B.	Duncan House, Clifton.
Welch, M. S.	Blandford House S., Braintree.
Williamson, M.	Mayo High School for Girls, W.C.
Wilson, L. M.	High School, King's Lynn.
Beaven, C. M.	Felix House, Tottenham.
Boden, M.	Ashleigh House, Tutbury.
Hambling, E.	Slepe Hall, St. Ives, Hunts.
Hunt, L.	Park High S., St. Margaret's, S.W.
Jeapes, F. E.	Hill School, Herne Bay.
Kirkman, E.	Collingwood College, Lee, S.E.
Melling, L.	St. Anne's High School for Girls.
Morris, C. S.	New Castle House, Lewes.
Palmer, E. F.	Broomfield School, Kew.
Philcox, I. L.	Grove House School, Southend.
Shepherd, A.	Moorlands School, Bournemouth.
Solly, M. L.	Coopers' Girls' School, Bow, E.
Spink, M. I.	Camden School for Girls.
Stretton, F. E.	Holdstock Coll., Upper Holloway.
Sutthery, G. M.	Troston Lodge, Southfields, S.W.
Turner, K. M.	Camden School for Girls.
Beanland, O.	Park High S., St. Margaret's, S.W.
Brown, M.	N. Hackney High S., Stamford Hill.
Cross, E. W.	Wyntrop Coll., Ashton-on-Mersey.
Davis, M.	Girls' Middle Class S., Clevedon.
Dransfield, I.	Hanover House School, Ryde.
Fox, M. E.	Mecklenburg House, Putney.
Franklyn, A.	Elm House School, Ealing Dean.
Hannay, M.	13 Albion Terrace, South Shields.
Heerd, A.	Ladies' Collegiate S., Ambleside.
Hore, J. A.	Coopers' Girls' School, Bow, E.
Isaacson, G. C.	Northcote, The Heath, Hampstead.
Lazenby, B.	Sydenham College for Ladies.
Millington, B. H.	Mecklenburg House, Putney.
Rawlings, E.	Collingwood College, Lee, S.E.
Rayner, A.	Burlington Mid. Class Girls' S., W.
Squire, E.	Cambridge House S., Battersea Pk.
Sullivan, K. M.	*d.* Ribblesdale College, Hastings.
Caudwell, L. C.	Mecklenburg House, Putney.
Follett, G. L.	Stanmore College, Balham.
Hepburn, E. M.	Townley House, Ramsgate.
Hibberd, F. J.	4 Endsleigh Gardens, N.W.
Janaway, E. E.	Maria Grey S., Fitzroy Square, W.
Lippiatt, G.	Norton Villa, Bath.
Seamons, G. M.	Leybourne House, Aylesbury.
Storey, L.	Grosvenor Ladies' College, Bath.
Tilsley, M. A.	Handsworth Ladies' College.
Thompson, E. L.	Mayo High School for Girls, W.C.
Bevan, W. M.	Cambridge House, Guildford.
Box, A.	Lancaster Mansion, Margate.
Cogan, M. C.	Atherfield House, Clifton.
Dyer, A. E.	Longford Girls' School, Bristol.
Edwards, L. S.	Burlington Mid. Class Girls' S., W.
Firbank, S.	The Cedars, Barton-on-Humber.
Gimlette, D.	Byculla, Southsea.
Glenny, F. H.	Stoke House Academy, S. Hayling.
May, A. W.	*d.* Girls' High School, Spring Grove.
Muse, J.	Wear Terrace, Bishop Auckland.
Sayer, F. E.	Kenilworth College, Hastings.
Tasker, G.	Merton College, Croydon.
Wagg, E.	Diocesan High School, Derby.
Durrant, B.	Clarendon House, Eastbourne.
Field, L.	3 St. George's Place, Brighton.
Frost, C.	Girls' High School, Bridgwater.
Gandy, F. E.	Ennoor Lodge Collegiate S., Leeds.
Raw, L. M.	Park School, Higher Broughton.
Roper, H. F.	Private tuition.
Salzmann, A. L.	17 Powis Square, Brighton.
Stringer, F. H.	Claremont House S., Kensington.
Birt, D.	Gresham House, Northampton.
Brooks, E. S.	Ladies' Coll., Little Queen St., W.C.
Corner, S.	North Camberwell High Schools.
Day, E. M.	Girls' High School, Bridgwater.
Harrison, P. P.	Howard College, Bedford.
Jardine, C. E.	Sydenham College for Ladies.
Lewis, E.	The Ladies' College, Wellington.
Margitson, E.	St. Mary's School, Bungay.
Martin, L. E.	N. Hackney High S., Stamford Hill.
Martin, M. M.	Arundel House, Brixton.
Mather, C.	Hamilton House, Holloway.
Nunn, J.	Private tuition.
Ricketts, M.	Brighthelmston, Birkdale.
Roberts, A.	Clarendon House, New Cross.
Shaw, K.	Redbrooke School, Camborne.
Thomas, E. S.	Harrow House High S., Cardiff.
Zech, M.	Convent S., Queen St., Searboro'.
Andrews, M. A.	Bladen House S., Hove, Brighton.
Berridge, L.	Collingwood College, Lee, S.E.
Carlile, A. G.	Private tuition.
Emmerson, M. J.	S. Wales School, Maesycwmmer.
Lee, B. E.	Westbrook Ladies' S., Darlington.
Mann, E. B.	The Crescent School, Norwich.
Painter, E.	Summerland College, Honiton.
Stone, N. M.	Clarendon House, Eastbourne.
Wood, F.	High S., Queen's Coll., Birmingham.
Almond, E. E.	31 Torrington Place, Plymouth.
Benham, E. M.	Camden School for Girls.
Fentiman, R. K.	Wilton House School, Reading.
Harris, J.	Cromwell House, Bromley Common.
Kidd, B. D.	College House School, Hungerford.
Laird, L.	Croneh Hill High S. for Girls, N.
Mason, M. E.	Mayo High School for Girls, W.C.
Pollard, H. E.	Collegiate S. for Girls, Norwich.
Wilson, F. E.	Fairfield House Watford
Birkinshaw, A. L.	1 Dexter Street, Derby.
Chapman, A.	St. John's Middle S., Kennington.
Ellcome, G. E.	Edinburgh House, Midhurst.
Fenton, E.	Westbourne, Sheffield.
Matheson, M.	St. John's House, South Shields.
Odom, E. M.	Westbourne, Sheffield.
Ward, B.	St. Agnes' School, East Grinstead.
Wilkinson, E. M.	9 The Grove, Clapham Common.
Batty, R.	Trebovir House, South Kensington.
Black, E. F.	The Lindens, Newport, I.W.
Cadman, W.	7 Hyde Terrace, Tollington Park.
Cooke, E. G.	Arundel House, Brixton.
Hiscocks, E. E.	Burlington Mid. Cl. Girls' S., W.
Kemp, M.	Ripley House, Bury St. Edmunds.
King, L. L. S.	Oakley High-Class S., Southsea.
Makin, G.	St. Anne's High School for Girls.
Morris, L. M.	Merchiston, Eastbourne.
Needham, E.	Jerningham House, Tunb. Wells.
Tydall, R. E. W.	Private tuition.
Coulson, E. B.	Haddo School, Scarborough.
Crampton, E. K.	Alexandra College, Shirley.
Day, C.	Kendrick Girls' School, Reading.
Milner, E.	Middle Street School, Driffield.
Stormont, F.	Princess Helena College, Ealing.
Vial, E.	Courtenay House, Crediton.
Young, A.	Byculla, Southsea.
Champion, E. A.	Larchmont, Yatton.
Hordern, F. E. H.	Private tuition.
Mallett, F.	Henry Street School, Bolton.
Marston, E.	Kensington House, Birkenhead.
Osborn, A.	Brighton House, Edgbaston.
Sayer, E. E.	S.E. District College, Kennington.
Walford, M.	Collingwood College, Lee, S.E.
Davis, A. G.	Varteg House School, Penarth.
Hammond, L.	Crescent House School, Bedford.
Hine, E.	Coopers' Girls' School, Bow, E.
Husband, R.	Huntcliffe House, Harrogate.
Isaacson, M. St. Q.	Northcote, The Heath, Hampstead.
Modlin, M.	4, Eslington Rd., Newcastle-on-T.
Norris, L. M.	Bardon House S., High Wycombe.
Oakes, A. M.	St. Katharine's S., Lloyd Sq., W.C.
Wright, P.	Home Leigh, Staines.
Allison, G.	Broomgrove School, Sheffield.
Hinds, E.	Trebovir House, S. Kensington.
Lord, M.	Royal Crescent College, Margate.
Riggall, L. G.	South Villa School, Alford.
Ryder, F. A.	Berkeley House, Hornsey Rise.
Stothert, E. M.	Hope Lea, Heaton Norris.
Bailey, F.	Girls' Grammar School, Keighley.
Burnett, A. M.	Trafalgar Square S., Searborough.
Gunn, M. J. S.	St. John's House, South Shields.
Lazenby, F.	Sydenham College for Ladies.
Pennack, A. C.	Crofton House S., Fulham Road.
Porter, E. M.	Summerland College, Honiton.
Redrup, C. A.	Modena House, Ealing.
Smithson, M.	Collingwood College, Lee, S.E.
Vick, M. A.	Edinburgh House, Midhurst.
Bulpitt, E. B.	Oakley, High-Class S., Southsea.
Epworth, E. A.	Oakhurst, Great Grimsby.
Riggall, L.	South Villa School, Alford.
Strother, D. L.	3 Portland Place, Newbury.
Wellburn, L.	Welbeck House, Bridlington.
Wilkinson, E. M.	Belmont House School, Boston.
Woodroffe, E. A.	Stanley House S., Stockton-on-Tees.
Binning, G.	Vanbrugh Pk. School, Blackheath.
Clarke, A.	2 Victory Terrace, Coatham.
Evison, A.	Beethoven House, Northampton.
Hallett, E.	Milton House School, Plympton.
Kirton, A. M.	Girls' Collegiate S., Louth, Linc.
Taylor, W. J.	Westbourne, Sheffield.
Wendover, M. F.	4 Cumberland Gardns., St. Leonards.
Batten, G. A. M.	Private tuition.
Dunglinson, C. I.	Mayfield Lodge, Folkestone.
Harrison, E. M.	Holt House School, Fakenham.
Kingsworth, A. M.	14 London Road, Maidstone.
Richardson, L. M. L.	London College, Stratford.
Stanley, M. A.	9 Museum Terrace, Chelmsford.
Wilson, E. R.	The Rowans, Watford.
Fenton, K. B.	Westbourne, Sheffield.
Harty, J. E.	Brighthelmston, Birkdale.
Jones, M. H.	Margate Ladies' College.
Mabane, A. G.	St. John's House, South Shields.
Place, A.	Priory House, York.
Poingdestre, S. A.	Zelzah House School, St. Heliers.
Rooth, M. S.	Littleston-on-Sea High School.
Thompson, K. E.	Ch. of England Public S., Gravesend.
Bentall, E. M.	Lindum Villa, Matlock Bath.
Cookes, E. E. J.	Bridge Street School, Knighton.
Fowler, A. L.	Private tuition.
Hooper, M. J.	East Finchley High School.
Norman, H. M.	Down End, Clifton.
Harrison, L.	Royal Masonic Inst., Battersea.
Hawkes, M. E.	Queen Anne's College, Southend.
Dean, H. M.	Burlton House, Reading.
Morgan, M.	St. Catherine's, Cardiff.
Pinnock, I. C.	Hamilton House, Holloway.
Reeve, E.	Camden School for Girls.
Thackray, G.	Crescent House School, Bedford.
Westcott, E. M.	High S. for Girls, Kidderminster.

THIRD CLASS.—1ST DIVISION.

Duffill, M.	*d.*	St. George's House, Doncaster.
Sheppard, G. E.		Knightsville College, Lewisham.
Mayes, K. A.		Trinity Hall, Southport.
Kirby, E. R.	*d.*	Clarence House, Filey.
Stainton, E.	*mu.*	Sydenham College for Ladies.
McKay, M. C.	*d.*	High School for Girls, York.
Paris, J.		Convent of Loreto, Hulme.
Hincks, M.	*d.*	Clyde Villa, Kilburn.
Wooding, G.	*d.*	St. Helier's Coll., Wellingborough.
Denton, A. H.		Blandford House S., Braintree.
Dyson, F. M.	*mu.*	The Westlands, Scarborough.
Jenkins, G.		Oakhurst, Ealing.
Gilbert, M.		Mecklenburg House, Putney.
Mason, L. G.		Chestnut House, Lincoln.
Howatson, A.		Dunmarklyn, Weston-super-Mare.
Lambourne, E.		Merton College, Croydon.
Thomas, F. W.		W. Cornwall College, Penzance.
Kirke, E. F. C.	*f.*	Clyde Villa, Kilburn.
Vooght, A. B.		Montpelier House, Brentwood.
Horwood, W. Z.		Private tuition.
O'Leary, E.	*d.*	Stanmore House, Weston-s.-Mare.
Chanler, E. B.		Grosvenor Ladies' College, Bath.
Underwood, A. C.	*d.*	Girls' High S., Bury St. Edmunds.
Cole, K. M.		Alexandra House, Newport, I.W.
Bell, M. G. T.	*d.*	Private tuition.
Smith, M. F.		The Hermitage, Glastonbury.
Dobbing, C.		Private tuition.
Fisher, M. A.		St. Anne's High School for Girls.
Pitt, E.		The College, Huddersfield.
Simpson, A.		Merton College, Croydon.
Stevenson, F.		Univ. College, Avenue Road, N.W.
Chapman, S.		Jerningham House, Tunb. Wells.
French, A.		Park Mansion, St. Leonards.
Jennings, M. R.	*d.*	Crescent House School, Bedford.
Stewart, A.		Park Mansion, St. Leonards.

GIRLS, THIRD CLASS—*Continued.*

Atwood, L.	*d.*	Hawkstone, Eastbourne.
Ellison, G. E.		Private tuition.
Firmstone, M. A.		Beech Lawn, Leamington.
Holt, N.	*d.*	St. Winifred's S., Southampton.
Kent, F.		Leith House, Acton.
Thomason, J.		The Cowley Schools, St. Helens.
FitzHugh, H. E.	*d.*	The Elms, Coventry Pk., Streatham.
Saut, F. E.		The Orme Girls' S., Newcastle, Staffs.
Alcock, W.		Royal School, Bath.
Densham, E.		Merton College, Croydon.
Bendle, M.		Merton College, Croydon.
Carr, E.		Broomgrove School, Sheffield.
Cooper, M.		Haddo School, Scarborough.
Grundy, L.		The Westlands, Scarborough.
Lea, A. G. J.		Heathfield, King's Heath.
Beseky, E.		Girls' High School, Spring Grove.
Coster, E. J.	*d.*	Milton Mount College.
Wilson, G.		York House, Kilburn Priory.
Withinshaw, L. M.	*d.*	The Orme Girls' S., Newcastle, Staffs.
Tipping, F. M.	*mu.*	St. Anne's High School for Girls.
Stevenson, E.		Univ. College, Avenue Road, N.W.
Anderson, F.	*yer.*	The Hollies, Malvern.
Bance, V. M.		Girls' Coll. & High S., Southampton.
Brown, M. L.		College House School, Hungerford.
Colenutt, A. M.		Private tuition.
Griffiths, K. A.		The Westlands, Scarborough.
Luson, K.		Merton College, Croydon.
Wood, K.		Friends' School, Saffron Walden.
Beart, A. M.	*f.*	Mayfield Lodge, Folkestone.
East, M. J.		The Lowestoft High School.
Hill, F. E.		Burlington Mid. Cl. Girls' S., W.
McKinney, A. E.		Clyde Villa, Kilburn.
Parsons, B. G.		Anglo-French Ladies' S., Bristol.
Queen, M. E.		The Grove College, Harrogate.
Sanderson, M. E.		Parish Church Mid. Cl. S., Leeds.
Bird, A.		Private tuition.
Bryden, H. G.		Leam House S., Addison Cres., W.
Foulds, E. J.		Ribblesdale College, Hastings.
Gelder, L.		Priory House, York.
Gratte, E. K.		Milford House, Newport, Mon.
Parfitt, B. M.		Newport (Mon.) High School.
Sumner, E.		Parish Church Mid. Cl. S., Leeds.
Barker, A. C.		High School, Redhill.
Broad, M.		Kingsholme S., Weston-s.-Mare.
Duncan, L.		Girls' High School, Heaton Moor.
Roberts, M.		Jerningham House, Tunb. Wells.
Shone, M. E.		Summerhill House, Litherland.
Allender, M. E.		Stoke Newington High School.
Barker, S. M.		Private tuition.
Glover, G.		Convent of Loreto, Hulme.
Johnstone, E.	*d.*	Convent of Loreto, Hulme.
Long, S.		3 Montagu Terr., Hr. Broughton.
Heather, W. C.		Mecklenburg House, Putney.
Hickmott, M.		Boston Grove S., Rotherham.
Page, A. G.		The Lowestoft High School.
Wilkerson, S. W.		Elgin College, Bayswater.
Campbell, A.		Parish Church Mid. Cl. S., Leeds.
Haslam, S. K. K.		Malvern House, Reading.
Holloway, F.	*d.*	Private study.
Holloway, L.		St. Andrew's House, Hove, Brighton.
Davis, S. E.		Grange College, Leominster.
Fishe, E. A.		Walthamstow Hall, Sevenoaks.
Jourdain, M.	*d.*	Newnham House, Loughton.
Pearce, S. B.		Whitworth School, Derby.
Wood, A. F. M.		Denham House, Ramsgate.
De Costa, E.		Convent of Loreto, Hulme.
Lambert, A. F.		2 Argyle Terrace, Plymouth.
Lawrence, A.		Parish Church Mid. Cl. S., Leeds.
Miller, E.	*d.*	Field House, Heaton Chapel.
Palmer, E. C.		Camden School for Girls.
Samson, A. M.		Stoke Newington High School.
Trotman, M. L.		Avenue House, Lewisham.
Tuckey, S. F.		High School, Sidney Place, Cork.
Chambers, M.		Parish Church Mid. Cl. S., Leeds.
Evans, E. A. F.		Clarence House, Filey.
Fawcett, A. M.		Kendrick Girls' School, Reading.
Guthrie, M. N.		Field House, Heaton Chapel.
Hall, L.		Oakhurst, Ealing.
Johnson, A. M.		5 Gower Street, Derby.
Swanson, B.		Chester House, West Hampstead.
Ware, I.		Kingsholme S., Weston-s.-Mare.
Jones, L. E.		The Ladies' College, Wellington
Mitchell, E. L.		"Vernon," Pembridge Villas, W.
Miles, R. M.		Mayfield Lodge, Folkestone.
Mortimer, A.	*d.*	1 Clyde Terrace, Hull.
Povel, G.		Convent of Loreto, Hulme.
Smith, A.		Field House, Heaton Chapel.
Wheeler, M. M.	*d.*	The Lymes, Sudbury, Suffolk.
Bennett, E. B.		Parish Church Mid. Cl. S., Leeds.
Cheel, E. M.		Ashley House, Newbury.
Conder, M.		Private tuition.
Goodchild, E.	*d.*	Girls' High S., Bury St. Edmunds.
Griffin, A. M.		Hanover House School, Ryde.
Higson, A.		Burscough House S., Ormskirk.
Hutchence, E.		Wandsworth High School for Girls.
Smith, C. K. G.		Clarence House, Filey.
Smith, M. M.		Clyde Villa, Kilburn.
Tasker, F. A.		St. Katharine's S., Lloyd Sq., W.C.
Brown, G.	*d.*	High School, Stockton-on-Tees.
Goodman, V. L.		The Elms, Stony Stratford.
Keeling, A.		86 Ladbroke Grove Road, W.
Patching, A.		Jerningham House, Tunb. Wells.
Rush, F. H.		"Vernon," Pembridge Villas, W.
Saunders, E.		Slepe Hall, St. Ives, Hunts.
Schutz, M. A.		Wellington House S., Eastbourne.
Wilson, H.		Parish Church Mid. Cl. S., Leeds.
Ellis, E.		Collingwood College, Lee, S.E.
King, A. E.		Hamilton House, Holloway.
Mather, E. J.		Hamilton House, Holloway.
Peel, H.		Field House, Heaton Chapel.
Potts, A. E.		Harborne Ladies' College.
Shelton, K. B.		Pemberton College, Up. Holloway.
Trengrouse, E. M.		Mecklenburg House, Putney.
Withers, C. L.		Wakefield House School, Norwich.
Ash, N.		Merevale House, Newport, Salop.
Caines, E. E.		Private tuition.
Cattley, H.		Clarence House, Filey.
Corser, C. A.		Bath High School for Girls.
Cran, L.		Milton Mount College.
Gare, E,		West Lydford Collegiate School.
Greenfell, A. M.		W. Cornwall College, Penzance.
Hunt, M. H.		17 Hill Lane, Southampton.
Lampson, G. S.		Leam House S., Addison Cres., W.
MacArthur, M. C.		Ormond House, Paignton.
Ness, N. B.		High School, Darlington.
Nicholson, M.		Royal Masonic Inst., Battersea.
Read, M. E.		Westwood Coll. S., Scarborough.
South, L.		Holywell Ladies' Col., Weston-s.-M.
Tirbutt, L.		The Laurels, Nottingham.
Viggars, A. S.		The Orme Girls' S., Newcastle, Staffs
Watkins, E. M.		St. Elmo, Bradford-on-Avon.
Brown, H. J.	*d.*	Girls' High S., Bury St. Edmunds.
Chard, S. M.		Bath High School for Girls.
Clayton, L.		Malvern House School, Birkdale.
Heald, M.		Girls' Collegiate School, Sleaford.
Hunt, A. E. F.		26 Ashley Road, N.
Loader, K.		Kendrick House, Brighton.
Lulham, F. G.		Grosvenor Ladies' College, Bath.
Newton, E.		Merton College, Croydon.
Pearce, C.		High School, Rose Hill, Bowdon.
Perrott, K. A. E.		Malvern Ladies' College.
Smith, A.	*d.*	Clarence House, Filey.
Smith, S. E.		Olney House, Hastings.
Stott, G.		61 Withington Road, Whalley Range.
Young, M.		The Academy, Crewe.
Armstrong, M. A.		Lindenau School, Chichester.
Baker, G. E.		The Hawthorns, Ealing Common.
Breton, L.		Jerningham House, Tunb. Wells.
Coleman, F.		Field House School, Worcester.
Dawson, E. E.		South Villas School, Alford.
Few, A. E. C.		Private tuition.
Kirkman, M. H.		Morningside, Hastings.
Laidman, C. M.		Private tuition.
Marshall, K.		Girls' Collegiate S., Louth, Linc.
Maygrove, R.		Clapham Park Ladies' Coll., S.W.
Robinson, G.		Crescent House School, Bedford.
Thacker, J. L.	*d.*	Oakfield, Wolverhampton.
Walton, D. M.		Ringstead School, Catford.
Whitford, O. M.		Kingswood Park S., Gunnislake.
Archer, A. M.		Allerton House, Watford.
Fyson, A. M.		Coylton House, Wincanton.
Harrison, E. M.		The Grove, Shelton, Stoke-on-Trent.
Hewett, U.		Marlborough House S., Taunton.
Mansbridge, G.		The Orchard, Kinburn, Egham.
Rouse, A. L.		Halifax Girls' High School.
Rowland, E.		Woking High School for Girls.
Shakerley, E. J.		Redbrooke School, Camborne.
Briggs, A. M.		Diocesan High School, Derby.
Curtis, L. E.		Harborne Ladies' College.
Edwards, E. M.		Addiscombe House, Barnstaple.
Fleming, E.		Convent of Loreto, Hulme.
Heap, H. W.		Leicester Rd. S., Melton Mowbray.
Hunt, G. E.		Southside House, Weston-s.-Mare.
Keyworth, M.		Girls' Grammar School, Halifax.
Robinson, C.		Crescent House School, Bedford.
Walker, G. P.		Leicester Rd. S., Melton Mowbray.
Welding, L.		Burscough House S., Ormskirk.
Wheler, A. R.		Moravian Ladies' School, Ockbrook.
Barrett, M. L. S.		Bath High School for Girls.
Charlesworth, B. B.		Sydenham College for Ladies.
Clegg, L.		The Orme Girls' S., Newcastle, Staffs.
Dale, H. M.		Public S. for Girls, Scarborough.
Greenslade, B.		Rougemont School, Exeter.
Kennedy, A. C.		Beech House, Ripley.
Lucas, R. M.		Private tuition.
Parmenter, A. E.		Blandford House School, Braintree.
Wood, J.		High School for Girls, Hornsea.
Ecroyd, F.		Girls' Grammar School, Bingley.
Dunn, L. A.		Hazelhurst, Wimbledon.
Everson, E. G.		60 Oak Mount Terrace, Burnley.
Farrar, A.		Halifax Girls' High School.
Goodman, E. K.		Eastgate School, Northampton.
Hetherington, O.		9 The Grove, Clapham Common.
Hogg, H.		Crescent House School, Bedford.
King, M. M.		Hamilton House, Holloway.
Maggs, M. E.		Mayfield House, Marlborough.
Nevill, E.		Beech Tree House, Aldridge.
Norton, E. M.		Wandsworth High S. for Girls.
Openshaw, B.		Springfield House, Stockport.
Pratt, M.		Private tuition.
Rayner, H.		Springfield House, Stockport.
Waldram, B. A.		Felix House, Tottenham.
Williams, A.		Field House, Heaton Chapel.
Young, M.		Bath High School for Girls.
Atkinson, E. D.		Claremont House S., N. Kensington.
Birnbaum, H. J.		Maria Grey S., Fitzroy Square, W.
Browne, L.		The Lymes, Sudbury, Suffolk.
Cheadle, E.		Field House, Heaton Chapel.
Collingwood, E. F.		17 Powis Square, Brighton.
Crowther-Smith, E. M.		Northumberland Ho., Tottenham.
Davies, E. M. A.		Portsea Collegiate School.
Deverell, M. A. R.		Ashbourne House, Colchester.
Dwerryhouse, G.		Norwood House, Liverpool.
Edge, E. M.		Private tuition.
Evans, E.		Woolwich & Plumstead High S.
Fairbanks, E. A.		Friends' School, Saffron Walden.
Faull, C.		Redbrooke School, Camborne.
Garay, M. E.	*f.*	Eton Park College, S. Hampstead.
Gould, M. L.		Albany School, Brighton.
Hayter, M. B.		Oakhurst, Great Grimsby.
Helby, K. M.		Clyde Villa, Kilburn.
Horsey, E. E.		Stoke Newington High School.
Leggatt, E. B. T.		Albert Villa, Ramsgate.
Lloyd, L.		Newport (Mon.) High School.
Lodington, B. N.		Field House, Heaton Chapel.
Machin, E. E.		Brooklyn House, Wellington, Salop.
Perkins, S.		Belle Vue, Swansea.
Pinn, F. M.		Rougemont School, Exeter.
Prangley, N.		Ellerslie Ladies' S., Bromsgrove.
Sykes, M.		Girls' Grammar School, Leek.
Taylor, E. A. G.		College House S., Hungerford.
Bogt, H. J.		26 Ashley Road, N.
Brettelle, I. C.		Ellenborough House, Clifton.
Brewer, E.		Newport (Mon.) High School.
Cadman, A. B.		The Orme Girls' S., Newcastle, Staffs.
Eder, E.		Gloucester House School, Kew.
Everett, M.		Ellesmere Coll., Sydenham Rd., S.E.
Fisher, D. J. C.		Alstonefield, Ashbourne.
Gunn, M. H.		Belmont House, Leicester.
Hartley, A.		Girls' Grammar School, Keighley.
Humphreys, L. A.		174 Church St., Stoke Newington.
Lapthorn, N. W.		Collegiate School, Gosport.
Levi, C.		Ystwith House S., Aberystwith.
Locke, B. P. W.		Royal Masonic Inst., Battersea.
Lyon, H. S.		Royal Masonic Inst., Battersea.
Morty, A. R.		Howard College, Bedford.
Nichols, B. J.		Clare House School, Northampton.
Rishworth, E.		Parish Church Mid. Cl. S., Leeds.
Rogers, E.		Newport (Mon.) High School.
Soars, E. M.		Southside House, Weston-s.-Mare.
Tawell, R.		Friends' Schools, Saffron Walden.
Whitton, D. M.		Polytechnic Girls' School, W.
Wilkins, E.		Camden School for Girls.
Ashdown, F. S. M.		Marlborough House S., Brighton.
Bailey, L.		High School, Tenterden.
Bristow, B.		Oakfield School, Handsworth.
Burrage, E. M.		Wellington College, Hastings.
Collier, R. E.		Field House, Heaton Chapel.
Daw, E. A. G.		1 Southernhay West, Exeter.
Elias, A.		Harrow House High S., Cardiff.
Fletcher, B.		Holmedune, Blundellsands.
Gilbert, A.		Girls' Collegiate S., Louth, Linc.
Gowing, A. M.	*d.*	The Lymes, Sudbury, Suffolk.
Hallam, T. R.		The Manor House, Uttoxeter.
Hayward, L.		Claremont House, Corsham.
Holford, G. A.		Private tuition.
Kennett, W. M.		Amble College, Streatham.
Laing, M. A.		Lindenau School, Chichester.
Mann, M.	*d.*	Llandaff House School, Norwich.
Menpes, M.		The Lowestoft High School.
Righton, E.		Field House, Heaton Chapel.
Scott, J.		Handsworth Ladies' College.
Smith, L. B.	*mu.*	Anglo-French Ladies' S., Bristol.
Stapley, R. K.		Cambridge House, Guildford.
Wallis, A. M.		The Orme Girls' S., Newcastle, Staffs.
White, L.		Private tuition.
Burman, S.		Windsor High School, Liverpool.
Clarke, J.		Merton College, Croydon.
Harrison, P. C.		West Ho. High S., Forest Hill, S.E.
Jenne, G. B.		Wesley House School, Jersey.
Learner, K. A.		Leybourne House, Aylesbury.
Moore, E. R.		The Laurels, Canterbury.
Needham, F. G.		Private tuition.
Parker, E.		Belmont House, Edgbaston.
Sheppard, B. K.		Avonbank House, Bath.
Smith, F.		Carlton House School, Eccles.
Theobald, F.		Halifax Girls' High School.
Voyce, E. M.		Grey Coat Hospital S., Westminster.
Webster, M. I.		Eton House, Sheffield.
Willcox, M. M.		Private tuition.
Worger, G.		Private tuition.
Wylie, A.		Burscough House School, Ormskirk.
Young, C.		Heathfield, King's Heath.
Archer, K.		Polytechnic Girls' School, W.
Barber, B. A.	*mu.*	Clare House School, Northampton.
Campbell, J.		Kendrick House, Brighton.
Curtis, L.		The Grange, Buxton.
Dawson, R. C.		Ashbourne House, Colchester.
Durden, L.		Blandford Girls' School.
Hailstone, E. C.		Kendrick Girls' School, Reading.
Haynes, E. M.		Dorchester House, Clacton-on-Sea.
Hutton, E. M.		Walthamstow Hall, Sevenoaks.
Johnson, E. A.		Girls' Coll. & High S., Southampton.
Kennard, E.		Polytechnic Girls' School, W.
Lefroy, E.		Chester House, W. Hampstead.
Mackaness, E. J.		Clare House School, Northampton.
Marriage, C.		Brighthelmston, Birkdale.
Moth, E.		Private tuition.
Neate, K. E.		Norfolk House, Gosport.
Sudds, G.		London Orphan Asylum, Watford.
Swinneton, L. B.		14 Marquess Road, Canonbury, N.
Waite, L.		Girls' Grammar School, Keighley.
Whistler, E. M.		3 Portland Place, Newbury.
Wright, F.		St. Helier's Coll., Wellingborough.
Young, E. C.		Milton School, Northampton.
Akehurst, E. M.		Marlborough House S., Brighton.
Aste, E. A.		The Elms, Coventry Pk., Streatham.
Cavill, M.		Barrow House, Barrow-on-Humber.
Dees, G. M.		Mecklenburg House, Putney.
Elliott, E. M.		Clare House School, Northampton.
Gibbs, A. S.		Coylton House, Wincanton.
Godfrey, C. M.		Royal Bay Terr. S., Gorey, Jersey.
Gordon, B. W.		Field House, Heaton Chapel.
Hampshire, G. G.		High School for Girls, Torquay.
Hatch, J. C.		Maria Grey S., Fitzroy Square, W.
Hedges, F. A.		Fairfield House, Watford.
Hill, E. J.		Grey Coat Hospital S., Westminster.
Hoole, A.		Brighthelmston, Birkdale.
Jarrett, M.		Summerbrook, Reading.
Loader, L. E.	*d.*	The Cowley Schools, St. Helens.
Macnab, J.		York House, Kilburn Priory.

GIRLS, THIRD CLASS—*Continued.*

Massé, B. E. L.		Private tuition.
Mawson, M. E.	*d.*	Devonshire House, Carlisle.
Newman, E.		Thomas St. Girls' S., Burdett Rd., E.
Quested, J. S.		Grey Coat Hospital S., Westminster.
Simons, O. A.		Stoke Newington High School.
Singer, E. M.		St. Catherine's, Cardiff.
Smith, W. M. P.		Duncan House, Clevedon.
Steven, M.		Cronch Hill High S. for Girls, N.
Taylor, A. P.		High School, West Bromwich.
Watt, M. B.		Wellington College, Hastings.
Westcott, M. H.		High School, Kidderminster.
Winship, E. M.		St. Winifred's School, Southampton.
Allan, M. C.		Proprietary School, Dudley.
Ayre, E. A.		The Westlands, Scarborough.
Balls, E. H.		Shelley House School, Ongar.
Brear, H. J.		Halifax Girls' High School.
Brightwell, H.		Dorchester House, Clacton-on-Sea.
Butlin, F.		7 Hyde Terrace, Tollington Park.
Deller, E.	*d.*	Ashcroft, Staines.
Dutch, A.		Friends' School, Saffron Walden.
Figgis, R.		Kingsholme S., Weston-super-Mare.
Halladay, M. E.		Pestalozzian School, Southampton.
Harris, A. E.		Norfolk House, Gosport.
Horth, E. E.		The Orme Girls' S., Newcastle, Staffs.
Jeffery, B.		Field House, Heaton Chapel.
Lake, E. H.		Eastholme, Farnham.
Lang, R.		Newport (Mon.) High School.
Langdale, B.		Westwood Coll. S., Scarborough.
Leith, D. J.		Wandsworth High School for Girls.
Lowe, M. L.		Dresden House, Evesham.
Mackintosh, I.		Merton College, Croydon.
Martin, E.		Merton College, Croydon.
Mather, H. J.		Glemham House S., Southport.
Moscrop, E.		Pierremont Crescent S., Darlington.
Moss, C. E.		Elm House School, Ealing Dean.
Parker, N.		Northlands, Blackpool.
Parsons, L. E.		Anglo-French Ladies' S., Bristol.
Smith, F.		Convent of Loreto, Hulme.
Wall, M.		The College, Huddersfield.
Waters, E.		Jerningham House, Tunb. Wells.
Weekes L. M.		North Bristol School for Girls.
Boot, N. A.		S.E. District College, Kennington.
Churton, M.		St. Agnes' School, East Grinstead.
Coltart, M.		1 Royal York Crescent, Clifton.
Crouch, E.		Milton Lodge, South Woodford.
Davies, I. I.		South View, Ironbridge, Salop.
Harrison, E. A.		St. Mary's Road, Leamington.
Hawthorn, L. M.		Richmond House, Penkhull.
Leith, M. E.		Wandsworth High School for Girls.
Lincker, C.		Milston Villa, Fareham.
Millard, H. R. M.		9 St. Paul's Road, Canonbury.
Mines, O.		Orford College, Walthamstow.
Pickard, E. G.		Diocesan High School, Derby.
Smith, E.		Kersal Cell, Higher Broughton.
Sellwood, A. E.		Summerbrook, Reading.
Tomkins, M. F.		Westbourne House, West Cowes.
Topham, E.		Neotsbury School, Scarborough.
Wilford, E. J.		Burlington Mid. Cl. Girls' S., W.
Ainsworth, M.		Crescent House School, Bedford.
Bennett, M. E.		High School, Kidderminster.
Bone, F. K. M.		Portsea Collegiate School.
Brown, A. C.		Belmont, Dover.
Collingridge, E. M.		"Wynnstay," Hornsey Lane.
Compton, E.		Olney House, Hastings.
Daniell, A. E.		Park College, Tottenham.
Deas, G.		The Elms, Coventry Pk., Streatham.
Dunlop, F. E.		Royal Masonic Inst., Battersea.
Elgood, E. M.		Private tuition.
Few, H. C.		Private tuition.
Field, A. M.		Upper Mount, Southsea.
Gate, E. D.		Glebe Place S., Stoke Newington.
Good, S. E.		The Cedars, Barton-on-Humber.
Gurney, M. E.		Margate Ladies' College.
Head, K.		St. Agnes' School, East Grinstead.
Hitchcock, E. K.		The Lymes, Sudbury, Suffolk.
Hopwood, E. M.		2 Oxford Villas, Cheltenham.
Howes, E. H.		Private tuition.
Hunt, E. M.	*d.*	Southolme High S., Whalley Range.
Hunt, E. M.		9 Well Street, Bury St. Edmunds.
Isaacs, M. S.		36 Warrington Cres., Maida Vale, W.
Johnson, B. M.		Elmhurst, Broxbourne.
Keirle, M.		The Orchard, Kinburn, Egham.
Mercier, E. M.		Girls' High S., Bury St. Edmunds.
Miller, M.		Polytechnic Girls' School, W.
Paling, M. E.		58 Shepherd's Bush Green.
Pearce, A. M.		Welbeck House, Lewisham Park.
Perry, E. M.		Duncan House, Clifton.
Sheppard, M. L. E.		Stamford Hill High School, N.
Simons, F. M.		Jewish High School for Girls, W.C.
Solomon, B.		4 Endsleigh Gardens, N.W.
Stoffell, F. G.		Claremont College, Corsham.
Allen, D.		Townley House, Ramsgate.
Benton, C. M.		Alton House, Harrogate.
Bowen, K. E.		Moseley High School for Girls.
Bradbury, A. L.		Green Mount, Morley.
Bryan, W.		Milton Lodge, South Woodford.
Büchley, I.		Vanbrugh Park School, Blackheath.
Carter, A. M.		Cheddon Fitzpaine, Taunton.
Collins, M. C.		Pemberton College, Up. Holloway.
Danks, C. E.		Downs College, Clapton.
Fiedler, G.		The Ridgway School, Enfield.
Gaved, G. J.		Private tuition.
Gwyn, A.		St. David's School, Carnarvon.
Harper, M. A. J.		The Orme Girls' S., Newcastle, Staffs.
Hooper, M.		Byculla, Southsea.
Hurding, M. H.		Buckland House, Axminster.
Kendrick, E.		The Manor House, Uttoxeter.
Laxton, B. M.		Clarendon House S., Southport.
Lowe, L. A.		Queenswood, Clapham Park.
Milnes, A.		The College, Huddersfield.
Oliver, C. E.		Warehousemen & Clerks' S., Purley.
Park, G.		Merton College, Croydon.
Peyton, V. F. C.		High School, Sidney Place, Cork.
Pixell, G. M.		174 Church St., Stoke Newington.
Plummer, E. M.		Girls' High School, Swindon.
Redrup, G. M.		Modena House, Ealing.
Reyñovan, B. G.		Moorlands School, Bournemouth.
Saville, H. M.		Private tuition.
Smith, B. E.		Pemberton College, Up. Holloway.
Stapley, A. F.		Mayo High School for Girls, W.C.
Stokes, K.		Royal Masonic Inst., Battersea.
Sutthery, E. C.		Troston Lodge, Southfields, S.W.
Warwick, E.		Kendrick House, Brighton.
Whiteside, W.	*mu.*	Buckingham Crescent S., M'chester.
Wickham, S. G.		Stanmore House, Weston-s.-Mare.
Wood, M. W.		Whitstable College.
Bailey, E. M.		West Lydford Collegiate School.
Beale, M. R.		Burlington House School, Clifton.
Bennett, M.		Clevedon High School.
Brodie, E. E.		Convent S., The Avenue, S'hampton.
Bulstrode, E.		Private tuition.
Burns, J.		Mowbray School, Sunderland.
Burridge, E. L.		Avondale, Liverpool.
Davenport, H. L. E.		Stoke Newington High School.
Elmes, G.	*d.*	Howard College, Bedford.
Gaskell, A.		Merton College, Croydon.
Goward, L. M.		Rosemont Girls' School, Bristol.
Howard, F. A.		Brent Hill Collegiate S., Hanwell.
Marsh, E. M.		Ellerslie Ladies' S., Bromsgrove.
Martindale, E.		Praetoria House, Folkestone.
Mattock, S.		Girls' Grammar School, Keighley.
Mecklenburg, A. E.		Girls' High School, Spring Grove.
Morgan, A. W.		Camden School for Girls.
Munford, N. C. M.		Ellesmere Coll., Sydenham Rd., S.E.
Murphy, L.		Convent S., Queen St., Scarborough.
Newsome, M. A.		The Westlands, Scarborough.
Overton, E. E.		Addiscombe High School.
Parker, S. A.		Holt Academy.
Piper, B.		Wellington House S., Eastbourne.
Place, A. M.		Wellington College, Hastings.
Proctor, E. M.		The Towers, Saltburn-by-Sea.
Rowe, M.		Redbrooke School, Camborne.
Saunders, M. J.		Woodgrange Acad., Forest Gate.
Stark, A.		Thomas St. Girls' S., Burdett Rd., E.
Stewart-Patterson, N.		G.M. Rushmore House, Blakebrook.
Swan, M.		St. Berards, Southsea.
Turney, E. N.		Private tuition.
Webster, M. J.		Milton Mount College.
Wheeler, E. M. F.		Severn Bank, Shrewsbury.
Woodcock, N.		Newport (Mon.) High School.
Woolcott, A.		Merton College, Croydon.
Barratt, E.		The High School, Altrincham.
Berry, M. A.		Stoneygate College, Leicester.
Bickerstaffe, C. E.		Northlands, Blackpool.
Blackburn, E.		Halifax Girls' High School.
Bomford, L. J.		Court House, Atch Lench, Evesham.
Buckley, B.		Halifax Girls' High School.
Cale, C.		Private tuition.
Carr, M. A.		Northumberland Ho., Tottenham.
Cave, D.		The Grange, Buxton.
Crawshaw, M. E.		Friends' School, Saffron Walden.
Eaden, F. A. G.		Moseley High School for Girls.
Fearon, A. E.		Royal Masonic Inst., Battersea.
Field, M.		Henry Street School, Bolton.
Frisby, A.		Clare House School, Northampton.
Gillett, E. C.		Royal Masonic Inst., Battersea.
Hadley, A.		Woodgrange Acad., Forest Gate.
Heaps, M.		Lynton House School, Margate.
Hinton-Jones, G. J.		Claremont High S., Shrewsbury.
Judge, E.		Areville Ladies' College, Rhyl.
Kinsman, M.		Parish Church Mid. Cl. S., Leeds.
Lawford, A. E.		Camden School for Girls.
Lock, H.		Alexandra House, Newport, I.W.
Long, M. R.		Connaught Ho. S., Attleborough.
Martin, J.		Summerbrook, Reading.
Matthews, B.		Private tuition.
Minshull, W.		Gresham College, Brixton Road.
Moore, C.		St. Michael's Avenue S., N'hampton.
Moore, E. L. W.		Bridge House, Trowbridge.
Mower, G. M. R.		Eastbourne House, Devizes.
Patching, M.		Jerningham House, Tunbridge Wells.
Perkins, B. L.		The Elms, Coventry Pk., Streatham.
Sanderson, E. B.		Coopers' Girls' School, Bow, E.
Snellgrove, A. G.		Fern Bank, Wandsworth Common.
Starr, F.		Bath High School for Girls.
Thomas, M. A.		Private tuition.
Walsh, M.	*d.*	Newnham House, Loughton.
Warren, M. S.		Queen Anne's College, Southend.
Watling, C. E.		Coylton House, Wincanton.
White, E. H.		Grange College, Leominster.
Williams, C.		Beaumont House School, Llanelly.
Wright, C. M.		Lulworth Lodge, Birkdale.
Ashworth, A.		Parish Church Mid. Class S., Leeds.
Bate, E. B.		Walthamstow Hall, Sevenoaks.
Bradley, J.		The Terrace, Chesterfield.
Burdett, M. A.		Stoneygate College, Leicester.
Burton, J. C.		Wilderness House School, Tiverton.
Dyas, E. F.		Athelstan College, Folkestone.
Emlyn, M. J.		Walthamstow Hall, Sevenoaks.
Gammon, E. L.		Westbourne House, West Cowes.
Gray, N.		Claremont House, Sunderland.
Hanna, C. L.		Holdstock Coll., Upper Holloway.
Haworth, F.		Park House School, Bowdon.
Hickman, F. E.		Lansdowne College, Notting Hill.
Hoare, M.	*mu.*	Norwood House, Liverpool.
Hunt, M.		Riversdale, Acock's Green, B'ham.
Kitton, E. J.		The Crescent School, Norwich.
McCleverty, E.		Private tuition.
Mellor, E. A.		The Orme Girls' S., Newcastle, Staffs.
Newnham, J. L.		Private tuition.
Padgham, F.		High School, Tenterden.
Piggott, L. M.		Darwen College, Buckhurst Hill.
Pogson, M. W. E.		Devonshire House, Carlisle.
Poore, L. F.		14 Marquess Road, Canonbury, N.
Price, E.		The Grange, Buxton.
Richards, M.		Malvern Ladies' College.
Robinson, C. M.		Milton Mount College.
Rugg, G. A.		Mayfield House, Marlborough.
Self, J. M.		Woodgrange Acad., Forest Gate.
Shaw, M.		Halifax Girls' High School.
Smith, F.		Girls' High School, Spring Grove.
Smith, M. A.		Mayfield House, Marlborough.
Spain, A.		Salem House College, Sunderland.
Thompson, A.		1 Trafalgar Terrace, Coatham.
Tranter, E. K. E.		Maida Vale College for Ladies, W.
Trimmer, L.		Areville Ladies' College, Rhyl.
Ware, M. G.		Duncan House, Clifton.
West, H.		Clifton House, Belper.
Wilkinson, D. E.		Lonsdale House School, Norwich.
Wood, E.		Private tuition.
Archer, A. L.		Ashleigh House, Tutbury.
Barber, E. E.		St. Margaret's, Bristol.
Blanchard, M.		Marlborough College, Exeter.
Bindley, A. G.		Halifax Girls' High School.
Bush, M. K.		The Lowestoft High School.
Cooke, K.		The Ladies' College, Wellington.
Dampier-Child, L. F. F.		Private tuition.
Evans, B.		S. Wales School, Maesycwmmer.
Fletcher, E.		Newnham House, Loughton.
Fordham, C. M.		Normanhurst, W. Bournemouth.
Gammelier, M. E. H.		Cashiobury House, Southend.
Ghey, C. A.		Grosvenor Ladies' College, Bath.
Greenwood, E. N.		Harborne Ladies' College.
Gollan, R. R.		Chester House, West Hampstead.
Hart-Davis, M.		Reading High School.
Haslip, A.		Cashiobury House, Southend.
Hawkins, A.		Royal Crescent College, Margate.
Higgs, F. P.		Knightsville College, Lewisham.
Hollier, C. E.		St. Winifred's, Clifton.
Hyams, M.		Camden School for Girls.
Ide, L. C.		Milton Lodge, South Woodford.
Kemp, F.		Ellerslie Ladies' S., Bromsgrove.
Larkin, K.		The Orchard, Kinburn, Egham.
Lewis, G.		St. Catherine's, Cardiff.
Levi, D.		Elgin College, Maida Vale, W.
Maccy, B.		St. Winifred's S., Southampton.
Mason, E.		High School, Kidderminster.
McKillop, K.		Betley Ladies' College.
Menhinick, M. J.		31 Torrington Place, Plymouth.
Permain, E. M.		Girls' High School, Spring Grove.
Plugge, M. H.		Ellerslie House School, Hull.
Richardson, M.		Knightsville College, Lewisham.
Rhodes, M. E.		Clarendon House S., Southport.
Robinson, E. M.		Private tuition.
Roberton, K.		Kendrick Girls' School, Reading.
Scanes, J.		Thomas St. Girls' S., Burdett Rd., E.
Smith, B.		Field House, Heaton Chapel.
Smith, F.		Lynton House School, Margate.
Spyer, M.		Kendrick Girls' School, Reading.
Stevens, E. A.		Malvern Ladies' College.
Taylor, E. M.		N.E. District Coll., S. Newington.
Thomas, J. W.		Milton Mount College.
Whytock, J. M.		Albany School, Brighton.
Wood, E. G.		Milton Lodge, South Woodford.
Wright, E. E.		Park School, Higher Broughton.
Adams, L.		Hillersdon House, Barnes.
Allatt, K.		Royal Masonic Inst., Battersea.
Bealey, F. A.		Vernon Pembridge Villas, W.
Brooke, C.		Private tuition.
Browning, H. A.		14 Marquess Road, Canonbury, N.
Buckley, E. M.		The Grange, Marple.
Bull, A. D.		Private tuition.
Campbell, F. E.		St. Anne's High School for Girls.
Charge, E. W.		Private tuition.
Cooper, H.		Haddo School, Scarborough.
Cummins, V. E. C.		58 Shepherds Bush Green.
Forrester, M.		Montague House S., Weymouth.
Green, N.		Eagley Bank, Southport.
Hankin-Turvin, K. B.		86 Ladbroke Grove Road, W.
Hardy, A. C.		The Towers, Saltburn-by-Sea.
Harris, E. M.		The Grove, Shelton, Stoke-on-Trent.
Henry, A. E.		Wellington College, Hastings.
Hickes, W. C. E.		Girls' Collegiate School, Truro.
Hill, N. B.		Beaver House, Farnham.
Hinds, A. F.		Townley House, Ramsgate.
Hodgson, M.		Halifax Girls' High School.
Howarth, R. L.		Royal Masonic Inst., Battersea.
Larr, G. H.		High School, Kidderminster.
Lee, W.		Moseley High School for Girls.
Levien, M. G.		Camden School for Girls.
Lovell, F. H.		North Bristol School for Girls.
Malcolm, M.		Chester House, West Hampstead.
Marsh, J. E.		Camborne House S., Tottenham.
Milnes, E.		Dalton Girls' High S., Huddersfield.
Moscrop, L. L. R.		Sandringham Ho., Alexandra Road.
Pells, L.		Melrose, Lowestoft.
Perrett, A. D.		Garfield House School, Paignton.
Pickering, F.		Private tuition.
Pike, M. C.		21 Home Park Villas, Stoke.
Redit, G.		Auburn House, Downham Market.
Rich, M. G.		Cross Hayes House, Malmesbury.
Richardson, E.		1 Clyde Terrace, Hull.
Rogers, B.		Hatter St. S., Bury St. Edmunds.
Sale, E. J.		Betley Ladies' College.
Sephton, M. L.		Higher Grade School, Atherton.
Simms, F.		Cashiobury House, Southend.
Smith, L. E.		7 Hyde Terrace, Tollington Park.
Stevenson, E. W.		1 Trafalgar Terrace, Coatham.
Tapp, E.		Montpelier Girls' School, Bristol.
Towers, C.		Parish Church Middle Cl. S., Leeds.
Wates, D. R.		Private tuition.
Went, G. M.		Private tuition.
Williams, M. G.		The Rookery, Kings Norton.
Wilson, E. M.		Public School for Girls, Scarboro'.
Young, M. C.		44 Shakespeare St., Nottingham.
Aylmer, C.		Hill House S., Downham Market.
Balshaw, D.		Beech Tree House, Aldridge.

GIRLS, THIRD CLASS—*Continued.*

Barrow, E.	Merton College, Croydon.
Brook, C. I.	N.E. District Coll., S. Newington.
Brown, E. E.	Bartholomew House, Newbury.
Chambers, E. M.	High S., Glenholm, Burgess Hill.
Chilcott, M. M.	High School, Shanklin, I.W.
Cunningham, E.	Walton High School, Liverpool.
Davies, M. E. M.	Portsea Collegiate School.
Dawes, M. M.	Wandsworth High School for Girls.
Duncan, F. M. I.	St. John's House, South Shields.
Farrington, E. M.	The High School, Walsall.
Fry, E.	Buena Vista, Weston-super-Mare.
Greenwood, G. G.	Westholme Academy, Goole.
Goodman, A. E.	Brighthelmston, Birkdale.
Goodman, A. M.	Private tuition.
Harris, Z.	Park School, Higher Broughton.
Hawkins, H.	Cromwell House, Bromley Common.
Hinton, G. F.	Brandon House School, S. Croydon.
Hudson, C. M.	Camden School for Girls.
Hudson, E.	Buckingham Crescent S., M'chester.
Humphreys, G.	Girls' High School, Bournemouth.
Howat, L.	Proprietary School, Dudley.
Isaacson, E. M.	Private tuition.
Jelly, A. G.	Private study.
McKinnell, M.	Gresham House, Northampton.
Moncaster, L.	Ellerslie House School, Hull.
Norfolk, E.	Oakhurst, Great Grimsby.
Picken, M. P.	Queen's College, Acton.
Rowe, B. M.	Redbrooke School, Camborne.
Simmons, L. M.	Elm View, Cotham, Bristol.
Smith, A.	St. Helier's Coll., Wellingborough.
Somers, G.	Peterborough House, Handsworth.
Stace, F. M.	Westbourne House S., Chiswick.
Stockman, N.	High School, Newton Abbot.
Theobald, M.	Merton College, Croydon.
Thomas, A.	Gresham College, Brixton Road.
Thomas, M. E.	Walthamstow Hall, Sevenoaks.
Topp, G.	Fulford Field House, York.
Turner, M. A.	Camden School for Girls.
White, F. M.	Royal Masonic Inst., Battersea.
Ainley, M.	The College, Huddersfield.
Allan, E. C.	83 Brodrick Street, South Shields.
Bird, L. M.	St. Margaret's, Bristol.
Brice, F. E.	Duncan House, Clifton.
Bulkeley, V.	Wilton House School, Chester.
Buston, E. A.	Roath Cottage, Cardiff.
Bytheway, E.	The High School, Walsall.
Cary, E.	The Chestnuts, Willesden.
Charlwood, M. H.	Twyford House, S. Hampstead.
Cross, C.	Brighton House High S., Roath.
Crowther, L.	Brook Lea, Ilkley.
Dawson, B. M.	Eversley House School, Bognor.
Etheridge, A.	Private tuition.
Gilbanks, M. L. M.	Sydenham College for Ladies.
Gillott, A. O.	Hamilton House, Holloway.
Gribbon, F.	Belmont, Victoria Pk., Harrogate.
Hardicker, G. A.	Field House, Heaton Chapel.
Hutchison, J. I.	Girls' High School, Spring Grove.
Leman, L. G.	Burlington Middle Cl. Girls' S., W.
Lewis, N.	Milton Mount College.
Llewellyn, M.	St. Andries, Penarth.
Luscombe, F. A.	Northumberland House, Tottenham.
Mabane, A. C.	Pierremont Crescent S., Darlington.
Masters, B.	Florida College S., Southampton.
Moore, M.	50 St. John's Park, Highgate Hill.
Phillips, E. J.	Ashleigh House, Tutbury.
Phillips, Mabel	High School, Tenterden.
Player, H.	Belmont House, Edgbaston.
Rowe, L. E.	Redbrooke School, Camborne.
Sidney, N.	Collingwood College, Lee, S.E.
Smallwood, L.	Olinda, New Brighton.
Smith, J.	The College, Huddersfield.
Steeley, B.	Rhianva, Towyn.
Taylor, L. E.	Private tuition.
Thomas, G. L.	Ch. of England Public S., Gravesend.
Treanor, V. M. *d.*	Private tuition.
Tuthill, M. A.	Braybrooke College, Hastings.
Voase, W.	18 Railway Street, Beverley.
Waterhouse, A. M.	Avon Villa Ladies' School, Bowdon.
Wheeler, A. B. M.	Private tuition.
White, A. M.	Pemberton College, Up. Holloway.
Whiting, L. E. S.	Kendrick Girls' School, Reading.
Wilkinson, M. A.	The Ladies' College, Wellington.
Woolfson, C.	91 Victoria Road, Aldershot.
Worton, K.	Longford Girls' School, Bristol.
Akehurst, G. H.	Albany School, Brighton.
Amoore, E. M.	Townley House, Ramsgate.
Ashcroft, K.	Slepe Hall, St. Ives, Hunts.
Bamber, H. F. E. D.	Camden School for Girls.
Browne, S.	Hope House, New Leeds, Leeds.
Clarkson, B.	Rosemont Girls' School, Bristol.
Clayton, A. H.	Girls' Grammar School, Bingley.
Dosson, E. S. *d.*	Southside House, Weston-s.-Mare.
Elliott, H.	Ripley Ladies' School, Derby.
Hett, W.	Beech Lawn, Leamington.
Holdsworth, A.	The College, Huddersfield.
Horwood, M. E.	Alexandra College, Shirley.
Idenden, B. A.	Braybrook College, Hastings.
Jenkins, A. L.	Manor View Ladies' S., Boscombe.
Kenyon, A. A.	Howard College, Bedford.
Knowling, S.	Clapham Park Ladies' College, S.W.
Lake, G.	Grey Coat Hospital S., Westminster.
Laverack, L.	1 Clyde Terrace, Hull.
Leith, M. A.	Wandsworth High School for Girls.
Leveritt, M. V.	Anglo-French Ladies' S., Bristol.
Marks, J. E.	Modena House, Ealing.
Mullens, M. M.	Havelock House School, Southsea.
Nicholas, M. G.	St. Catherine's, Cardiff.
Parry, E.	Harrow House High School, Cardiff.
Payne, E.	Grey Coat Hospital S., Westminster.
Piper, A. L.	Oakfield, Wolverhampton.
Powell, F. J.	Brockley High School, S.E.
Rabinovitch, F.	1 Camden Crescent, Bath.
Ray, M. A.	Camden School for Girls.
Ridler, A. L.	North Bristol School for Girls.
Rowlands, W.	Merton College, Croydon.
Sanderson, E.	The College, Huddersfield.
Seymour, A. A.	Upper Mount, Southsea.
Sharp, M.	Girls' Grammar School, Keighley.
Ward, E. J.	Stoke Newington High School.
Wilson, V. A.	The High School, Altrincham.
Wood, F. J.	The High School, Gravesend.
Woolstencroft, C.	Regent Villa, Lindow, Lancaster.
Adams, E. E.	Longford Girls' School, Bristol.
Austin, L. V.	College House School, Hungerford.
Briggs, E. M. M.	St. Catherine's, Cardiff.
Bull, A.	Grey Coat Hospital S., Westminster.
Burford, S. A.	Larchmount, Yatton.
Burraston, F. M.	St. Maur, South Norwood.
Chamberlain, L.	High School, Newton Abbot.
Clacy, E. H.	Kendrick Girls' School, Reading.
Clark, A.	Crescent House School, Bedford.
Clark, M. K.	Burlington Middle Cl. Girls' S., W.
Dallison, A. M.	38 Louis Street, New Leeds.
Fletcher, L. E.	Glengarry Ladies' School, Birkdale.
Harris, M. E.	Beech House, Ripley.
Harrison, A.	Weirfield School, Taunton.
Jones, E. M.	Grey Coat Hospital S., Westminster.
Kidman, S.	Watlington House, Downham.
Mackintosh, I.	Private tuition.
Matthews, C. L.	St. Agnes College, Moseley.
Meek, M. E.	Private tuition.
Messervy, E. A.	Royal Bay Terr. S., Gorey, Jersey.
Messiter, H. I.	Moseley High School for Girls.
Paynter, W.	Gresham College, Brixton Road.
Pearson, A. P.	Ladies' Coll., Savile Pk., Halifax.
Pettit, S. W.	Gresham College, Brixton Road.
Powell, M. M.	Burlington Middle Cl. Girls' S., W.
Priestley, E.	The College, Huddersfield.
Purkis, W.	St. Agnes' School, East Grinstead.
Rennick, E.	Fairford Villa, Tunbridge Wells.
Roberts, W. M. C.	Fairford Villa, Tunbridge Wells.
Saunders, M. E. *d.*	Milton Mount College.
Simmons, R.	Gresham College, Brixton Road.
Sugden, M.	Girls' Grammar School, Bingley.
Taylor, E.	Moseley Ladies' College.
Thornton, F.	The High School, Horbury.
Turner, M. H.	Manor View Ladies' S., Boscombe.
Webber, K. S.	Reading High School.
Welton, F. I.	Grey Coat Hospital S., Westminster.
Willis, A. W.	Townley House, Ramsgate.
Alderson, A. N.	The Towers, Saltburn-by-Sea.
Allan, F.	Proprietary School, Dudley.
Bailey, M.	Merton College, Croydon.
Ball, A.	Oaklands, West Hampstead.
Brown, H. A.	Priory House, Dunstable.
Burt, L. M.	Private tuition.
Clapton, E.	1 Camden Crescent, Bath.
Constable, E.	Warwick House, Brixton Hill.
Dawson, A.	Sunny Bank School, Haulgh.
Fry, C. H.	Private tuition.
Gairdner, C. T.	The Elms, Coventry Pk., Streatham.
Gammell, F. M.	Camden School for Girls.
Gillett, T.	Buena Vista, Weston-super-Mare.
Goddard, F. M.	Westbourne House, West Cowes.
Gray, L. E.	13 Albion Terrace, South Shields.
Grundy, S. E.	Girls' School, Ashby-de-la-Zouch.
Harvey, E. S.	High School, Kidderminster.
Kite, A. M.	Victoria High S., Tollington Pk.
Knapp, E. M.	Cross Hayes House, Malmesbury.
Mens, A.	Summerbrook, Reading.
Miller, E. M.	Marlborough House S., Brighton.
Mines, B.	Orford College, Walthamstow.
Misselbrook, F. A. *d.*	Collegiate School, Gosport.
Newell, M. L.	Hanover House School, Ryde.
Rice, O. E.	Betley Ladies' College.
Reed, R. E.	St. Catherine's, Cardiff.
Reynolds, A. G.	Belmont House, Derby.
Richardson, A. E.	The High School, Gravesend.
Romeril, M. F.	Zelzah House School, St. Heliers.
Sansom, F. R.	Queenswood, Clapham Park.
Smith, M.	West Bridgford School, Notts.
Smith, M.	Belle Vue, Swansea.
Simmonds, A. M.	Abbotsford Ladies' School, Clifton.
Stapley, J.	Eastholme, Farnham.
Taylor, E. L.	Westholme Academy, Goole.
Taylor, R. K.	The Grange, Buxton.
Urry, M. G.	Highleigh House, St. John's, S.E.
Walsh, M. L.	St. Katharine's S., Lloyd Sq., W.C.
Watson, V. A.	21 Ordnance Road, Southampton.
Weaver, A. V. *d.*	Bath High School for Girls.
Woolcott, W.	Merton College, Croydon.
Wooldridge, M. C.	Athelstan College, Folkestone.
Addenbrooke, E. C.	High School, Kidderminster.
Baldwin, F. P.	Malvern House School, Blockley.
Belcher, A. A.	Albany School, Brighton.
Blackstock, K.	Portland St. Ladies' S., Manchester.
Carter, E. O.	The High School, Gravesend.
Chalker, M. E.	Stanley House, Norwich.
Corbishley, E. S.	Severn Bank, Shrewsbury.
Cripps, M.	Kendrick House, Brighton.
Cudlipp, E. O.	Private tuition.
Daws, N.	West House High S., Forest Hill.
Dell, L.	Merton College, Croydon.
Dollar, C. M. A.	Wandsworth High School for Girls.
Dunn, C. D. E. F.	9 The Grove, Clapham Common.
Farren, A. E.	Milton Mount College.
Fowler, O.	Girls' High School, Bournemouth.
Fullwood, E. M.	Proprietary School, Dudley.
Fysh, D.	High School, King's Lynn.
Gladwin, I.	Collingwood College, Lee, S.E.
Hammersley, E. E.	The Elms, Stony Stratford.
Hart-Davis, K. L.	Reading High School.
Hatch, M. M.	Dorchester House, Clacton-on-Sea.
Hawkey, J. G.	31 Torrington Place, Plymouth.
Hewett, E.	Eastholme, Farnham.
Home, A. E.	The Elms, Coventry Pk., Streatham.
Horton, K.	Harborne Ladies' College.
Jones, D. M.	Clifton House School, Bracknell.
Knightley, F. B.	Kenhurst, South Hill Park.
Lee, C. M.	West House High S., Forest Hill.
Manning, E. M.	The Elms, Coventry Pk., Streatham.
Moffatt, J.	Summerbrook, Reading.
Pannell, B.	Olney House, Hastings.
Passingham, N.	Elgin College, Bayswater.
Peaty, A.	Girls' High School, Burslem.
Perry, C. A.	The Manor House, Uttoxeter.
Phillips, E. G.	Princess Helena College, Ealing.
Price, E. B.	The Climb, Forest Hill.
Rothnell, E.	Broomfield School, Kew, Surrey.
Thomas, S. A.	Hartington Place School, Carlisle.
Tirbutt, A.	Ellerslie Ladies' S., Broomsgrove.
Vaughan, M.	St. Catherine's, Cardiff.
Williams, L. V.	Bryntysilio, Carnarvon.
Adams, E. M.	South Bristol Girls' High School.
Bird, C. C.	Beaconsfield House, Hunstanton.
Brewitt, N. L.	London College, Stratford.
Browne, L.	Hatter Street S., Bury St. Edmnds.
Carlile, M. L.	Private tuition.
Claney, W.	61 Withington Rd., Whalley Range
Corby, F. I.	Private tuition.
Donaldson, M.	Merton College, Croydon.
Findley, F. M.	Bath High School for Girls.
Friend, L. E.	Rushmore House, Blakebrook.
Godwin, M. C.	Private tuition.
Grimes, A. F.	Friends' School, Saffron Walden.
Hamilton, E.	The High School, Altrincham.
Heaton, M.	Handsworth Ladies' College.
Houlton, E. A.	28 Crouch Street, Colchester.
Hunt, E. K.	Llandaff House School, Norwich.
Jarratt, C.	Cambridge House S., Battersea Pk.
Jones, J.	Lulworth Lodge, Birkdale.
Kennedy, E. C.	Eton Park Coll., South Hampstead.
Lee, E. A.	Beech House, Ripley.
Mackenzie, A.	Westbrook Ladies' S., Darlington.
Macqueen, A. M.	Fulham Park College, S.W.
Mason, A. G.	Parish Church Middle Cl. S., Leeds.
Micklethwait, M.	Westbourne, Sheffield.
Park, M.	High School, Westoe, S. Shields.
Phillips, E.	Trebovir House, South Kensington.
Phillips, Margaret	High School, Tenterden.
Prince, M. M.	The Hollies, Snettisham.
Pye-Smith, W. C.	St. John's, Eastbourne.
Richards, E.	Granville House, Aylesbury.
Sale, F. M.	Devonport High School for Girls.
Scorer, H.	Trebovir House, South Kensington.
Shirley, E.	The Orme Girls' S., Newcastle, Staffs.
Stevens, E.	Summerbrook, Reading.
Tayloe, N. I. M.	9 The Grove, Clapham Common.
Wilson, M. L.	S.E. District College, Kennington.
Withers, E.	Longford Girls' School, Bristol.
Wood, M.	Handsworth Ladies' College.
Aspinall, E. M.	Private tuition.
Bance, B.	Girls' Coll. & High S., Southampton.
Bradley, M. P.	The Westlands, Scarborough.
Bushell, A. M. E.	Montague College, Salisbury.
Castle, E.	Thomas St. Girls' S., Burdett Rd., E.
Cross, A. J.	East Finchley High School.
Dodd, C.	Blackheath Centre School, S.E.
Dyson, E.	Field House School, Worcester.
Eden, M. G.	Manor View Ladies' S., Boscombe.
Elliott, D.	Private tuition.
Geddes, J.	Milton Mount College.
Hartley, L. B.	Boston Grove School, Rotherham.
Hughes, B.	Beech Lawn, Leamington.
Jennings, P.	Deansgate House, Grimsby.
Jones, E.	London College, Stratford.
Kinder, E.	The College, Huddersfield.
Knowles, M. D.	Albany School, Brighton.
Lewis, S. A. J.	St. John's Middle S., Kennington.
Littlewood, M.	Eton House, Sheffield.
Moore, M.	St. John's Middle S., Kennington.
Norman, B.	Devonport High School for Girls.
Oram, E. M.	Reading High School.
Paice, E.	The Orchard, Kinburn, Egham.
Pape, C. M.	Llandaff House School, Norwich.
Pilkington, E.	Ladies' Coll., Fairfield, Liverpool.
Pocksou, M. L.	Holywell Ladies' Coll., Weston-s.-M.
Roberts, E. M.	London College, Stratford.
Roberts, K.	Farington College, Blackpool.
Smith, M.	Norfolk House, Gosport.
Topliss, F. E.	Howard College, Bedford.
Topping, K.	Farington College, Blackpool.
Torond, M. K.	10 Gloucester Place, Brighton.
Waymark, A. C.	New Castle House, Lewes.
Welch, G. H.	Stoke Newington High School.
Witty, A. M.	Park Gate House, Hull.
Woodhouse, E.	Crescent House School, Bedford.
Argent, D.	Cotteswolds, Thornton Heath.
Aston, H. M.	Twyford House, South Hampstead.
Atkinson, E. C.	Lansdowne House, Southport.
Baird, C.	Proprietary School, Dudley.
Barnes, S.	Regent Villa, Lindow, Lancaster.
Bilke, E. A.	Greenhill Park College, Harlesden.
Bone, H. M.	Clarence House, Brighton.
Burrell, E.	Girls' High S., Bury St. Edmunds.
Byles, H. C.	St. Peter's House, Chichester.
Channer, E. M.	8 Albion Place, Maidstone.
Croot, C. A.	High School, Waltham Cross.
Crosby, G. F.	St. Margaret's, Bristol.
Crowther, B.	Dalton Girls' High S., Huddersfield.
Day, M. E.	Queen's College, Twickenham.
Davis, L. M.	Malvern House, Reading.
Dimmock, F.	Woking High School for Girls.
East, P.	St. Mary's School, Chelsea.
Evans, G.	Ladies' College, Ilfracombe.
Farmer, S.	Newport (Mon.) High School.
Freeman, M. D.	Milton Lodge, South Woodford.
Gemmell, B.	Girls' Grammar School, Keighley.

GIRLS, THIRD CLASS—*Continued.*

Harding, A.	Dunmarklyn, Weston-s.-Mare.
Harrison, E.	Portland St. Ladies' S., M'chester.
Hobgen, M.	Merton College, Croydon.
Holmes, H. K.	11 Pier Road, Erith.
Jackman, M. K.	The Laurels, Canterbury.
Jackson, A.	Dawson Square School, Tynemouth.
Jayne, B.	Highfield School, Addiscombe.
Laird, E. M.	Roath Cottage, Cardiff.
Lloyd, R.	Newport (Mon.) High School.
Margetson, G. M.	Glenthorne School, Bristol.
Mortimer, C. A.	Girls' High School, Spring Grove.
Nichols, E.	Eastgate School, Northampton.
Oliver, A.	East Southsea Collegiate School.
Park, F.	Crescent House School, Bedford.
Pocklington, A. F.	87 Park Street, Spring Bank, Hull.
Rabinovitch, R.	1 Camden Crescent, Bath.
Riddell, C.	Camden School for Girls.
Roberts, B. E.	Townley House, Ramsgate.
Rogers, C. I.	Stoke Newington Rd. High Class S.
Smithies, M. G.	Halifax Girls' High School.
Spagnoletti, F. A.	Grosvenor House, Forest Hill.
Stevens, F. M.	Stoke Newington High School.
Taylor, M. L.	Forest Hall, Newcastle-on-Tyne.
Thalsino, I.	Milton Lodge, South Woodford.
Titley, L. C.	2 Duke Street, Bath.
Verity, E. A. H.	Ennoor Lodge Collegiate S., Leeds.
Walker, E.	Malvern House S., Birkdale.
West, M.	Girls' Grammar School, Keighley.
White, L.	Byeulla, Southsea.
Williams, B.	Red Maids' School, Bristol.
Willis, L. A.	Park House School, Teddington.
Wills, I. A. H.	Walthamstow Hall, Sevenoaks.
Wilson, M.	Sydenham College for Ladies.

THIRD CLASS.—2ND DIVISION.

Aldis, J. M.	Kendrick Girls' School, Reading.
Allsop, K. A.	Avonbank House, Bath.
Barratt, C. A.	Moravian Ladies' School, Ockbrook.
Belfield, L.	Norwood House, Liverpool.
Besley, A. L. J.	Royal Masonic Inst., Battersea.
Burt, B. G.	Private tuition.
Capenhurst, E.	Atherfield House, Clifton.
Clayton, L. A. B.	Beech House, Ripley.
Cornock, M. M.	Down End, Clifton.
Davidson, C.	Merton College, Croydon.
Edwards, C.	La Retraite, Balham.
Everett, E.	Gresham College, Brixton Road.
Fishe, M. E.	Walthamstow Hall, Sevenoaks.
Guest, H. M.	Milton Lodge, South Woodford.
Grundy, N.	Henry Street School, Bolton.
Haynes, F. E. M.	Brooklyn House, Wellington, Salop.
Holgate, B.	Wynthrop Coll., Ashton-on-Mersey.
Holgate, E. H.	60 Oak Mount Terrace, Burnley.
Homer, H. G.	St. Margaret's, Bristol.
Housman, A. V.	St. Peter's House, Chichester.
Hughes, L.	High School, Kidderminster.
Law, M. H.	Clare House School, Northampton.
Longdon, E. A.	174 Church Street, Stoke Newington.
Martin, B. C.	Girls' High School, Swindon.
Osmond, A. M.	Brean Down House S., Burnham.
Radcliffe, S.	Burlington Mid. Class Girls' S., W.
Rankin, A.	Private tuition.
Rankin, J. W.	Ghyll Bank College, Whitehaven.
Ransome, E. B.	Wandsworth High School for Girls.
Sharpe, M. M.	Warbreck College, Aintree.
Shelley, K.	Edgehill House, Bodmin.
Shotter, E. S.	9 The Grove, Clapham Common.
Smith, S. E.	Clarence House, Filey.
Staats, F.	Vanbrugh Park School, Blackheath.
Streeter, F. E.	East Finchley High School.
Suter, A. M.	Girls' Grammar School, Halifax.
Turner, E. E.	Private tuition.
Vincent, E.	Gloucester House Coll. S., Tetbury.
Warner, E.	Elmhurst, Broxbourne.
Warrack, C. M.	North Park College, Croydon.
Warren, E. E.	Grey Coat Hospital S., Westminster.
Witt, E. L.	St. Winifred's S., Southampton.
Allen, G.	Crescent House School, Bedford.
Andrews, L.	Court House, Atch Lench, Evesham.
Appleton, G.	St. Anne's High School for Girls.
Baker, M.	Holt House School, Fakenham.
Barr, M.	Crescent House School, Bedford.
Barrow, E. C.	Stoke Newington High School.
Beckett, K.	Abbeyfield Mount, Sheffield.
Best, C.	Girls' Collegiate S., Louth, Linc.
Brenton, M.	Seaton House School, Mutley.
Birnbaum, L. H.	Maria Grey School, Fitzroy Square.
Bunting, M.	Merton College, Croydon.
Bush, C.	Montpelier Girls' School, Bristol.
Chichester, E. M. V.	East Finchley High School.
Coleman, M.	Brookside School, Darlington.
Cooper, A. E.	Burlington Mid. Class Girls' S., W.
Coulton, M.	The Towers, Saltburn-by-Sea.
Dunn, K.	Cambridge College, Twickenham.
Everett, F. M.	Lady Bank School, Tamworth.
Ferraby, I. C.	Private tuition.
Finn, G.	8 Albion Place, Maidstone.
Flower, E. M.	Milton Mount College.
Foat, B.	Kendrick House, Brighton.
Gardner, A.	Brookside School, Darlington.
Hancock, A. S.	Lansdowne House S., Llandudno.
Harrison, E. I. F.	83 Brodick Street, South Shields.
Hayward, G. M.	Mayall College, Brixton.
Hodgson, E.	Tinwald, Rock Ferry.
Holroyd, E.	Ladies' Coll., Savile Park, Halifax.
Hook, M.	Summerland College, Honiton.
Horsley, M. F.	East Finchley High School.
Ingram, M.	Harrow House High S., Cardiff.
Jackson, A. E.	Redbrooke School, Camborne.
Jackson, J. A.	Regent Villa, Lindow, Lancaster.
James, L. M.	The Orme Girls' S., Newcastle, Staffs.
Jamieson, E.	Mornington House, W. Kensington.
Johnson, S. M.	Mecklenburg House, Putney.
Jordan, M. L.	Proprietary School, Dudley.
Lamb, H. C.	Grey Coat Hospital S., Westminster.
Martin, M. W.	W. Cornwall College, Penzance.
Nettell, F. R.	Areville Ladies' College, Rhyl.
Page, E. M.	Girls' High School, Bridgwater.
Parkes, M.	Private tuition.
Plowright, E. M.	High School, King's Lynn.
Pratt, M.	Royal Masonic Inst., Battersea.
Profit, E. H.	Glengarry Ladies' School, Birkdale
Pyle, A. F.	Buxton Coll. S., Kennington Road.
Robinson, A.	Proprietary School, Dudley.
Scott-Foster, E.	E. Southsea Collegiate School.
Sneath, E.	Thomas St. Girls' S., Burdett Rd., E.
Snodgrass, E. E.	Branscombe House School, Exeter.
Sprent, L. E.	High Class School for Girls, Beccles.
Stocker, M.	Duncan House, Clifton.
Tarrington, L.	Lansdowne House S., Llandudno.
Taylor, E. H.	Victoria High S., Up. Tollington, Pk.
Thomas, B.	Harrow House High School, Cardiff.
Tombleson, F. E.	The Cedars, Barton-on-Humber.
Tous, E. A.	Mecklenburg House, Putney.
Vicars, E.	Summerbrook, Reading.
Victor, M.	W. Cornwall College, Penzance.
Vyle, E. M.	Howard College, Bedford.
Wales, M. M.	St. Edmund's House, Hunstanton.
Walton, A.	4 Eslington Rd., Newcastle-on-Tyne.
Wright, E.	Girls' Collegiate S., Macclesfield.
Wright, L. E.	Stanley House S., Stockton-on-Tees.
Alger, J.	Newport (Mon.) High School.
Allwood, M.	Kendrick Girls' School, Reading.
Armstrong, N. M.	Duncan House, Clifton.
Asher, B.	Salem House College, Sunderland.
Bailey, S. E.	Croft House School, Wallingford.
Barker, E. M. A.	Olney House, Hastings.
Baxter, E. M.	57 Francis Road, Edgbaston.
Bedingfield, C. L.	Belmont House, Leicester.
Bird, H. K.	Mecklenburg House, Putney.
Bolton, M. L.	Handsworth Ladies' College.
Brake, G. L. A.	Hawthorn House, Rectory Road, N.
Brownjohn, M.	Grey Coat Hospital S., Westminster.
Carter, M.	Croft House College, Wokington.
Clark, M. A.	Belmont, Victoria Park, Harrogate.
Clarke, F. M.	High School, Waltham Cross.
Cox, E. M.	Dresden House, Evesham.
Crofton, E. L.	High School, Stockton-on-Tees.
Dixon, A. K.	Camden School for Girls.
Evans, A.	Cambridge House, Liverpool.
Fleetwood, E. B.	28 Castle Street, Salisbury.
Goodman, K. B.	Alexandra College, Shirley.
Hall, E. E.	Camborne House S., Tottenham.
Hayman, V. A.	Claremont House S., N. Kensington.
Hearder, M.	Seaton House School, Mutley.
Hinchliffe, B.	Mecklenburg House, Putney.
Hitchcock, G. M.	The Limes, Sudbury, Suffolk.
Homan, A. J.	Oakley High-Class School, Southsea.
Jones, E. L.	Morfa House School, Conway.
Kennedy, W.	Thomas St. Girls' S., Burdett Rd., E.
Keulemans, A. E. A.	Albert Villa, Ramsgate.
Kirk, F. E.	Clifton House School, Leamington.
Learoyd, A.	Private tuition.
Lee, I.	Private tuition.
Lucas, M.	Walton High School, Liverpool.
Mackrill, M. M.	Collegiate School, Gosport.
Maxwell, J. A.	Grey Coat Hospital S., Westminster.
McKnight, E. T.	Avondale, Liverpool.
Minter, M.	Merwald House School, Walmer.
Murphy, E.	Heathfield House, Cardiff.
Odell, L.	Howard College, Bedford.
Powell, M.	Collingwood College, Lee, S.E.
Ray, M.	Surrey House School, Norwich.
Richardson, M.	Lilford College, Scarborough.
Roberts, A.	Lansdowne House S., Llandudno.
Roberts, E. M.	Norwood House, Liverpool.
Robinson, E. E.	Alpine Villa School, Sunninghill.
Russell, E. G.	Prebendal Lodge, Colwich.
Shapland, A. L.	Longford Girls' School, Bristol.
Shepherd, M.	Belmont House School, Richmond.
Shorter, F.	Ravensworth, Margate.
Telling, M. A.	Grey Coat Hospital S., Westminster.
Thomas, E.	The Chestnuts, Willesden.
Ward, E. M.	Brandon House School, S. Croydon.
Watson, E. B.	Royal Crescent College, Margate.
Wilkins, E. M.	Norbury, Eastbourne.
Wilson, L. E.	Surrey House School, Norwich.
Wilton, H. M.	Surrey House School, Norwich.
Woodcock, M.	Chatsley House, Syston.
Anderton, E. M.	Claremont House, N. Kensington.
Barnes, H. M.	9 Kingsgate Street, Winchester.
Batterham, E. M.	Wellesley College, Colchester.
Blagburn, L.	1 Clyde Terrace, Hull.
Bracher, E. B.	Arundell House, Tisbury.
Bradfield, E.	1 Boreham Terrace, Warminster.
Brocklesby, C. E.	Hazelhurst, Wimbledon.
Brooks, M. K.	Girls' High School, Swindon.
Burnett, O. M.	28 Vernon Terrace, Brighton.
Burroughs, E. A.	The High School, Hull.
Burt, A.	Southside House, Weston-s.-Mare.
Butler, M.	North Park College, Croydon.
Carleton, M.	Warehousemen & Clerks' S., Purley.
Carter, F. M.	Private tuition.
Carver, L.	Malvern House School, Birkdale.
Cavill, L. J.	Barrow House, Barrow-on-Humber.
Cross, E. I.	Field House, Heaton Chapel.
Davies, F.	Malvern House, Lewisham Park.
Davies, F.	3 Montague Terr., Higher Broughton.
Denne, A.	Merwald House School, Walmer.
Dowd, I. M.	Mayfield Lodge, Folkestone.
Finch, R.	Collingwood College, Lee, S.E.
Foord, A.	St. Michael's School, Lewes.
Fowler, F.	Riversdale, Acock's Green, B'ham.
Fuggle, E.	Clarence House, Brighton.
Gillett, M. J.	Ashburnham House, Southborough.
Haller, E. A.	Ellerslie House School, Hull.
Hamer, A.	Twickenham College.
Harris, D.	Friends' School, Saffron Walden.
Hickmott, A. J.	Coopers' Girls' School, Bow, E.
Hirst, B.	The College, Huddersfield.
Holmes, F. M.	Bryanston House, Liverpool.
Lister, B.	Kingston House, Shrewsbury.
Lowe, M.	Fairfield Head House, Chesterfield.
Mackenzie, S. A.	The High School, Wrexham.
Mackie, J. S.	The Orme Girls' S., Newcastle, Staffs.
Maddox, V. E.	Park College, Tottenham.
Moss, R.	Twickenham College.
Needham, M.	St. Catherine's, Cardiff.
Owens, K.	Bedford College, Liverpool.
Perkins, M. M.	Abbotsford Ladies' School, Clifton.
Pether, L.	Paignton Modern School.
Pickering, E. D.	The Grove, Shelton, Stoke-on-Trent.
Pudsey, E.	1 Clyde Terrace, Hull.
Sainsbury, A. M.	Private tuition.
Scanlon, E. B.	"Wynnstay," Hornsey Lane.
Stoltenhoff, E. L.	Welbeck House, Lewisham Park.
Thorpe, E. M.	Camborne House S., Tottenham.
Tizard, F. M.	Montague House S., Weymouth.
Tompsett, H. H.	Clermont House, Cranbrook.
Townend, S.	Girls' Grammar School, Keighley.
Townsley, E. K.	The Westlands, Scarborough.
Towse, F. E.	North Park College, Croydon.
Varley, E.	The College, Huddersfield.
Walters, G.	Brighton House High S., Roath.
Weaver, H. B.	Clifton House School, Worcester.
Wenborn, A. E.	Knightsville College, Lewisham.
Wheeler, M. L.	Stoke Newington Rd. High Class S.
Williams, B.	Girls' High School, Spring Grove.
Wright, R. E.	Wellington House, Gt. Yarmouth.
Young, A.	London Orphan Asylum, Watford.
Atkinson, E.	Ellerslie House School, Hull.
Bannister, M.	Oakley High Class S., Southsea.
Bolton, M. L.	Duncan House, Clifton.
Booth, G. F.	Girls' Grammar School, Halifax.
Boughton, M. M.	Leybourne House, Aylesbury.
Davie, M. J.	Brighthelmston, Birkdale.
Dimond, A. M.	North Bristol School for Girls.
Evans, T. E.	St. Catherine's, Cardiff.
Forsyth, I.	73 Woodbine Street, South Shields.
Gardner, M.	Brookside School, Darlington.
Gee, S. E.	Holt House School, Fakenham.
Goss, J. A.	70 Gainsborough Terrace, Mutley.
Graham, M.	The Ladies' College, Wellington.
Griffiths, A. O.	Milton Mount College.
Hellier, H.	Carlsruhe, Crouch Hill, N.
Heydon, M. L.	Dalestorth House, Mansfield.
Hornsey, F.	Brookside School, Darlington.
Inderwick, L.	Burlington Middle Cl. Girls' S., W.
Ingram, M. C.	Stanmore House, Weston-s.-Mare.
Johnson, A.	The Mount House, Cheetham Hill.
Jones, L.	St. David's School, Carnarvon.
King, L.	Edinburgh House, Midhurst.
Leuthall, M. E.	Field House, Heaton Chapel.
Lloyd, E. A.	Alexandra College, Shirley.
Lovell, N. H.	21 Bear Street, Barnstaple.
Mannington, M.	Olney House, Hastings.
Marshall, F.	Euston Coll. S. for Girls, N.W.
Meadows, J. M.	Field House, Heaton Chapel.
Newman, E.	The Elms, Stony Stratford.
Northam, E. J.	Longford Girls' School, Bristol.
Nunn, J. W.	Dorchester House, Clacton-on-Sea.
Oliver, G.	Milton Mount College.
Overton, A. E.	The Laurels, Walsall.
Pittam, S. A.	Soho Hill School, Birmingham.
Porritt, L.	The College, Huddersfield.
Potter, E. M.	Carisbrook Ho., Twickenham Park.
Richards, N. J.	Redbrooke School, Camborne.
Röber, E. M.	Ch. of Eng. Public S., Gravesend.
Routley, M. F.	Queen's College, Acton.
Sanders, I. M.	Ladies' School, Ford, Devonport.
Schuler, E. M.	Private tuition.
Sheward, A.	The Elms, Coventry Pk., Streatham.
Spencer, M.	Girls' Grammar School, Keighley.
Stains, I. W.	Sydenham College for Ladies.
Stuttard, F.	The College, Huddersfield.
Tait, I. M.	Girls' High School, Spring Grove.
Taylor, E. M.	Auckland House S., W. Bridgford.
Vialou, B. A.	7 Hyde Terrace, Tollington Park.
Whittome, M. A.	Slepe Hall, St. Ives, Hunts.
Willcocks, F.	Grey Coat Hospital S., Westminster.
Wills, E.	W. Cornwall College, Penzance.
Allen, A. L.	Belmont House, Derby.
Armitage, M. B.	Mecklenburg House, Putney.
Ashton, M. A.	Halifax Girls' High School.
Baker, W.	Stanmore House, Weston-s.-Mare.
Barrow, M.	Summerbrook, Reading.
Bateman, E. M.	Twickenham College.
Bell, E.	Blackheath Centre School, S.E.
Blackman, A. L.	Grey Coat Hospital S., Westminster.
Booth, A. H. S.	The Ladies' College, Wellington.
Bradford, M.	Bedford College, Liverpool.
Britton, E. M.	Oakfield, Wolverhampton.
Brown, E. J.	Grosvenor Ladies' College, Bath.
Button, E.	9 Cambridge Gardens, Hastings.
Chandler, M.	Beaver House, Farnham.
Cooper, G. E.	Surrey House School, Norwich.
Davies, E.	Belle Vue, Swansea.
Dobell, M. H.	Girls' Collegiate School, Truro.
Dutton, G.	Grey Coat Hospital S., Westminster
Fleming, G.	Saxenholme, Southport.
Fry, E.	Stanmore House, Weston-s.-Mare.
Gilbert, L.	Redbrooke School, Camborne.
Glover, E.	St. George's House, Doncaster.
Godden, E. M.	Licensed Victuallers' School, S.E.
Godfree, E. M.	Leigh Bank, Leamington.
Godley, E.	Ashley House School, Worksop.
Greig, E. M.	Mayo High School for Girls, W.C.
Hawes, B. M.	Camden School for Girls.

GIRLS, THIRD CLASS—*Continued.*

Harris-Jones, B.	Olney House, Hastings.
Hebblethwaite, P.	Harborne Ladies' College.
Hobgen, L.	Rockhill House, Folkestone.
Keighley, M. G.	Private tuition.
Keily, M. P.	Royal Masonic Inst., Battersea.
Kenyon, G. E.	Carlton House School, Eccles.
Langridge, K. J.	Sultan House, Margate.
Leonard, M.	Moorlands School, Bournemouth.
Le Plastrier, E. M.	Camden School for Girls.
L'Estrange, M. L.	Surrey House School, Norwich.
Lockie, E. K.	Girls' Grammar School, Wallingford.
Mallen, L. R.	Diocesan High School, Derby.
Marsden, H. M.	The Manor House, Uttoxeter.
Maskell, F.	Braemar College, Strond Green.
Matt, C. L.	Avondale, Liverpool.
Middleton, H.	Ladies' Coll., Fairfield, Liverpool.
Milner, A.	The College, Hudderstield.
Moss, K. G.	Clarence House, Kennington Road.
Mountstephen, A.	St. Margaret's, Bristol.
Parker, M. L.	St. Lawrence Coll., N. Kensington.
Poxon, M. E.	Breaston Ladies' School, Derby.
Rhind, M. S. B.	Ethandene, Westgate-on-Sea.
Robson, M. C.	Bushnell Ho., Stockwell Rd., S.W.
Savory, E.	Merton College, Croydon.
Silverwood, E.	Northlands, Blackpool.
Smith, E. S.	Cashiobury House, Southend.
Spurr, E. M. M.	Eastwell House, Herne Bay.
Strange, L. S.	The Elms, Coventry Pk., Streatham.
Stratton, T. G.	Alexandra House, Newport, I.W.
Tanner, E. F.	Royal Masonic Inst., Battersea.
Tanner, A. G.	Portland St. Ladies' S., Manchester.
Taylor, E.	Crouch Hill High S. for Girls, N.
Thompson, J.	Diocesan High School, Derby.
Thornton, A.	Merton College, Croydon.
Walby, E.	Cambridge House, Liverpool.
Walmsley, C. E.	Buxton Coll. S., Kennington Road.
Whitley, E.	Park Road School, Bingley.
Williams, E. M. *d.*	Wilton House School, Reading.
Woodhouse, E. G.	Milton Mount College.
Wraith, B.	London Orphan Asylum, Watford.
Backhouse, G.	Bedford College, Liverpool.
Baird, L. A.	Sandringham Ho., Alexandra Road.
Barrett, C.	Thomas St. Girls' S., Burdett Rd., E.
Bass, S.	South Bristol Girls' High School.
Bayfield, B. M.	The Hollies, Snettisham.
Bays, A. E.	Colville House, Swindon.
Beswick, R.	Private tuition.
Bowen, E. L.	High School, West Bromwich.
Bowin, J.	4 Eslington Rd., Newcastle-on-Tyne.
Boyd E. M.	St. Helen's, Cavan.
Brongh, E. M.	Norwood House, Liverpool.
Celfe, V.	4 Cumberland Gardens, St. Leonards.
Chambers, E. A. R.	Public School for Girls, Scarboro'.
Chapman, E.	Belle Vue, Swansea.
Cow, F. M.	The Elms, Coventry Pk., Streatham.
Evans, H. K.	Downs College, Clapton.
Farr, A. S.	Granville House, East Hardwick.
Fraser, E. A.	Collingwood College, Lee, S.E.
French, M.	Park Mansion, St. Leonards.
Gage, A. I.	Ladies' School, Mill St., Oakham.
Gandy, E. S.	Surrey House School, Norwich.
Gibbons, E.	Collingwood College, Lee, S.E.
Grant, S. B.	Brockley High School, S.E.
Gregory, A.	The Chestnuts, Willesden.
Harding, L. E.	Orford College, Walthamstow.
Hardy, A.	The High School, Hull.
Harper, E. F.	Breaston Ladies' School, Derby.
Harvey, F.	Auckland House S., W. Bridgford.
Heastie, I. S.	Royal Masonic Inst., Battersea.
Holmes, E.	Areville Ladies' College, Rhyl.
Isaacs, L. M.	4 Endsleigh Gardens, N.W.
Jarman, F. G.	North Bristol School for Girls.
Johnson, A.	Private tuition.
Large, B.	Catford Collegiate S., Lewisham.
Le Fenvre, A.	Halcyon House, St. Heliers.
Lucas, L. B.	Sutherland House, Gt. Yarmouth.
Lulham, B. W.	The Beeches, Kidderminster.
Miles, M.	St. Margaret's, Cardiff.
Moncaster, L.	87 Park Street, Spring Bank, Hull.
Morcom, A. L.	Ystwith House S., Aberystwith.
Morris, K. N.	Alstonefield, Ashbourne.
Nankirell, B.	Clevedon High School.
Nott, B.	Clifton House School, Worcester.
Palk, A.	Seymour House School, Saltash.
Plaister, C. M.	Stoke Newington High School.
Robinson, E. E.	The Grove College, Harrogate.
Rowe, A.	Redbrooke School, Camborne.
Sherwood, A. E.	Collegiate School, Reading.
Skinner, A.	Dunmarklyn, Weston-super-Mare.
Slack, B.	St. Anne's High School for Girls.
Smith, L.	103 The Grove, Stratford.
Stancombe, F. E.	17 Tavistock Place, Plymouth.
Stewart, W.	Private tuition.
Swann, A. E.	High School, King's Lynn.
Thomas, A. M.	Caerleon House S., Aberystwith.
Tilling, A. M.	Girls' Coll. & High S., Southampton.
Truscott, L. V.	St. Winifred's S., Southampton.
Wakelin, C. M.	The High School, Colchester.
Walley, A.	Plymouth College for Girls.
Westbrook, F. G.	9 Kingsgate Street, Winchester.
Wharton, C. A.	Richmond House, Penkhull.
Wheeler, M. A.	Royal Masonic Inst., Battersea.
Williams, M.	Collingwood College, Lee, S.E.
Bell, F. D.	Private tuition.
Bence, K.	Eastbourne House, Devizes.
Bewley, G.	Kingsholme S., Weston-super-Mare.
Britton, A.	Mecklenburg House, Putney.
Burnett, E.	Hylton House School, Rock Ferry.
Burrows, M.	Eastgate School, Northampton.
Chrysoveloni, H.	Private tuition.
Cooke, F.	Addiscombe High School.
Corkill, L.	Lezayre House, Ramsey, I. of Man.
Deveson, E. E.	Townley House, Ramsgate.
Edwards, M.	Harrow House High School, Cardiff
Ellis, E.	Chertsey House, Red Hill.
Ellis, L.	High School, Newton Abbot.
Eyre, F. M.	Diocesan High School, Derby.
Finch, K.	Collingwood College, Lee, S.E.
Frost, E. M.	Stoke Newington High School.
George, C. A.	Grey Coat Hospital S., Westminster.
Gill, K.	Merton College, Croydon.
Harris, S. L.	17 Tavistock Place, Plymouth.
Harrison, E. C.	Park Road School, Bingley.
Haworth, C. E. E.	Kersall Cell, Higher Broughton.
Hiale, D.	Ladies' College, Ilfracombe.
Hill, A. M.	Wandsworth High School for Girls.
Hook, M.	Field House, Heaton Chapel.
Hughes, A. J.	High School, Holyhead.
Hutchinson, E.	Crescent House School, Bedford.
Instone, E. H.	De Montfort House S., Leicester.
Laing, E. M.	Lindenau School, Chichester.
Lavender, E. M.	Private tuition.
Lawes, W. H.	Malvern House, Reading.
Margrate, B. B.	North Bristol School for Girls.
Morgan, G. T.	St. Margaret's, Cardiff.
Mullins, M. E.	Weirfield School, Taunton.
Perkins, D. L.	Corn Exchange, Market Harborough.
Platt, G.	Southolme High S., Whalley Range.
Rabling, J. M.	Redbrooke School, Camborne.
Read, M.	Eagley Bank, Southport.
Roberts, L.	Girls' Grammar School, Keighley.
Robson, M. H.	Carrick House, Brampton.
Shirley, A. K.	Diocesan High School, Derby.
Shute, C. A.	Buxton Coll. S., Kennington Road.
Smith, A. C.	Warehousemen & Clerks' S., Purley.
Smith, E. R. G.	23 Oseney Crescent, Camden Rd. N.W.
Thistle, E.	Pierremont Crescent S., Darlington.
Tippet, A. L.	Redbrooke School, Camborne.
Westwood, E. M.	Grey Coat Hospital S., Westminster.
Windsor, A.	Park School, Higher Broughton.
Wood, C. A.	Private tuition.
Ainsworth, E.	Pitsmoor College, Sheffield.
Aked, M. B.	Girls' High School, Spring Grove.
Anderson, W.	Field House, Heaton Chapel.
Ashby, E. M.	De Montfort House S., Leicester.
Barbour, A. K.	Woodgrange Academy, Forest Gate.
Barnes, B. H.	Connaught House S., Attleborough.
Beard, P. A.	Warehousmen & Clerks' S., Purley.
Birch, M. E.	Leam House, Addison Crescent, W.
Birdsell, E.	24 Malvern Road, Leeds.
Bolus, A. M.	Brighthelmoton, Birkdale.
Boyd, F.	St. Helen's, Cavan.
Braithwaite, M. E.	Victoria High S., Up. Tollington Pk.
Brigham, G. E.	Westwood Coll. S., Scarborough.
Bulpitt, F. R.	Oakley High Class S., Southsea.
Cox, V. M.	Anstey Villas, Alton, Hants.
Dunch, E. A.	The High School, Gravesend.
Evershed, F. L.	Montague House S., Weymouth.
Fagg, F.	Brandon House School, S. Croydon.
Fenn, M. B.	23 Oseney Cresc., Camden Rd., N.W.
Fleming, C. M.	Grey Coat Hospital S., Westminster.
Fox, A. H.	Mecklenburg House, Putney.
Francis, M. L.	Mowbray School, Sunderland.
Goodman, E. M.	Private tuition.
Gundlach, C. E.	Montrose House School, Margate.
Hall, M. L.	Reading High School.
Harrison, A. J.	Field House, Heaton Chapel.
Hibberd, M. C.	Arundell House, Tisbury.
James, L. M.	York House, Newbury.
Jolly, M. A.	Northlands, Blackpool.
Jones, S.	South Bristol Girls' High School.
Lintott, E. M.	Beachy Ladies' Coll., Eastbourne.
Loveridge, M. L.	Kendrick House School, Penarth.
Maycock, B.	Merton College, Croydon.
Morley, E.	Ladies' Coll., Savile Park, Halifax.
Norman, M. E.	Bladen House S., Hove, Brighton.
Olver, M. M. L.	W. Cornwall College, Penzance.
Phillips, E. M.	West Lydford Collegiate School.
Robinson, L. B.	Camden School, Hull.
Slade, K.	High School for Girls, Torquay.
Squire, A.	Warehousemen & Clerks' S., Purley.
Swanson, H. E.	The Cedars, Barton-on-Humber.
Thackray, D.	Crescent House School, Bedford.
Ward, L.	St. Helier's Coll., Wellingborough.
Watts, I. F. M.	Grosvenor Ladies' Coll., Seacombe.
Willis, F. L.	Redbrooke School, Camborne.
Wyse, C.	The Cowley Schools, St. Helens.
Ayre, M.	Cambridge House, Liverpool.
Barber, A. M.	Licensed Victuallers' School, S.E.
Blair, G.	St. Agnes College, Moseley.
Brown, L.	Thomas St. Girls' S., Burdett Rd., E.
Coleman, E.	Brookside School, Darlington.
Collinson, C. R.	Private tuition.
Cooper, M.	Highfield School, Addiscombe.
Dawson, G.	Lezayre House, Ramsey, I. of Man.
Dibb, I.	The Chestnuts, Willesden.
Drew, N.	Diocesan High School, Derby.
Edey, M. C.	Montague House S., Weymouth.
Fagan, T. M.	Southside House, Weston-s.-Mare.
Fergusson, E. M.	Leam House S., Addison Cres., W.
Fraser, K.	Ladies' S., Thornpark, Teignmouth.
Gaved, B.	Private tuition.
Gray, E. D.	Gresham House, Northampton.
Green, B. E. H.	Devonport High School for Girls.
Greenlay, A. M.	Public S. for Girls, Scarborough.
Hammerton, J. M.	Ben Voirlich, Hastings.
Houghton, E. K.	Twyford House, S. Hampstead.
Howell, M. H.	Girls' Collegiate School, Truro.
Hughes, K. M.	Ladies' College, Woolstone.
Jenkins, B. A.	Lenton House, Alton, Hants.
Jessop, E. G.	Downs College, Clapton.
Jones, A.	Harrow House High S., Cardiff.
Kennedy, F.	London Orphan Asylum, Watford.
Latimer, L.	Brookside School, Darlington.
Lewins, C.	4 Eslington Rd., Newcastle-on-Tyne.
Lewis, A. E	Grange College, Leominster.
Lewis, M	Lansdowne House S., Llandudno.
Llewellyn, M. A.	Hill House Coll., Haverfordwest.
Mossop, E.	Woking High School for Girls.
Mussell, C.	Montague College, Salisbury.
Neck, M. F.	31 Torrington Place, Plymouth.
Neill, E. E.	Field House, Heaton Chapel.
Palmer, A.	Seaton House School, Mutley.
Pattinson, E. T.	Devonshire House, Carlisle.
Rees, E.	St. Andries, Penarth.
Robertson, H.	Burlington Middle Cl. Girls' S., W.
Rycroft, E. D.	Park School, Higher Broughton.
Scantlebury, R. P.	The Hawthorns, Ealing Common.
Scholes, A.	High School, Farnworth.
Singleton, V. T.	Private tuition.
Smith, A. E.	Ch. of Engld. Public S., Gravesend.
Smith, H.	2 Duke Street, Bath.
Southworth, M. L.	Glengarry Ladies' School, Birkdale.
Stewart, J. E.	Mornington House, W. Kensington.
Van Oppen, M.	Melbourne House, Hackney.
Ward, E. L. M.	St. Mary's Road, Leamington.
Williams, K. M.	Beaver House, Farnham.
Andros, E. C.	Sydenham College for Ladies.
Ashberry, G.	Eton House, Sheffield.
Ayliffe, H. M.	Mayfield House, Marlborough.
Badham, M. L.	Claremont High S., Shrewsbury.
Bardrick, C. F.	Leam House S., Addison Cresc., W.
Batchelor, H. M.	Gresham College, Brixton Road.
Bendy, E.	Collingwood College, Lee, S.E.
Bennet, A.	Dunmarklyn, Weston-super-Mare.
Cakebread, A.	Camborne House S., Tottenham.
Compton, E. J.	Private tuition.
Davies, K. R.	Laurel Rd. S., Fairfield, Liverpool.
Dransfield, A.	Kersal Cell, Higher Broughton.
Epps, A.	Field House School, Worcester.
Fachiri, M.	Private tuition.
Grace, G.	Kendrick Girls' School, Reading.
Greenning, A. L.	Wollaston Rd. School, Dorchester.
Hamilton, G. B.	Grey Coat Hospital S., Westminster.
Hippey, E. C.	Royal Masonic Inst., Battersea.
Howitt, A. E.	Belmont House School, Norwich.
Hussey, E.	Merton College, Croydon.
Ingleby, H.	1 Clyde Terrace, Hull.
Jobling, E.	School for Girls, Whitley.
Johnson, R.	The Grove, Shelton, Stoke-on-Trent.
Johnstone, P.	Granville House, Aylesbury.
Moore, B. H.	Highleigh House, St. John's, S.E.
Morris, A.	Claremont High S., Shrewsbury.
Mountford, S. J.	The Orme Girls' S., Newcastle, Staffs.
Ockleston, M. T.	Braemar College, Strond Green.
Pollock, G. M.	Woodgrange Acad., Forest Gate.
Prior, F.	St. Helier's Coll., Wellingborough.
Salmon, C. B.	Private tuition.
Schaefer, E.	Germania College, Canonbury.
Shaw, F. M.	Finsbury Park High School.
Stewart, K.	4 Eslington Rd., Newcastle-on-Tyne.
Sutcliffe, C.	The College, Huddersfield.
Sutton, M. F.	Brighthelmston, Birkdale.
Swinnard, F.	Beechcroft College, Richmond.
Whitaker, N. M.	New Prospect House, Southampton.
Williams, A. M.	Lansdowne House S., Llandudno.
Bales, F. F.	Collegiate School for Girls, Norwich.
Boaden, A.	North Bristol School for Girls.
Booty, G. M.	Clarence House, Filey.
Bridger, E.	Sutherland House, Gt. Yarmouth.
Britton, F.	Thomas St. Girls' S., Burdett Rd., E.
Bush, R. H.	2 Duke Street, Bath.
Cannce, M. L.	Up.-Holland Grammar School.
Codling, S. J.	City of Durham School for Girls.
Craven, F. A.	Stoke Newington High School.
Cutlack, M. D.	Middle Class Girls' School, Margate.
Duncan, E.	Private tuition.
Foulston, S. E.	The High School, Hull.
Groves, T.	Summerland College, Honiton.
Henderson, C. I.	St. Katherine's, Eastbourne.
Holme, G. M.	Field House, Heaton Chapel.
Horrell, H.	Courtenay House, Crediton.
Humphrey, B.	High School for Girls, Putney.
Hutley, J.	The High School, Colchester.
Hyde, H. M. K.	Private tuition.
King, M. M.	Minshall House, Beckenham.
Knapp, L. N. H.	Colville House, Swindon.
Longbotham, F. E.	Enmoor Lodge Collegiate S., Leeds.
Mason, A. M.	Proprietary School, Dudley.
McGowan, F.	The Orme Girls' S., Newcastle, Staffs.
Mogge, E.	Cliff Park High School, Southend.
Nockolds, A.	Wellington House, Gt. Yarmouth.
Paterson, A. M.	The Ladies' College, Wellington.
Platten, K.	The Hollies, Snettisham.
Poxon, L.	Breaston Ladies' School.
Roberts, G.	Princess Helena College, Ealing.
Roby, K. E.	Rocklield, Lansdowne Rd., Croydon.
Salvidge, S. C.	Lulworth Lodge, Birkdale.
Sander, L. N.	Coopers' Girls' School, Bow, E.
Shafto, E. F.	Leigh Bank, Leamington.
Stirton, I.	The High School, Gravesend.
Swann, F. J.	St. John's Middle S., Kennington.
Tomlinson, H.	1 Clyde Terrace, Hull.
Toms, H. R.	Private tuition.
Welch, F. M.	Stoke Newington High School.
Westwood, M. J.	Warehousemen & Clerks' S., Purley.
Wight, E. A.	Devonshire House, Carlisle.
Williams, B. M.	Girls' High School, Bournemouth.
Wilshire, T.	Ellenborough House, Clifton.
Wright, A. M.	Acocks Green Ladies' Coll. School.
Wylde, J. M.	Braybrooke College, Hastings.
Ambler, A.	Girls' Grammar School, Keighley.
Atkins, A.	Worcester Road School, Redditch.
Baker, F. E.	E. Southsea Collegiate School.
Blackstock, F.	Portland St. Ladies' S., Manchester.
Blanning, L.	Norton Villa, Bath.
Bonner, C.	Malvern House School, Birkdale.
Bown, F.	High School, Newton Abbot.
Britton, E.	Collingwood College, Lee, S.E.
Brooks, C. H.	South Villa School, Alford.
Carlin, G.	Cambridge College, Twickenham.

GIRLS, THIRD CLASS—*Continued.*

Carter, K. M.	Private tuition.
Chapman, L.	Jewish High School for Girls, W.C.
Clarke, G. R.	Portland College, Hammersmith.
Colley, A.	High School for Girls, Hornsea.
Collier, M. V.	St. Winifred's S., Southampton.
Cox, A. M.	Private tuition.
Crowther, L.	The College, Huddersfield.
Daly, E. G. I.	High School, Sidney Place, Cork.
Davies, A. M.	Lansdowne House S., Llandudno.
Dawson, M.	Lezayre House S., Ramsey, I. of M.
Dreyfus, E. H.	Camden School for Girls.
Esse, L. E.	Felix House, Tottenham.
Fisher, L.	St. Anne's High School for Girls.
Glover, F. M.	Oxford House S., South Norwood.
Green, M.	Byculla, Southsea.
Greenwood, C. B.	Ladies' College, Woolstone.
Haslehurst, M. J.	Diocesan High School, Derby.
Hathaway, M.	Grosvenor Ladies' College, Bath.
Heafield, S. E.	Girls' School, Ashby-de-la-Zouch.
Hosking, L. M.	Hayle Grammar School.
Hosking, N.	Hayle Grammar School.
Judson, L. A.	Ormond Terrace S., Cheltenham.
King, E. R.	Greycoat Hospital S., Westminster.
Lea, L.	The Hollies, Malvern.
Leatherbarrow, M. H.	Walton High School, Liverpool.
Milbourn, M.	Walton High School, Liverpool.
Moxon, E. G.	Lloran Cottage, Hambledon.
Nichols, A. E.	Camden House, Biggleswade.
Nuthall, I. M.	Princess Helena College, Ealing.
Orchard, E. A.	Cotswold House, Dursley.
Osborne, N.	Hayle Grammar School.
Owers, B. L.	Shelley House School, Ongar.
Porter, B. M.	Edinburgh House, Midhurst.
Price, M. H.	The High School, Tue Brook.
Pulsford, M. M.	48 Treherne Road, Brixton.
Robins, H. M.	Grosvenor House, Forest Hill.
Sedgley, M.	St. Helier's Coll., Wellingborough.
Sefton, E. S.	Sunny Bank School, Haulgh.
Shelton, N.	Beethoven House, Northampton.
Simmons, G.	Gresham College, Brixton Road.
Slater, R.	Merton College, Croydon.
Stannard, E.	Howard College, Bedford.
Tapscott, M. E.	Alexandra College, Shirley.
Thompson, K. E.	Surrey House School, Norwich.
Tilsley, E. M.	Handsworth Ladies' College.
Tough, H. K.	St. Maur, South Norwood.
Trubshaw, M. C.	Caerleon House S., Aberystwith.
Underhill, E.	Surrey House School, Norwich.
Upton, C.	High School, Waltham Cross.
Watson, E. A.	High School for Girls, Hornsea.
White, M.	Collingwood College, Lee, S.E.
Williams, M. A.	Bryntysilio, Carnarvon.
Woods, E. M.	Slepe Hall, St. Ives, Hunts.
Alliott, F. M.	Nonconf. Gram. S., Bp. Stortford.
Andrews, A.	Court House, Atch Lench, Evesham.
Barber, E.	Tinwald, Rock Ferry.
Beal, J. E.	10 Gloucester Place, Brighton.
Briscoe, C. A.	Parish Church Mid. Class S., Leeds.
Brittain, R. H.	Barnet College, N.
Brotherhood, S. A.	Rosemont House, Newport, Salop.
Bulloch, B. M.	Walthamstow Hall, Sevenoaks.
Carey, M. R. E.	Walthamstow Hall, Sevenoaks.
Chapman, E.	22 Victoria Terrace, South Shields.
Chapple, G. M.	Gresham College, Brixton Road.
Cranch, M. C.	Arundel House, Brixton.
Cutting, M.	High School, King's Lynn.
Dulcken, M. C.	The Elms, Finchley Road, N.W.
Flowers, L.	Lynton House School, Margate.
Fraser, R.	Collingwood College, Lee, S.E.
Frost, M. G.	Vanbrugh Park School, Blackheath.
Ingham, E.	Ladies' Coll., Fairfield, Liverpool.
Innes, B.	N.E. District Coll., S. Newington.
Innocent, L.	De Montfort House S., Leicester.
Jones, F. E.	Norwood House, Liverpool.
Jones, E. E.	Claremont House S., N. Kensington.
Kempson, M. A.	Glencoe, Erdington.
Landon, A.	Granville House, Aylesbury.
Linney, L. E.	Friends' School, Saffron Walden.
Lowndes, M. M.	The Manor House, Uttoxeter.
Makin, E.	The Cowley Schools, St. Helens.
Millington, M. G.	Saxenholme, Southport.
Mitchell, A.	Belle Vue, Swansea.
Nelson, N. E.	Queen Anne's College, Southend.
Noble, L. I.	Alexandra College, Shirley.
Novis, A. B.	Wandsworth High School for Girls.
Owen, J.	Areville Ladies' College, Rhyl.
Patience, M. S.	Royal Masonic Inst., Battersea.
Peebles, A.	Trebovir House, S. Kensington.
Price, L. R.	Denmark College, Wimbledon.
Rickards, D. I.	Seymour House School, Saltash.
Schultz, A. B.	Felix House, Tottenham.
Shapland, A. M.	Alexandra House, Newport, I.W.
Sheldon, E. M.	Stamford Hill High School, N.
Shipley, M.	Rossell House School, Paignton.
Standley, E. M.	Connaught House S., Attleborough.
Stedman, E.	Eastholme, Farnham.
Sutcliffe, E. H.	Royal Masonic Inst., Battersea.
Trevor, E.	Byculla, Southsea.
Waller, G.	Private tuition.
Ward, V. E.	Private tuition.
Westlake, M. E.	31 Torrington Place, Plymouth.
Wills, A.	High School, Newton Abbot.
Wilson, E. M.	Welbeck House, Bridlington.
Arnold, E. M.	Clare House School, Northampton.
Bayfield, B.	The Hollies, Snettisham.
Bizley, A. M.	Colville House, Swindon.
Blake, G. C.	Reading High School.
Boulter, E. G.	Granville College, West Croydon.
Bourne, E. M.	Albany School, Brighton.
Bradley, E. M.	Milston Villa, Farcham.
Bremridge, A. M. L.	Rougemont School, Exeter.
Brown, A.	Beethoven House, Northampton.
Brown, E. M.	The Cowley Schools, St. Helens.
Bult, M. A.	Grey Coat Hospital S., Westminster.
Carruthers, E. G.	Royal Masonic Inst., Battersea.
Clayton, E. M.	The Mount House, Cheetham Hill.
Davis, J.	Leyton House, Clifton.
Denning, A.	Fairfield, 7 Cotham Park, Bristol.
Dickinson, E. J.	Boston Grove School, Rotherham.
Douthwaite, G. B.	The Bryn, Ruabon.
Ebden, N.	Crescent House School, Bedford.
Edgar, F. R.	Bushnell House, Stockwell Rd., S.W.
Freeland, I. T.	Cambridge House, Guildford.
Gilling, A. B.	Boston Grove School, Rotherham.
Goodacre, M. A.	Diocesan High School, Derby.
Griggs, G. H. M.	Montgomery House Coll., Dalston.
Gunston, A. M.	Belmont House School, Richmond.
Hoffert, L.	The Hawthorns, Ealing Common.
Hutchison, A. M.	Girls' High School, Spring Grove.
Ivers, A.	High School, Farnworth.
Jackson, F.	St. Anne's High School for Girls.
James, D.	Northgate House, March.
Jarrett, A. A.	The Laurels, Canterbury.
Lake, E. A.	9 Kingsgate Street, Winchester.
Lewis, B.	Hill House S., Downham Market.
Littlehales, A. L.	Sydenham College for Ladies.
Lupton, E.	Girls' High School, Spring Grove.
Martorell, L.	Ladies' Coll., Fairfield, Liverpool.
Matier, M. E.	Stoke Newington High School.
Merchant, E.	Diocesan High School, Derby.
Minns, M. J.	Watlington House, Downham.
Peat, A.	St. Cecilia's School, Derby.
Perfect, A.	Park Road School, Bingley.
Peters, M. F.	Ellenborough House, Clifton.
Preston, E.	West Lydford Collegiate School.
Proctor, E. J.	60 Oak Mount Terrace, Burnley.
Pybus, K. A.	Ellerslie House School, Hull.
Richards, B.	Somerset House, Bristol.
Richardson, M.	Southolme High S., Whalley Range.
Sanders, A.	St. Helier's College, Wellingborough.
Smith, A. H.	Arundel House, Brixton.
Smith, K. M.	Argyll House School, Leytonstone.
Sutcliffe, A.	Girls' High School, Spring Grove.
Thompson, R.	Regent Villa, Lindow, Lancaster.
Tilley, N.	N. Hackney High S., Stamford Hill.
Tyler, E. M.	Stoneygate College, Leicester.
Wallace, K.	Lea Holm, Waterloo, Liverpool.
Williams, R.	Girls' High School, Spring Grove.
Wood, E. M.	St. Margaret's, Cardiff.
Wood, M.	Clissold Coll., Brownswood Pk., N.
Arney, M. A.	Longford Girls' School, Bristol.
Atkinson, E.	Stanley House S., Stockton-on-Tees.
Banner, M.	Richmond Ho., Burnt Ash Hill, S.E.
Baughurst, J. S.	1 York Terrace, Yorktown, Surrey.
Beasley, M. E.	Sinclair College, W. Kensington Pk.
Bird, C. I.	North Bristol School for Girls.
Blencowe, J. H.	Grey Coat Hospital S., Westminster.
Carter, A.	Cross Hayes House, Malmesbury.
Clark, E. G.	Holmcloft, Longhton.
Cook, M.	St. Helier's College, Wellingborough.
Date, E.	Stanmore House, Weston-s.-Mare.
Davis, D. M.	Girls' High School, Bournemouth.
Dewstoe, A.	Green Bank School, Falmouth.
Fogg, C. G.	The Cowley Schools, St. Helens.
Fraser, M.	Ladies' College, Fairfield, Liverpool.
Gerhard, L. M.	Camden School for Girls.
Gould, M. K.	The High School, Gravesend.
Green, A. M.	St. Catherine's, Cardiff.
Gray, F. A.	Montague College, Salisbury.
Heinig, W.	The Chestnuts, Willesden.
Hewitson, F.	Chertsey House, Red Hill.
Hodge, M. G.	Belle Vue, Ambleside.
Holton, M. M. A.	The High School, Gravesend.
Jephson, E. A.	Diocesan High School, Derby.
Jones, E. E.	Claremont House S., N. Kensington.
Kitching, E. A.	1 Clyde Terrace, Hull.
Kerr, J.	The Academy, Crewe.
Meredith, M.	Private tuition.
Moore, E.	High School, Newton Abbot.
Ormond, F.	Merton College, Croydon.
Parker, E. L.	Grey Coat Hospital S., Westminster.
Piercy, E. E.	Moseley High School for Girls.
Popham, E.	Princess Helena College, Ealing.
Primavesi, I. E.	Girls' High School, Bournemouth.
Savage, B. A.	Albany School, Brighton.
Shearsmith, M. A.	87 Park Street, Spring Bank, Hull.
Standley, A. M.	The Crescent School, Norwich.
Stone, E. M.	Margate Ladies' College.
Tate, J.	1 Clyde Terrace, Hull.
Taylor, B. I.	Richmond Ho., Burnt Ash Lane, S.E.
Tisdall, C.	Camden School for Girls.
Tymms, E. I.	Montrose House School, Margate.
Verrall, M.	Collingwood College, Lee, S.E.
Whitehouse, L. E.	Proprietary School, Dudley.
Ansell, T. T.	Grey Coat Hospital S., Westminster.
Aukett, M. T.	St. Michael's School, Lewes.
Bates, F. H.	Girls' Grammar School, Bingley.
Beall, M. A.	St. John's Middle S., Kennington.
Beesley, A. E.	South College, Kettering.
Boiston, M. E.	City of Durham School for Girls.
Clark, E. M.	9 Cambridge Terr., Nunhead Lane.
Clark, R.	Crescent House School, Bedford.
Crick, F.	Portland St. Ladies' S., Manchester.
Crisland, F. E.	Aubert College, Drayton Park.
Compton, M.	Portland St. Ladies' S., Manchester.
Davies, A.	Caerlon House School, Aberystwith.
Dipple, N.	Soho Hill School, Birmingham.
Dixon, E.	Bryanston House, Liverpool.
Eley, A.	Margate Ladies' College.
Entwisle, A. M.	Buckingham Crescent S., M'nchestr.
Evans, M.	Brunshaw Seminary, Burnley.
Faulding, G. M.	Twyford House, S. Hampstead.
Ferguson, N. G.	Girls' High School, Bournemouth.
Forder, E. M.	Camden School for Girls.
Godman, M. B.	Private Tuition.
Godwin, A. C.	College House School, Hungerford.
Hamlyn, E. M.	Eastwood House, Eastwood, Notts.
Hammerton, M. E. J.	Oak House, Leamington.
Harrison, F.	Brunshaw Seminary, Burnley.
Holdsworth, M.	St. John's High S., Foxley Rd., S.W.
Jackson, M.	Private tuition.
Jones, L.	Lansdowne House S., Llandudno.
Lowe, I. E.	Albert Villa, Ramsgate.
Lukin, B. L. H.	Cashiobury House, Southend.
Lunn, A.	Dresden House, Evesham.
Lyon, L.	The Cowley Schools, St. Helen's.
March, M.	Field House School, Worcester.
Martin, E.	The Rowans, Watford.
Martin, M.	The Bryn, Ruabon.
Morfey, M. E.	Felix House, Tottenham.
Piercy, A. C.	1 York Terrace, Yorktown, Surrey.
Plows, C. J.	St. Mary's Road, Leamington.
Pollard, E. R.	High School for Girls, Torquay.
Ramsbottom, J. A.	14 Edmund Street, Rochdale.
Rogers, E. J.	Granville House, Aylesbury.
Sewell, L. A.	Park Mansion, St. Leonards.
Smith, D.	Oakhurst, Great Grimsby.
Sutherus, K.	Riversdale, Acock's Green, B'ham.
Swainson, L.	St. Anne's High School for Girls.
Thomson, I.	88 Bloomsbury, Manchester.
Weller, S.	Brook Lea, Ilkley.
Wendover, E. G.	4 Cumberland Gdns., St. Leonards.
Arney, J. C.	S.E. District College, Kennington.
Baker, C. M.	4 Endsleigh Gardens, N.W.
Beckingham, H.	Newport (Mon.) High School.
Boate, E.	High School, Sidney Place, Cork.
Bruton, E. E.	Longford Girls' School, Bristol.
Callander, J.	Beechcroft College, Richmond.
Cawthorne, G.	The Grove College, Harrogate.
Churchill, L.	Mecklenburg House, Putney.
Clay, A.	Florence Street School, Islington.
Clements, M	Blackheath Centre School, S.E.
Davies, E.	5 Clifton Place, Newport, Mon.
Dunling, A. H.	Eastholme, Cottingham, Hull.
Edbrooke, F. H.	North Bristol School for Girls.
Foxlow, F. M.	Dresden House, Evesham.
Francis, M.	Beethoven House, Northampton.
Gridley, B. M.	Elm Lodge, Petersham.
Hambly, R.	34 Emma Place, Stonehouse.
Hardy, A. M.	Albany School, Brighton.
Hardy, E. J.	Montague College, Salisbury.
Hilder, S.	Y Garn, Bromley, Kent.
Hitchman, E. J.	Acock's Green Ladies' Collegiate S.
Holton, L. S.	Penge High School for Girls.
Horder, L. J.	Warehousemen & Clerks' S., Purley.
House, G. E. B.	Anglo-French Ladies' S., Bristol.
Irving, M. J.	Hartington Place School, Carlisle.
Isaac, S. S.	Gloucester House School, Kew.
Lait, I. M.	Stoneleigh Coll. S., Newington.
Meller L.	Camden School for Girls.
Miers, F.	Lansdowne House, Southport.
Money, W.	York House, Newbury.
Moon, A.	Private tuition.
Moxon, G. C.	Lloran Cottage, Hambledon.
Nurse, E. J.	Auburn House, Downham Market.
Parker, H.	St. Helier's Coll., Wellingborough.
Peacock, M. A.	Scorton Grammar S., Darlington.
Preston, L. E.	Harringay High S., Finsbury Park.
Pye, L.	Fulford Field House, York.
Reddy, E. L.	North Bristol School for Girls.
Roy, D.	City of Durham School for Girls.
Shafto, C. E.	Leigh Bank, Leamington.
Sollitt. A. A.	High School for Girls, Hornsea.
Spraggon, C.	Moseley High School for Girls.
Suckling, B. C.	Moseley High School for Girls.
Thomas, E. M.	Maria Grey S., Fitzroy Square, W.
Thompson, S. N.	West Bridgford School, Notts.
Verrall, V.	Collingwood College, Lee, S.E.
Webb, E. H.	Barnet College, N.
Whale, F.	Harrow House, High S., Cardiff.
White, M. E. B.	Private tuition.
Wigfield, M. E.	School for Girls, Whitley.
Willett, E. A.	Beechcroft College, Richmond.
Williams, F. J.	Court House Coll., Haverfordwest.
Wright, A. F.	Royal Masonic Inst., Battersea.
Allott, E.	St. Anne's High School for Girls.
Ault, A. E.	Private tuition.
Bailey, M. E.	Camden School for Girls.
Barefoot, B. M.	Kendrick Girls' School, Reading.
Barnwell, J. E.	Wandsworth High School for Girls.
Botibal, S.	Jewish High School for Girls, W.C.
Bradshaw, A.	The Cowley Schools, St. Helens.
Brayne, E.	Girls' School, Oswestry.
Butler, J. W.	The Ladies' College, Wellington.
Chudleigh, E.	High School, Newton Abbot.
Clifton, N. M.	Oakhurst, Great Grimsby.
Coates, M. G.	Reading High School.
Coombs, E. S.	Granville House, Aylesbury.
Crookston, J. L.	Elm Lodge, Petersham.
Dixon, C. M.	Atherfield House, Clifton.
Doe, B.	Camden School for Girls.
Elgood, K. L.	Private tuition.
Feltham, J.	28 Castle Street, Salisbury.
Gray, W. M. P.	32 New Street, Jersey.
Heape, F. D.	Diocesan High School, Derby.
Hitchman, H. G.	Acock's Green Ladies' Coll. School.
Houghton, M. K.	Fern Bank, Wandsworth Common.
Jones, L.	Lansdowne House S., Llandudno.
Knapton, M. I.	87 Park St., Spring Bank, Hull.
Hogben, C. F.	Pestalozzian School, Southampton.
McGregor, H.	22 Victoria Terrace, South Shields.
Mills, E.	Convent of Loreto, Hulme.
Milton, H. A.	Portland St. Ladies' S., Manchester.
Parkes, J.	84 Worcester Street, Stourbridge.
Parnell, C. C. C.	58 Shepherd's Bush Green.
Pentelow, H.	Slepe Hall, St. Ives, Hunts.
Pettit, M. J.	Girls' Grammar S., Wallingford.
Phillips, E. F. L.	Ellenborough House, Clifton.
Pudsey, L.	1 Clyde Terrace, Hull.
Reid, A. M. A.	High School for Girls, Torquay.
Richardson, F.	Licensed Victuallers' School, E.C.
Sherris, M.	W. Cornwall College, Penzance.
Stubbings, J.	Lancaster Mansion, Margate.
Swan, A.	Grey Coat Hospital S., Westminster.

GIRLS, THIRD CLASS—*Continued.*

Vincent, L. M.	Connaught House S., Attleborough.
Watson, E.	Crescent House School, Bedford.
White, S.	St. Bernards, Southsea.
Woods, A. M.	Leith House, Acton.
Wootton, G.	Cambridge House, Liverpool.
Wright, R. E.	Westholme Academy, Goole.
Barnard, A.	87 Park Street, Spring Bank, Hull.
Callon, C. L.	Leybourne House, Aylesbury.
Cherry, E.	Elgin College, Bayswater.
Churchyard, A. E.	33 Chaleot Cresc., Primrose Hill.
Cooke, S. M.	Field House, Heaton Chapel.
Cross, E. M.	Private tuition.
Cunningham, H.	Collegiate School for Girls, Norwich.
Exley, D. M. L.	Cambridge Lodge, Eastbourne.
Gillitt, E.	St. Helier's Coll., Wellingborough.
Gould, K. I.	Branscombe House S., Exeter.
Gray, D. L. P.	32 New Street, Jersey.
Hands, H. J.	Field House, Heaton Chapel.
Harris, E.	Beethoven House, Northampton.
Hogg, E. A.	St. John's House, South Shields.
Jennison, R.	The Grange, Marple.
Kirkpatrick-Picard, I. E. I.	Private tuition.
Knowles, M. J.	Hope House, New Leeds, Leeds.
Langley, J.	Richmond Ho., Burnt Ash Lane, S.E.
Laurence, F. A.	Park Mansion, St. Leonards.
Lloyd, M. S.	High School, Lampeter, Cardigan.
Mixer, E.	Somerville School, Highgate.
Montague, E. I.	Maria Grey S., Fitzroy Square, W.
Paramor, S. F.	Camden School for Girls.
Paul, K.	Holmedune, Blundellsands.
Pearce, M. A.	Larchmount, Yatton.
Piggott, B. H. E.	The Hawthorns, Ealing Common.
Pinching, M. M.	Leam House S., Addison Cres., W.
Redfearn, L. G.	The Grammar School, Liversedge.
Reid, A.	The High School, Alfrincham.
Sandys, L.	26 Ashley Road, N.
Smith, B.	Prospect House, Bowdon.
Story, D. S.	Wellington College, Hastings.
Stubberfield, A. M.	St. Kilda's, St. Leonards.
Sykes, C.	Queenswood, Clapham Park.
Sykes, M. B.	Brook Lea, Ilkley.
Walker, H. L.	Proprietary School, Dudley.
Watson, M.	Reading High School.
Wells, M.	Lansdowne House S., Llandudno.
Wigfull, B. M.	Wynnstay, Hornsey Lane.
Wills, D. M.	Camden School for Girls.

THIRD CLASS.—3RD DIVISION.

Amsler, A. L. J.	Camden School for Girls.
Beaton, E. H.	Camden School for Girls.
Bennett, S.	Clapham Park Ladies' Coll., S.W.
Bristow, A. M.	33 Camperdown, Great Yarmouth.
Brooke-Smith, M.	Private tuition.
Bruce, E. W.	Slepe Hall, St. Ives, Hunts.
Chater, E. A.	86 Ladbroke Grove Road, W.
Cheveley, L. M.	Ashbourne, Harrogate.
Dobbin, M. C.	Margate Ladies' College.
Elding, M. F.	Granville House, East Hardwick.
Gammon, E.	Carlisle House School, Deal.
Grylls, A.	Hillersdon House, Barnes.
Harrison, M.	Belmont House, Leicester.
Heinrich, G. R.	Greycoat Hospital S., Westminster.
Hughes, J. M.	Braybrooke College, Hastings.
Jones, H. I.	Morfa House School, Conway.
Jones, M. H.	High School, Lampeter, Cardigan.
Jordan, A.	St. Helier's Coll., Wellingborough.
Legg, J.	Southside House, Weston-s.-Mare.
Lister, C.	Eastholme, Cottingham, Hull.
Lowe, G. A. M.	Girls' Grammar School, Leek.
Lund, E.	4 Eslington Rd., Newcastle-on-Tyne.
Mortimer, E. M.	Girls' High School, Spring Grove.
Mortlock, J. M.	Slepe Hall, St. Ives, Hunts.
Murdock, G. J.	Lulworth Lodge, Birkdale.
Musgrave, M.	Eastholme, Cottingham, Hull.
Oliver, E.	Brookside School, Darlington.
Page, E.	Collegiate S. for Girls, Norwich.
Reid, C. M.	The Ladies' College, Wellington.
Reynolds, E.	Seaton House School, Mutley.
Ricketts, F. M.	Brighthelmston, Birkdale.
Roberts, C. L.	High School, Holyhead.
Ruckhmabai,	Private tuition.
Smith, M.	St. Helier's Coll., Wellingborough.
Sparrow. L.	Warehousemen & Clerk's S., Purley.
Tallent, M.	17 Powis Square, Brighton.
Victor, A. M.	W. Cornwall College, Penzance.
Weeks, K.	Cross Hayes House, Malmesbury.
Williams, B. L.	Larchmount, Yatton.
Williams, K.	Lansdowne House S., Llandudno.
Willis, E. M.	High School, Kidderminster.
Wood, M. I.	Abbotsford Ladies' S., Clifton.
Allen, W. S.	Walthamstow Hall, Sevenoaks.
Badcock, F. M.	Branscombe House School, Exeter.
Blake, H. M. S.	Sutherland House, Gt. Yarmouth.
Brown, A. V.	Friends' School, Saffron Walden.
Buckwell, N. J.	St. Heliers, Amhurst Park, N.
Cresswell, E. N.	Handsworth Ladies' College.
Evans, S. A.	Glengarry Ladies' S., Birkdale.
Firkin, L.	Harborne Ladies' College.
Flanders, M. M. A.	Kenhurst, South Hill Park.
Forbes, M. E.	St. Winifred's S., Southampton.
Hicks, B. H.	Kendrick Girls' School, Reading.
Highfield, E.	35 Clifton Park, Birkenhead.
Hobbs, G. O.	Burlington House School, Clifton.
Horder, M. A.	Warehousemen & Clerk's S., Purley.
Ingham, E.	1 Trafalgar Terrace, Coatham.
Jones, M.	Crouch Hill High S. for Girls, N.
Keeselyside, L.	78 Waterloo Road, Blyth.
Kerr, M.	The Chestnuts, Willesden.
Laurie, L. E.	Heath House, Bexley Heath.
Lett, M.	Cambridge House, Liverpool.
Lister, G. M.	126A High Street, Poplar, E.
Long, A. C.	St. Elmo, Bradford-on-Avon.
Marjoram, G. L.	Belmont House School, Norwich.
Middleton, M.	Athol House, Southport.
Morgan, L. F.	Acock's Green Ladies' Coll., S.
Moss, R. M.	Camden School for Girls.
Noble, M.	High School, Holyhead.
Owen, A.	Bryntysilio, Carnarvon.
Pearce, E. M.	Welbeck House, Lewisham Park.
Posgate, L. M.	The High School, Gravesend.
Proud, L.	Avonbank House, Bath.
Punshon, O. F.	Ladies' College, Fairfield, Liverpool
Read, F.	Highfield School, Addiscombe.
Saville, A. S. A.	Walthamstow Hall, Sevenoaks.
Skinner, F.	Brandon House School, S. Croydon.
Sothern, E. J.	Parish Church Middle Cl. S., Leeds,
Staley, N.	Brighton House Coll. S., Oldham.
Sunderland, M.	Girls' Grammar School, Keighley.
Symmons, A. M.	Private tuition.
Thomas, E. J.	Girls' School, Oswestry.
Twamley, R.	High School for Girls, Hornsea.
Verdin, E. E.	Licensed Victuallers' School, S.E.
Verrall, K.	Collingwood College, Lee, S.E.
Whittles, M. E.	The Bryn, Ruabon.
Williams, E. I.	Shelley House School, Ongar.
Adams, E. A.	Cotswold House, Dursley.
Allen, E.	Collingwood College, Lee, S.E.
Andrews, F.	St. Edmund's House, Hunstanton.
Behling, G. E.	Coopers' Girls' School, Bow, E.
Booth, E.	18 Gregory Boulevard, Nottingham.
Booth, N.	The Mount House, Cheetham Hill.
Britnell, A.	London Orphan Asylum, Watford.
Chappell, E. M.	Breaston Ladies' School, Derby.
Coles, M.	Richmond Ho., Burnt Ash Hill, S.E.
Crosher, B. M.	De Montfort House S., Leicester.
Culverwell, K.	St. Margaret's, Bristol.
Davidson, G. H.	4 Athol Terrace, Sunderland.
Davies, D.	Cambridge House, Liverpool.
Davies, O.	Belle Vue, Swansea.
Dobson, A. B.	Private tuition.
Ferguson, J.	Ashley Villas School, East Boldon.
Gardner, L.	Kenhurst, South Hill Park.
Gibbs, E.	Beethoven House, Northampton.
Gill, G. M.	Newport (Mon.) High School.
Gittins, L.	Linden College, Nunhead Lane, S.E.
Grylls, M.	Hillersdon House, Barnes.
Hall, I. H.	Avondale, Liverpool.
Hamlyn, A. S.	Eastwood House, Eastwood, Notts.
Harrington, E. L. C.	Welbeck House, Lewisham Park.
Head, L. N.	31 Torrington Place, Plymouth.
Henson, E. C.	Queen's College, Acton.
Hiller, A. M.	Margate Ladies' College.
Ingram, M. A.	Girls' Coll. & High S., Southampton.
Jones, M. C.	Bryntysilio, Carnarvon.
Knight, E.	Lindenau School, Chichester.
Large, E.	Catford Collegiate S., Lewisham.
Lea, R.	Warwick House S., Roade.
Marchant, C. E.	Ladies' School, Mill St., Oakham.
Marsh, E.	Enville School, Stourbridge.
Millar, F. E. M.	The High School, Wrexham.
Musgrave, L.	Ladies' S., Thornpark, Teignmouth.
Myers, G.	Grendon House, Seaton Carew.
Newborn, A. M.	The Grove College, Harrogate.
Newton, E. M.	28 Castle Street, Salisbury.
Nicholson, E. F.	Milston Villa, Fareham.
Peacock, A.	Beaconsfield House, Hunstanton.
Peele, A.	The Alleynes School, Wymondham.
Pocock, E.	La Retraite, Balham.
Pullen, R.	Private tuition.
Rogers, M.	The Laurels, Nottingham.
Richardson, N.	Crescent House School, Bedford.
Shilston, F. M.	31 Torrington Place, Plymouth.
Slouan, R.	Normanhurst, W. Bournemouth.
Stephens, F. H.	Portsea Collegiate School.
Thomas, K.	Caerleon House S., Aberystwith.
Thomas, M.	Newnham House, Loughton.
Tice, E. M.	Bath High School for Girls.
Tonge, E. M.	The High School, Hull.
Turner, E. J.	Cambridge House, Clifton, York.
Turner, F.	Ashley House School, Worksop.
Turner, L. A.	Bath High School for Girls.
Walker, M. C.	Norwood House, Liverpool.
Warriner, F. E.	Handsworth Ladies' College.
Wetmore, C. M.	Down End, Clifton.
Wike, E.	Springfield House, Stockport.
Wright, A.	Priory House, York.
Ashdown, E. A.	Albany School, Brighton.
Barber, H.	The Bryn, Ruabon.
Barons, M. L.	Langmead, Greenheys, Manchester.
Bramer, F. A.	Ashley House School, Worksop.
Broad, G. E.	West House High S., Forest Hill.
Brodrick, E. S.	Park Gate House, Hull.
Cockerton, E. M.	3 Richmond Terrace, Liverpool.
Coxen, E. R.	Fairfield, Cotham Park, Bristol.
Crowhurst, G.	Collingwood College, Lee, S.E.
Davies, E. E.	Leith House, Acton.
Dawes, E. L.	Wandsworth High S. for Girls.
Fendick, M. E.	Grey Coat Hospital S., Westminster.
Forster, E. H.	Collegiate S. for Girls, Norwich.
Francis, S.	Trafalgar Square S., Scarborough.
Frost, B.	Keston Ho., Lady Margaret Rd., N.W.
Frost, J.	The Mount House, Cheetham Hill.
Greaves, M. E.	London College, Stratford.
Harding, R. M.	Private tuition.
Hasted, V.	Crescent House School, Bedford.
Hooper, E. E.	52 Albert Road, Walthamstow.
Howard, E,	Collingwood College, Lee, S.E.
Huntley, E.	Salem House College, Sunderland.
Isaacs, M. K.	Minshull House, Beckenham.
Johnson, B. M.	Mecklenburg House, Putney.
Johnson, C.	Oakhurst, Great Grimsby.
Lake, B. E.	Private tuition.
Landale, P.	Private tuition.
Leith, L. O.	The Cowley Schools, St. Helens.
Long, E. S. M.	Camden School for Girls.
Melluish, R. A.	Albany College, Barnsbury, N.
Miller, A. W.	Proprietary School, Dudley.
Mullings, A. E.	Montague College, Salisbury.
Newey, P. H.	Rushmore House, Blakebrook.
Nicholls, D. G.	Ch. of England Public S., Gravesend.
Nixon, H. M.	Stoke Newington High School.
Owen, S. B.	Bryntysilio, Carnarvon.
Packington, E.	Collegiate School, Buckhurst Hill.
Palmer, G. E.	Florence St. School, Islington.
Pattrick, F.	Cliff Park High School, Southend.
Pegg, E. E.	Diocesan High School, Derby.
Pryor, A.	Bedford College, Liverpool.
Rose, E.	Margate Ladies' College.
Sadler, E. B.	Severn Bank, Shrewsbury.
Tait, M. A.	Private tuition.
Theaker, E. H.	Diocesan High School, Derby.
Tilley, J.	N. Hackney High S., Stamford Hill
Twamley, J. G.	High School for Girls, Hornsea.
Wardle, S. A.	The Ladies' College, Wellington.
Wardrop, P. M. E.	5 Sandringham Gardens, Ealing.
Weir, H.	Stoneygate College, Leicester.
Woodman, H.	Private tuition.
Bartholomew, C. E.	Montrose House School, Margate.
Bastone, E. K.	The Elms, Coventry Pk., Streatham
Booth, B. E.	The Bryn, Ruabon.
Bradley, E. F.	Rose Cottage, Ashford.
Carpenter, B.	Norton Villa, Bath.
Cautley, A. G.	Park Gate House, Hull.
Clark, E. F.	Margate Ladies' College.
Cottam, A. M.	Harborne Ladies' College.
Daykin, A. M.	Beech House, Ripley.
Dunkley, F. E.	Clarence House, Kennington Rd.
Dunning, E. E.	Field House, Heaton Chapel.
Edwards, M. T.	Grosvenor House, Forest Hill.
Evans, M. H.	High School, Lampeter, Cardigan
Forster, M. J.	The Cowley Schools, St. Helens.
Holder, H. G.	Ellerslie House School, Hull.
Kench, M.	The High School, Aberdare.
Lemon, A.	Ladies' College, Ilfracombe.
Letts, E.	Talfourd Lodge, Camberwell.
Lowe, A.	St. Anne's High School for Girls.
Masson, I.	Girls' High School, Bournemouth.
Meeten, A.	Collingwood College, Lee, S.E.
Metzner, A.	Blackheath Centre School, S.E.
Mutch, F. A.	Regent Villa, Lindow, Lancaster.
Powell, M.	Ferrers College, Battersea Rise.
Price, N.	Neotsbury School, Scarborough.
Prowse, S. B.	Carisbrooke Coll., Walton, L'pool.
Read, K.	Oakhurst, Great Grimsby.
Robson, A. A.	Greycoat Hospital S., Westminster.
Southey, L.	31 Torrington Place, Plymouth.
Stevens, S.	High School, Newton Abbot.
Todd, A. M.	St. Margaret's, Bristol.
Trewin, L. M. V.	Westlands, Saltash.
Waite, M. A.	City of Durham School for Girls.
Walton, M. P.	Ringstead School, Catford.
Williamson, G.	Dalton Girls' High H., Huddersfield.
Woolsey, L. E.	Collegiate S. for Girls, Norwich.
Wright, K. M.	North Bristol School for Girls.
Young, F.	Moorlands School, Bournemouth.
Baldwin, A. M.	Dresden House, Evesham.
Baker, E. C.	Bastion House, Gloucester.
Barry, M. L.	The Cowley Schools, St. Helens.
Beloe, E. M.	Girls' High S., Bury-St.-Edmunds.
Botting, K.	Albany School, Brighton.
Crosland, E.	Westbrook Ladies' S., Darlington.
Eagles, A. M.	3 Portland Place, Newbury.
Ferguson, M. A.	Grosvenor House, Forest Hill.
Flint, C. M.	Kenhurst, South Hill Park.
Gurney, A. B.	Private tuition.
Harper, L. C.	St. Columb School, Forest Hill.
Haynes, M. H.	West Holme, Clacton-on-Sea.
Lock, A.	Collingwood College, Lee, S.E.
McLeod, A. W.	13 Hartington Rd., Stockton-on-T.
Marson, A. M.	91 Belvedere Road, Walsall.
Mason, M. I.	Private tuition.
Mercer, A. M.	Lansdowne House, Southport.
Morris, L.	Girls' School, Oswestry.
Parker, M.	Richmond House, Penknll.
Pearse, E.	Milton House School, Plympton.
Pearson, M. A.	Comm. & Coll. Train. S., Maidenhead.
Procter, G.	Cambridge House, Liverpool.
Quilliam, F. E.	Grendon House, Seaton Carew.
Rees, M. L.	Court House Coll., Haverfordwest.
Selbie, E.	Private tuition.
Scott, B. I.	87 Park Street, Spring Bank, Hull.
Smith, D. G.	Cambridge House, Birkenhead.
Southern, C.	Oakhurst, Great Grimsby.
Sowden, L.	Dresden House, Evesham.
Squire, E. L.	Princess Helena College, Ealing.
Stewart, J. E.	Bath High School for Girls.
Stewart, M. E. K.	The Elms, Finchley Road, N.W.
Warne, I. C.	St. Maur, S. Norwood.
Wells, F. E.	Sultan House, Margate.
Woodger, L. E.	33 Camperdown, Great Yarmouth.
Young, M.	Mayfield Lodge, Folkestone.
Barningham, J.	Howard College, Bedford.
Birch, E. E.	Summerfield High S., W. Bromwich.
Blyth, K. E.	Cashiobury House, Southend.
Chaney, B. E.	Camden School for Girls.
Clarke, A. M.	Ch. of Eng. Public S., Gravesend.
Craigen, M.	Seaton House School, Mutley.
Currell, E. C.	9 Kingsgate Street, Winchester.
Dewar, L.	Private tuition.
Dickman, E. F.	Cambridge House, Battersea Park.
Evans, A. M.	The High School, Horbury.
Evans, E.	Wilton House School, Chester.
Forster, E. K.	Private tuition.
Gauntlett, L. E.	Camden School for Girls.
Goodfellow, R. M. A.	Private tuition.
Griffith, L.	Down End, Clifton.
Groves, N.	Ellenborough House, Clifton.
Guest, G. E.	Private tuition.
Hall, E.	Camden School for Girls.
Herbert, C.	Kendrick Girls' School, Reading.
Hunter, E. A.	Waverley College, Stroud Green
Johnston, A. M.	Devonshire House, Carlisle.

GIRLS, THIRD CLASS—*Continued.*

Marriott, K. Y.	St. Heliers, Amherst Park, N.
Morris, S.	Hillersdon House, Barnes.
Munn, F. M.	St. Catherine's, Cardiff.
Paice, I.	Beethoven House, Northampton.
Payne, M. A. E.	Wellesley College, Colchester.
Potter, M. B.	Carisbrook House, Twickenham Pk.
Richards, H. E.	84 Worcester Street, Stourbridge.
Saxon, T.	Kingsholme S., Weston-s.-Mare.
Shepherd, L.	Ellesmere Road School, Eccles.
Slater, E.	Ladies' Collegiate S., Ambleside.
Smithies, M. A.	Girls' Grammar School, Halifax.
Squire, E.	Warehousemen & Clerks' S., Purley.
Squires, M.	Belmont House School, Richmond.
Thompson, C. E.	Proprietary School, Dudley.
Vessell, E. F.	Margate Ladies' College.
Wawn, M.	Lancaster Mansion, Margate.
Wivell, A. M.	17 Tavistock Place, Plymouth.
Wright, M. C.	Mecklenburg House, Putney.
Askew, B.	Ellerslie House School, Hull.
Bailey, R. S.	Melford House School, Leyton.
Beach, E. C.	High School, Kidderminster.
Blake, E. A.	2 Duke Street, Bath.
Brenchley, E.	Stanmore College, Balham.
Chune, A. E.	Longford Girls' School, Bristol.
Corbett, A. E.	11 Lee Crescent, Edgbaston.
Cratchley, M.	Girls' High School, Bournemouth.
Cummins, K.	Ladies' Collegeiate S., Ambleside.
Davies, J. A.	Bryntysilio, Carnarvon.
Downing, F. E.	Clare House School, Northampton.
Edgell, M. C.	Girls' High School, Bury St. Edmds.
Hamilton, L.	The High School, Altrincham.
Harper, G.	Mecklenburg House, Putney.
Harries, S.	Belle Vue, Swansea.
Hart, R.	Private tuition.
Helm, A. K. W.	Walthamstow Hall, Sevenoaks.
Hill, N. M.	Scotland Place School, St. Heliers.
Hobson, T.	Hanover House, Berkhamsted.
Jelley, B. M.	Girls' Grammar School, Halifax.
Morgan, W. E.	North Bristol School for Girls.
Newman, K. C.	Wellesley College, Colchester.
Parrott, C.	18 Gregory Boulevard, Nottingham.
Pawson, A.	Girls' Grammar School, Keighley.
Peirce, E.	Belmont House School, Richmond.
Pritchard, A.	Alton House, Harrogate.
Rawlinson, C. A.	Ch. of England Public S., Gravesend.
Rhodes, E. H.	The High School, Gravesend.
Roseveare, C.	Westlands, Saltash.
Rosson, A. S.	Old Abbey School, Derby.
Sayer, E. A.	Rougemont School, Exeter.
Simmons, B.	Jewish High School for Girls, W.C.
Smith, A. M. H.	Sydenham College for Ladies.
Spear, M. W.	Milton House School, Plympton.
Spriggs, E. L.	The Ladies' College, Derby.
Stowell, W. J.	Princess Helena College, Ealing.
Thatcher, M. E.	Birkbeck School, Kingsland.
Warren, F.	Claremont House, N. Kensington.
Wetton, I.	Holloway College, N.
Wheeler, M.	Ashley House School, Worksop.
Ambler, E.	Girls' Grammar School, Keighley.
Bagshawe, M.	Broomgrove School, Sheffield.
Barnard, A. R.	S. Michael's Aven. S., Northampton.
Bolam, E.	4 Jesmond Rd., Newcastle-on-Tyne.
Catling, S. G.	St. John's Middle S., Kennington.
Cave, F.	Brean Down House S., Burnham.
Furneaux, L.	21 Home Park Villas, Stoke.
Gibson, K. R.	Tentercroft School, Lincoln.
Harris, A. E.	Private tuition.
Hoole, S. L.	Handsworth Ladies' College.
Johnson, E.	Licensed Victuallers' School, S.E.
Jones, J. I.	St. David's School, Carnarvon.
Kilner, C. M.	St. Lawrence Coll., N. Kensington.
Knight, M. W.	The High School, The Brook.
Lloyd, E. H.	Girls' School, Oswestry.
Marsh, E. M.	The High School, Gravesend.
Mason, E. M.	Braemar College, Stroud Green.
Meech, M. K.	Camden School for Girls.
Mitchell, K. E.	Queen's College, Acton.
Nevill, A.	Beech Tree House, Aldridge.
Pethybridge, E. M.	Girls' High School, Landport.
Pilkington, R.	Eagley Bank, Southport.
Rosoman, E. M.	Ladies' College, Woolstone.
Sharps, N. M.	Reading High School.
Stacy-Watson, E. J.	Sutherland House, Gt. Yarmouth.
Stone, E.	Warwick House, Brixton Hill.
Thompson, A.	Stoneleigh Coll., Stoke Newington.
Tuttle, M.	34 Emma Place, Stonehouse.
Walby, F.	Cambridge House, Liverpool.
Webber, G. A.	Manor View Ladies' S., Boscombe.
Whitchurch, F. B.	Arundel House, Tisbury.
White, A. A. V.	Private tuition.
Young, B.	Bycullа, Southsea.
Young, H.	Leigh Bank, Leamington.
Ascough, A.	Public S. for Girls, Scarborough.
Barker, A.	Huntcliffe House, Harrowgate.
Burstall, J.	Hillersdon House, Barnes.
Cash, J.	Worcester Road School, Redditch.
Clark, E. C.	Oriel House, Harpenden.
Cocksedge, F. E.	Queen Anne's College, Southend.
Dawbarn, E.	26 Trinity Rd., Bootle-cum-Linacre.
De Ath, K. E. M.	Chestnut House, Lincoln.
Fippard, K. E.	Girls' High School, Bournemouth.
Gelling, E.	Cleveland, Douglas, Isle of Man.
Gilbert, J. M.	N. Hackney High S., Stamford Hill.
Hinley, J. H.	Middle Grade School, Birmingham.
Horwood, M.	Elgin College, Bayswater.
Humphries, C. J.	Welbeck House, Lewisham Park.
Jackson, L. F. I.	"Vernon," Pembridge Villas, W.
King, E. C.	Tentercroft School, Lincoln.
Lamplough, E. A.	Beech Lawn, Leamington.
Leggett, E.	High School, King's Lynn.
Little, M.	Devonshire House, Carlisle.
Mason, F. J.	Private tuition.
Masters, E	Talford Lodge, Camberwell.
Nichols, H. C.	Eagley Bank, Southport.
Raddall, A.	Milton House School, Plympton.
Read, E.	Warwick House, Brixton Hill.
Ruthven, A.	1 Clyde Terrace, Hull.
Simmonds, A. M. D.	Abbotsford Ladies' School, Clifton.
Turle, C.	Welbeck House, Lewisham Park.
Yeates, E.	Field House School, Worcester.
Atken, E. H. M.	Westbourne, Sheffield.
Bolshaw, E.	Hartfell College, Birkdale Park.
Booth, A.	Girls' Grammar School, Bingley.
Bryant, M. S.	2 Duke Street, Bath.
Coles, I. M.	Clarendon House, Kineton.
Colles, S. H.	Springfield House, Stockport.
Cooper, M.	Warwick House School, Roade.
Cornish, L.	Ladies' College, Fairfield, Liverpool.
Davis, E.	Salem House College, Sunderland.
Dolbel, A. E. L.	17 Old Street, Jersey.
Goff, B. L.	Malvern House, Reading.
Goulborn, M.	Greenhill Park College, Harlesden.
Hack, E. M.	St. Catherine's, Cardiff.
Kayson, A. M.	33 Camperdown, Gt. Yarmouth.
Kidner, A. M.	The Elms, Stony Stratford.
Loud, L. M.	The Grove Shelton, Stoke-on-Trent.
Pickard, A.	York High School, Sparkbrook.
Rowton, E. A.	Somerville School, Highgate.
Sampson, K.	The Chestnuts, Willesden.
Scott, M.	Devonshire House, Carlisle.
Shrimpton, M. E.	Queenswood, Clapham Park.
Skinner, N.	Ladies' S., Thornpark, Teignmouth.
Sunderland, A. M.	Girls' Grammar School, Halifax.
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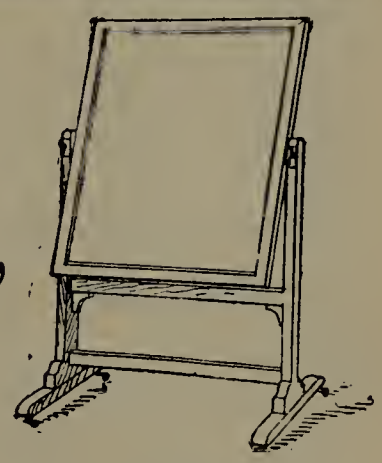

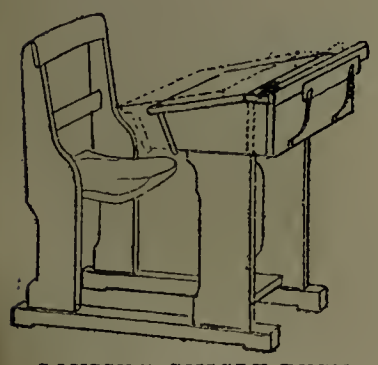

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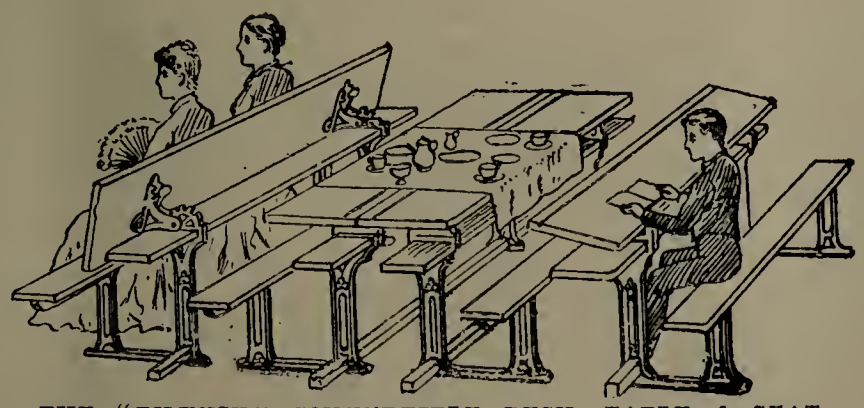

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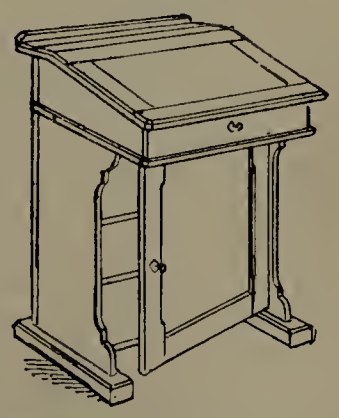

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The Educational Times.

COLLEGE OF PRECEPTORS.

EVENING MEETING, FEBRUARY 19th, 1890.

THE Chair having been taken by W. BROWN, Esq., B.A., the Rev. Canon DANIEL, M.A., delivered the following Lecture:—

EDUCATIONAL METAPHORS.

George Eliot tells us in "The Mill on the Floss" that Tom Tulliver's brain, being peculiarly impervious to etymology and mathematical demonstrations, his tutor, Mr. Stelling, came to the conclusion that it was peculiarly in need of being ploughed and harrowed by these patent implements. "It was his favourite metaphor," she says, "that the classics and geometry constituted that culture of the mind which prepared it for the reception of any subsequent crop. I say nothing," she continues, "against Mr. Stelling's theory; if we are to have one regimen for all minds, his seems as good to me as any other. I only know it turned out uncomfortably for Tom Tulliver, as if he had been plied with cheese in order to remedy a gastric weakness which prevented him from digesting it. It is astonishing what a different result one gets by changing the metaphor. Once call the brain an intellectual stomach, and one's ingenious conception of the classics and geometry as ploughs and harrows seems to settle nothing. But then it is open to some one else to follow great authorities, and call the mind a sheet of white paper or a mirror, in which case one's knowledge of the digestive process becomes irrelevant. It was doubtless an ingenious idea to call the camel the ship of the desert, but it would hardly lead one far in training that useful beast. O Aristotle! if you had the advantage of being 'the freshest modern' instead of the greatest ancient, would you not have mingled your praise of metaphorical speech, as a sign of high intelligence, with a lamentation that intelligence so rarely shows itself in speech without metaphor—that we can so seldom declare what a thing is, except by saying it is something else?"

To this question I would venture to reply that Aristotle was much too sensible a man to lament the inevitable. As we do not know what mind is in itself, we cannot define it in terms of mind, nor can we describe its processes, or any changes wrought in it, except in terms drawn from the material world. In other words, we are compelled from the nature of the case to use language more or less metaphorical. Nor is this necessity so deplorable as George Eliot seemed to think. A metaphor may not enable us to state the whole of the truth, but it may bring home to our minds in a very forcible way some important aspect of the truth. To take her own case, the designation of the camel as the ship of the desert, though it may not throw much light on the training of the camel, vividly sets before us the unique services which the camel renders to mankind. We may even reason from analogies provided we restrict our inferences to real points of agreement.

I have been led into my introductory quotation, and the remarks based upon it, by reflecting on the wide variety of educational metaphors, the arguments valid and invalid which are often based upon them, and the curious reflex influence they have had on educational practice.

The whole vocabulary of education is made up of metaphors, for the simple reason that education has mainly to do with mind, and mind, as we have seen, can be spoken of in no other way. Some of these metaphors are so faded that we often overlook their original significance. To *teach* meant, primarily, to point out; to *learn*, to find out; to *educate*, to draw out; to *instruct*, to build into; to *attend*, to stretch to; and so forth. Many educational metaphors still retain their rhetorical character, and the number is ever growing. There is scarcely a department of nature, an art, craft, manufacture, mode of life, or amusement that has not contributed to the teacher's vocabulary, and each metaphor, it will be remembered, carries with it a cluster, more or less large, of correlative metaphors.

Thus the mind is a garden to be weeded, sown, and planted; a tree to be trained, pruned, and rendered fruitful; a house to be duly swept and garnished; an animal organism, more or less vertebrate, with innumerable wants that must be ministered to. It is plastic clay waiting to be fashioned into any shape at the will of the potter; it is stone that has to be hewn into shape, carved and polished. Now it is ore, more or less precious, to be purged of the dross that obscures its brightness; now it is a colt to be broken in and plied with whip and spur; now it is a ship to be furnished with ballast, sails, rudder, chart and compass, and a freight of learning; now it is a sword to be highly tempered and provided with the finest edge, and now a rougher instrument intended for rougher work.

Sometimes the mind is a dark place needing illumination; sometimes it is itself a source of light; sometimes it is a living spring, and sometimes a stagnant pool. It is a pitcher to be filled, with an unfortunate propensity for running away from the spout once the pump-handle begins to move; a laboratory where all sorts of transformations are effected; a spark to be fanned, and occasionally a fire to be put out. Like water it cannot, we are told, rise above its own level; like gas, it is marvellously elastic; like matter generally, it is subject to the laws of inertia and gravitation. Now you cannot get it to move, and now it will not stop. It is characterized by the most opposite qualities, sometimes needing to be hardened, and sometimes to be softened; now to be screwed up, and now to be let down a peg; now to be stimulated, and now curbed. "The soul of a child," says Bishop Earle, "is yet a white paper, unscribbled with observations of the world, wherewith, at length, it becomes a blurred note-book." To others it is a palimpsest, with traces of successive records that mount up in their antiquity to our first parents. From a chemical point of view it has curious affinities, and finds its way into all sorts of mechanical mixtures; from an electrical it is subject to extraordinary attractions, repulsions, shocks, currents, and discharges; from a mechanical it is at once an original force and a resultant of forces; it is sometimes a lever and sometimes a fulcrum; too often it descends an inclined plane, and follows the momentum of natural inclination to mischief; it is alternately parsimonious in economizing force, and prodigal in its expenditure; it invariably follows the path of least resistance, and furnishes endless illustrations of the law of conservation of energy. Sometimes it is raw material for the manufacturer, and sometimes it is a mill itself, which, in the absence of other things to grind, has been known to grind itself, and, for want of other things to spin, has spun, as examiners know, the most wonderful fabrics out of its inner consciousness. In an age of steam like ours, it was inevitable that the mind should be spoken of as a steam-engine; and in an age of criticism like ours, it is not surprising that we should hear complaints sometimes of the time some of these engines take to get up their steam, and of the high pressure at which they are occasionally driven. It is alleged that in various competitive races the reckless drivers of these engines have been known to sit on the safety valves.

As a consequence of this Protean character of mind its wants are of the most varied character, and the teacher has to discharge all sorts of functions. Among its needs are armour for protection

from all sorts of foes, weapons of offence and defence, tools of all sorts, keys for opening doors, threads for stringing ideas on, pegs for hanging facts on, straps for tying up logical bundles with, a copious assortment of labels, pigeon-holes, scales for weighing the imponderable, crucibles for assaying ores, tests for analysing, and a thousand other things which require that a school should be a sort of general store, and the teacher a sort of didactic Whiteley, or universal provider. He must be a farmer, a gardener, a nurse, a cook, an architect, a builder, a potter, a smith, a doctor, a furnisher, a cutler, an engraver, a groom, a polisher, a painter, a musician, a sculptor, a tamer of wild beasts—in short, the rest of society rolled into one—"everything by turns and nothing long." If there is one man who has more right than another to say that "one man, in his time, plays many parts," it is surely the schoolmaster. This may account, perhaps, for his occasional failures. In addition to the white arts I have mentioned, he must possess the black art of the magician, and be capable of making the dull acute, the bird-witted attentive, the muddle-headed clear, the dunce a genius; he must be able to tame the indomitable, correct the incorrigible, and generally alter the unalterable; he must exert occult influences by which grapes shall be produced from thorns, swans made out of geese, and silk purses out of sows' ears. Occasionally he pretends to be able to do all this, and thereby adds to his other metaphorical trades that of a quack.

How the poor child survives all this metaphorical manipulation is something too wonderful for me to explain. One would expect that after being ploughed and harrowed, and kneaded and baked, and melted and hardened, and polished, and having undergone endless other processes of a similar transforming character, all trace of the original child would be entirely lost, and that the ultimate product would be something entirely new; but, as we all know, you may expel Nature with a fork, and yet she will contrive to return with her old face to her wonted haunts.

Knowledge itself, of course, changes its metaphorical character with the mind. Sometimes it is a vegetable germ, sometimes a full-grown plant, sometimes a precious metal; sometimes it is dead, and sometimes living; sometimes a solid, and sometimes a liquid. You will remember how Sydney Smith said of Macaulay that he not only overflowed with knowledge, but positively stood in the puddle. As to its genesis, knowledge spreads out, we are told, in concentric circles, starting from the concrete, the known, the familiar, the indefinite, the empirical; and widening out into the abstract, the distant, the unknown, the definite, the scientific. Parents have an impression that it can be bought like any material commodity, and a wise Government goes so far as to pay for it, at so much a metaphorical pound, over a departmental counter. We speak of communicating it, sharing it, transferring it, producing it, as if it were actually capable of these processes. And yet philosophers tell us that nothing is taught that is not learnt, and that the mind is not a vase to be filled, but a fire to be kindled. We used to think it was to be found in books; now we know that books contain only the symbols of knowledge, and that, unless the reader's mental activity is excited in such a way as to convert the symbols into reality, books are useless. We were quite sure that we could impart it. Now it seems that unless the pupil chooses to receive it, we are attempting to fill a bottle with a cork in it. As for getting pupils to reproduce it after it has been supposed to be imparted, we all know what a delusion that is. You tell a child something about Sir Walter Raleigh, and when he produces his so-called knowledge some six weeks or six months later, you find that Sir Walter Raleigh has been metamorphosed into Sir Walter Scott. You give him a careful account of Noah's Ark, and by-and-by he tells you that the children of Israel carried it on their shoulders for forty years in the wilderness. The knowledge you had fondly imagined that you had communicated comes up in such a transformed condition that you do not recognize it. It has been re-arranged; the head has been converted into the tail; the proportions have been altered; some old parts have totally disappeared; new parts have been introduced of alien material; the brain has been invariably removed, as was the case with those mummies of which we have recently heard so much, and apparently for the same purpose, as an indispensable condition of preservation.

Ignorant of what the mind is, of what knowledge is, and of what education is, is it surprising that we should fall back on what these things are *like*, and conceal our ignorance by a multiplicity of metaphors? We have no other course open to us. We are compelled by the nature of the case to use a language of make-believe, and talk in figures.

The metaphors I have brought before you are only a small sample of the rich stores at my command. They forcibly illustrate the rhetorical tendency of the human mind, and are not without interest from this point of view, exhibiting as they do the irrepressible use of barbaric ornament which survives even in the most advanced stages of culture; but I should hardly have felt justified in bringing them under the notice of an audience that usually meets for practical purposes, had I not believed that the subject was not wholly destitute of practical value. Those flowers of speech frequently embody important truths, suggest valuable improvements, and in some cases have led to the formation of more or less complete theories of education. On the other side they are a constant source of confused thought and fallacious reasoning.

For the purpose of illustration I will submit a few educational metaphors for your consideration. We all know that there is a very widespread belief that all children are equally gifted by nature, and that it mainly depends upon the teacher whether they turn out geniuses or dunces. Even people who would dissent from this belief as a general proposition invariably believe their own children to be geniuses. Listen to what Ruskin says:—

"Not only is one man unlike another, but every man is essentially different from every other, so that no training, no forming, nor informing, will ever make two persons alike in thought or in power. Among all men, whether of the upper or lower orders, the differences are eternal and irreconcileable between one individual and another, born under absolutely the same circumstances. One man is made of agate, another of oak; one of slate, another of clay. The education of the first is polishing; of the second, seasoning; of the third, rending; of the fourth, moulding. It is no use to season the agate; it is vain to try to polish the slate; but both are fitted by the qualities they possess for services in which they may be honoured."

That is an instructive metaphor. We too frequently teach children as if they were all alike, destined for the same ends, and capable of producing the same sort of results. Education can, indeed, achieve wonders, but it cannot obliterate those eternal differences of which Ruskin speaks. It may make the best of the worst, but not the worst into the best. "I consider a human soul without education," says Addison, "like marble in the quarry, which shows none of its inherent beauties until the skill of the polisher fetches out the colours, makes the surface shine, and discovers every ornamental cloud, spot and vein, that runs through the body of it." Yes, but let us not forget that there are many kinds of marble, and that all the skill in the world will not fetch out of the marble what is not in it.

"To command Nature we must first obey her," says Lord Bacon; yet how many teachers have never taken the trouble to find out what her laws are, with the inevitable result that they have often had her against them instead of with them. Their work has been rendered gratuitously difficult and irksome, and in too many cases predestined to failure. They cannot bring themselves to believe that education needs all this preparation. A little child, a stupid boy, an ignorant young man, seem such simple objects to have to deal with. You do not require a knowledge of hydrostatics to fill a jug with water; why should you know all about psychology and physiology to fill an empty mind with knowledge? The answer is, that the mind is not a jug, and education involves much more than the so-called communication of knowledge. Those simple objects are subject to wonderful laws of body and mind, the knowledge of which will help you, and ignorance of which will hinder you in every department of education. Half our efforts, if not a much larger proportion, are thrown away because we try to dictate to Nature instead of obeying her; our pupils are blamed for our own want of docility; and our art makes little or no progress because it refuses the guidance of science Teachers sometimes imagine they are commanding Nature when they are only commanding their pupils. The two things are not quite identical. You may order a child to defy a natural law, and he may seem to succeed, but he has really only succeeded in concealing his failure. Nature is not to be controlled except in her own way, and according to laws eternally impressed upon her by a Divine Creator. Coleridge speaks of "great constitutive laws in the light of which dwell dominion and the power of prophecy." Such in education are the laws of body and mind. They are laws that illumine practice by showing not merely what we *may* do, but what we *must* do. They enable us to foresee, and foreseeing to provide, and providing to control. I venture to say that some of our methods of instruction are as irrational as attempting to prevent a cork from floating, or lead from sinking, and that every branch of education would gain enormously if we brought to bear upon

it, more frequently than we do, the light of some of those great constitutive laws of which Coleridge speaks.

Let me next take a passage from Burke for comment. "I am convinced," he says, "that the method of teaching which approaches most nearly to the method of investigation is incomparably the best; since, not content with serving up a few barren and lifeless truths, it leads to the stock on which they grew; it tends to set the learner himself on the track of invention, and to direct him into those paths in which the author has made his discoveries." In other words, we have to teach, not merely truth, but how to find it. We have to get our pupils to re-discover what has been discovered already. We have to practise them in the methods by which science has advanced, in order that they may extend its frontier still further. It might have been expected that in the study of physical science, at least, the methods of induction would be constantly illustrated; yet I do not find that this is the case. To meet the demands of parents for speedy results, and of examinations for measurable results, and perhaps, to some extent, to save themselves trouble, teachers are too often content with communicating the fruits of investigation, without teaching how investigation is conducted. There must, of course, be some limit to investigation. We cannot teach children how we arrive at every conclusion that we may find it necessary for them to believe and shape their practice by, but even the most elementary grades of education will afford opportunities for exemplifying the *methods* of science. The poorest children may be required to observe, to collect facts, to classify them, to name the classes so formed, to define those names, to judge, to reason, to apply what logicians call the methods of argument, of difference, of concomitance and residues. The example may be simple, but the logic will be precisely the same as was used by Newton and Darwin, and formulated by Stuart Mill. It is not enough to teach our pupils to remember, we must teach them to think; it is not enough that they know, we must teach them to discover for themselves. Nor is this so unpractical as it may sound. We remember best and understand best, not what we have learnt at second-hand, but what we have discovered for ourselves, for the simple reason that personal discovery brings us into more direct contact with facts, awakens in us deeper emotions, and becomes wrought more intimately into our very lives. There is a vast difference to me between the truth that was told me and the truth I found out.

Bain tells the teacher to take advantage of "the flash of surprise." He refers to that sudden emotion which accompanies the discovery of something that rises above or falls below our expectations. It lasts, as a rule, but for a short time; it is only a flash, not a persistent emotion; for familiarity soon blunts the edge of astonishment. Hence the importance of utilizing it while it lasts for the purpose of fixing some associated truth in the memory. Hence, also, the desirability of intensifying the surprise by heightening contrasts, where they are under our control, through judicious selection and closeness of juxtaposition in time and space. I have sometimes seen a contrast, that ought to have produced a startling and permanent effect on the mind, so badly managed as to go off with a fizzle like a damp squib. The flash of surprise has not only the suddenness of a flash, but the illuminating power; it is accompanied, except when it is so overpowering as to completely absorb the mind, by a temporary exaltation of all the faculties. Hence its value as an aid to the memory.

We are often told to "organize" our knowledge, and to value knowledge by the extent to which it admits of organization. What do we mean by this? Some knowledge can be incorporated with the knowledge we have already, to which it is corroborative or complementary; other knowledge does not admit of this incorporation; it must be remembered, if it is remembered, as an isolated fragment, standing in no definite relation to the main body of our knowledge. A great deal of the knowledge which children acquire under the name of history and geography is of this character; but even science, which properly means ordered knowledge, may be taught as if it were unorganizable. The way to organize knowledge is to connect new knowledge with what is known already, to bring particular facts under general laws, to apply general laws in new cases, to use the constructive imagination in bringing isolated facts into new relations. Organized knowledge is living knowledge, growing knowledge, fruitful knowledge; unorganized knowledge is the most difficult to acquire and retain, and the most worthless when retained; it is dead knowledge, useless lumber, like the rubbish that people sometimes buy at auctions on the chance that it may some day come in useful. You will, perhaps, remember a play in which a dear old lady, who was a regular attendant on auctions, buys a door-plate, bearing the inscription "Smith, Dentist," on the chance that her daughter might marry a person of the name of Smith who might be a dentist and in want of such a plate. Life is too short to provide for these remote compound contingencies. There is not a subject we teach in which there is not a great deal of knowledge taught that does not admit of organization at all, nor one in which a great deal is not organized that might be organized.

"Ease the grasp of memory by generalization." It is more difficult to hold a dozen separate things in your hand than the same number tied up in a bundle. So it is easier to retain a number of classified facts than the same number isolated. That, of course, is not the whole of the matter. The string that ties the bundle is an additional fact that is often of far greater importance than the separate facts which it holds together. There will be quite enough for memory to do when we have done our utmost to lighten its labour. Let us not forget, too, that the time and energy saved by a judicious employment of memory may be utilized in the employment of the higher faculties. I would also point out that to ease the grasp of memory in retaining facts is to strengthen the power of recovery in their reproduction. It is easier to find what we want in a series of labelled bundles than in the confusion of our drawer.

I will take a couple of disciplinary metaphors. Lord Bacon, in speaking of the danger of rushing from an extreme of laxity in government to the opposite of over-severity, says:—"The answer of Apollonius to Vespasian is full of excellent instruction; Vespasian asked him what was Nero's overthrow? He answered, Nero could touch and tune the harp well, but in government sometimes he used to wind the pins too high, sometimes to let them down too low." That system of government will ruin any state and any school. Laxity to-day leads pupils to expect laxity to-morrow, and if they are disappointed they have a reasonable right to complain. The standard of right and wrong should be a permanent and unalterable standard. Any vacillation in its application leads to moral confusion. What was wrong yesterday cannot be right to-day and again wrong to-morrow. The pupil is driven by such inconsistency to the conclusion that he is ruled by caprice, and that his teacher is destitute of fixed principles. If these oscillations were periodical they could be calculated on, but they are of uncertain duration, and there is a constant tendency on the side of severity to gain upon that of lenience. The pupils, influenced by that sanguine disposition which is characteristic of youth, always build their hopes on their more favourable experience, and presume on it. The teacher, influenced by the failure of intermittent lenience, puts more and more confidence in severity, and so it comes about that an inconsistent policy breaks down, breeds bad blood, and ends in despotism, which not infrequently breaks down too.

I remember a teacher who was very fond of saying, "Avoid moral twilight." He meant by this metaphorical phrase that condition between work and play which is neither one thing nor the other—a condition not uncommon for some time after the commencement of term and for some time before the end of term. Have good holidays, but when term begins let work begin in downright earnest, as if nothing had ever happened to interrupt it, and let it go on steadily until the prescribed hour for play begins. I need hardly say this is the way to profit by both and enjoy both. What is true of the term is true of the work of each day and each session. If the playground gets into the school, the school will some time or other have to get into the playground. I have often seen much time frittered away from the apparent inability of teachers and pupils to buckle down to work after a period of dissipation, and from a feverish anticipation of joys too often and too exclusively anticipated.

One of the happiest originators of educational metaphors was the late Mr. Thring, who was a poet and humourist as well as a teacher. I will give you one specimen. He is recommending teachers to have a definite scheme of work, to which they should strictly adhere day by day, never deviating to the right hand or to the left. "Many a master," he says, "runs about mentally just as if he was trying to catch geese on a common. There is the flock assembled in a reasonably compact body. He makes a dash into the middle, of course missing his victim; and off they go in all directions, he after them, first chasing one, then another, till the flock has ceased to be a flock, and he, all out of breath, is no longer within reach of any of them. Run one goose quietly into a corner, run him down, is the first rule of catching geese; and a good rule too, whether in class-room or on common. Every fault must not be chased."

I am not sure whether a dozen well-selected metaphorical maxims like "Run down your goose" would not be the best form of assistance that could be rendered to a young teacher. Unfortunately aphoristic wisdom is too condensed for ordinary digestion; it needs the dilution of example and circumstance. A valuable educational maxim often becomes a mere dead formula before it has yielded a thousandth part of its significance, and is consigned with other truisms to lie, as Coleridge would say, "bedridden in the chambers of the soul."

Of course it might be contended that what is precious in these educational metaphors is not the metaphor itself, but the truth that underlies it, and that the truth might be equally well stated without its rhetorical dress. I am not so sure of that. The material parallel arrests the attention, and sometimes throws valuable light on the immaterial counterpart. The missing term in one of the compared ratios is revealed by means of the other terms. The seed growing insensibly, the persistent drop wearing away the hardest rock, the colours of the fresco-painter disappearing, coat after coat, until at last they become permanent, the sculptor's dream lying entombed in the rude block of marble, are at once a direction and a stimulus. I trust, therefore, that no base utilitarian will suggest that teachers would do well to get rid of their metaphors and come down to bare facts. The mere statement of such a proposal is its best answer. For bare facts, like bare bones, need to be clothed, and their attractiveness largely depends on the character of their clothing. Am I wrong in contending, too, that the metaphorical vocabulary of education affords a certain pleasure to the teacher by investing his work with a poetry of its own? There is a good deal in the teacher's duties that is not very attractive, judging from such metaphors as "drumming," "hammering," "pounding," and "grinding"; but it is some relief to recognize in other parts of his work analogies to what is most beautiful in the world around them. I have heard it said that there should always be a bunch of flowers on the teacher's table. Let us leave him at least these poor flowers of human rhetoric with which he beautifies what the world sometimes speaks of as his uninviting toil.

But, while I defend the employment of metaphors, I feel bound to warn you against the danger of reasoning from them as if they were facts. It is, as I have already said, perfectly logical to reason from analogy, provided our inferences do not pass beyond the points of resemblances; but I know no more common source of error than the disregard of the line where analogy ceases. Let us take an instance. The growth of knowledge in the human mind bears a certain resemblance to the growth of a plant; it starts with a germ; it has something comparable to roots, stem, sap, and fruit; it passes through successive stages of development, needing diverse kinds of care, and so on. For this reason it is perfectly legitimate to argue from the plant to its immaterial analogue, so far as the points of resemblance extend. We may say, for instance, that as the plant needs time for reaching its full perfection, so does knowledge; that as the plant cannot dispense with any stage in its development, so neither can knowledge, and so forth; but we cannot legitimately assume that whatever is true of a plant is true of knowledge. It is urged against examinations that they involve the same mistake as would be committed by a gardener who should keep constantly taking up his plants to see if they were growing. But this argument assumes that knowledge depends for its vitality on some mode of attachment to the mind, analogous to the attachment of a plant by its roots to the soil, and that this attachment is sundered by examinations. A moment's thought will show that this analogy is utterly false. The knowledge produced and put on paper is confounded with the knowledge that is part and parcel of the mind. Knowledge cannot be taken up by the roots, by examiners or by anybody else. The knowledge is left by the examiner precisely where he found it, the only difference produced in it being that it is probably better understood, and has derived from his manipulation of it fresh vitality. You may, if you like, *call* examination a taking up of the plant by the roots, but I am equally free to call it an inspection of the plant, and I never heard that fatal consequences ensued to a plant from inspection. An examiner's business is to ascertain the extent and quality of a child's knowledge and power. He has to see whether the child's ideas are clear, distinct, and adequate; whether his knowledge is real or only verbal, and whether he can do what may be reasonably expected from him. Now, so far are these processes from being fatal to knowledge, they are the very conditions by which knowledge is remembered, mental order substituted for confusion, the meaning of terms fixed, and intellectual faculty developed. Hence, if examinations involve the taking up of the plant by the roots, I reply that this process is a condition of vitality, and the oftener the better, within certain limits, the process is repeated. But would not the plant grow without taking it up, or, getting rid of metaphor, could not knowledge go on increasing and power developing without examinations? Certainly, though not so rapidly or certainly as with their assistance. Examinations, apart from their value as a stimulus to effort, reveal where the work of teacher or pupil or both has failed, and so are a guide to both. It is scarcely credible that people could confound a metaphor with a fact, yet I have known persons who thought the whole question of examinations was closed by appealing to the fatal effects of constantly taking up a plant by the roots. Everybody knows, they say, that the plant so treated would not grow and it would not live, and nobody disputes the assertion. But, unfortunately for the argument, knowledge is, as we have seen, not a plant, but only something more or less resembling a plant. The suppressed minor term of the syllogism is not true, except in a metaphorical sense and with limitations. A recent article in *Macmillan's Magazine* says, "Frequent examinations prevent natural growth. We do not expect our gardeners to show us the roots of their growing plants." It would be as reasonable to say that you injure a rose-tree every time you look at it. The "natural growth" that frequent examinations are said to prevent will be found to consist very largely in natural stagnation, natural disease, and natural decay. I do not say that examinations are not abused (that is another matter), but I have no hesitation in saying that questions that go to the roots of a subject, and ascertain the grounds on which belief rests, are indispensable to all true education. If the pupil were not examined by others, it would be necessary for him to examine himself. He would then find how little he knew, how unequally his knowledge was distributed over what is knowable, how imperfect had been his observation, how untrustworthy his memory, how muddled were his classifications, how vague his conception of the meaning of terms, how wide was the gulf between his conclusions and the evidence on which they rested. He would often discover that what he had taken for wholesome growths were diseased, root and stem, and that the only way of remedying these evils was to begin at the roots.

Educationists have not been content with pressing their metaphors into fanciful details and drawing from them irrational conclusions; they have erected on them complete theories of education. Thus we have the gardening theory, the food and exercise theory, and the building theory, all of them starting from some important fragment of truth, but all of them imperfect from not sufficiently recognizing the complementary fragments.

The gardening theory is one of the oldest and most beautiful, and has sacred authority that might seem to place it beyond criticism; but not even the authority of Holy Scripture can convert a metaphor into a fact, or dispense us from the necessity of using common-sense in its employment. According to the gardening theory a child needs merely favourable conditions for development; he contains within himself, from the first, the potentiality of his highest perfection; and the teacher's duties are restricted to securing these conditions. He cannot alter the plant's nature; he can only find out by observation and experiment what the conditions of its development are, and try to secure them. He may force it, but it will be at the expense of its vigour and the perfection of its fruit; he may train it in ways of his own devising and clip it, as our forefathers did their hollies and yews, into fantastic shapes, but it will be at the expense of its natural beauty. His care of it, it is urged, is mainly of a negative character; he must shield it from harm, support it while it is weak, screen it from cruel winds and nipping frosts, and preserve it from blight. This is a very beautiful and helpful theory. It rests upon a truth, but the truth is not the whole truth. In some respects the child and the plant are subject to the same laws, and so far the treatment of both should be identical; but the child is subject to laws over and above those of the plant, and of these distinctive laws education must take cognizance. The gardening theory overlooks the enormous influences which must be exerted in human education by external agencies. The plant does not become assimilated to surrounding plants; it is not, unless in exceptional circumstances, dependent on man for food; it needs no disciplinary exercise; but the child reflects its surroundings, requires to be supplied with mental as with bodily food, and needs some direction of its energies to

attain its highest power. The Topsies, who grow at their own sweet will, like daisies and buttercups, are not the flowers of the human race. At the same time, the gardening theory has done good by reminding us that we have to deal, not with a bundle of passivities, but with a living, active child, that must develop, even where it is most influenced from without, in accordance with its own laws.

The building theory proceeds on the assumption that the teacher's function is mainly to instruct the child, to build up in his mind a fabric of knowledge, more or less spacious, useful, and beautiful. This also is, up to a point, a beautiful and suggestive theory. We must have a plan from the beginning. We have to lay foundations that should be regulated, in outline, depth, and solidity, by the superstructure to be raised upon them. We must see that the material we employ is suitable and well-laid; we must never lose sight of the design as a whole. All this is excellent, and it is a pity the theory is not more closely adhered to. How much labour could be saved if education were only conducted steadily on one well-considered and uniform plan, instead of on half-a-dozen bad plans scarcely considered at all! How much more rapid and satisfactory would be the progress of children if they were only well grounded, as we say; if what little they knew they knew well, so that we could build on it without having constantly to put in fresh foundations! But the building theory fails in taking too little cognizance of the child himself. The teacher has not only to instruct, to build in, but to educate, to bring out; he has not only to supply knowledge, but to cultivate the mind itself. Mr. Herbert Spencer, indeed, contends that what is most valuable as knowledge will also be most valuable as discipline in the development of power, and that it would be contrary to what he calls the beautiful economy of nature (another metaphor, mark you), if it were otherwise. I will not stop to minutely examine his corollary from this proposition that, as science is the most valuable as knowledge, it is the most suitable as instruction; I would merely remind you that, what is most valuable as knowledge to the adult, is not necessarily most valuable as knowledge to the child, and that science, therefore, is not necessarily the most suitable subject, either as knowledge or discipline, for childish instruction.

The food-and-exercise theory proceeds on the assumption that the mental faculties are as dependent as the bodily upon food and exercise. It is not enough to supply the body with suitable food; if we wish to develop any particular member we must exercise that member. So it is not enough to supply the mind with knowledge; if we wish to develop any particular faculty we must call that faculty into play. The teacher must supply mental food, but the pupil must do those things for himself, by which the assimilated food will be conveyed to the organs called into play and faculty be developed. The child must observe, imagine, generalize, reason for himself. This theory is more satisfactory, perhaps, than any other, for the simple reason that body and mind are so closely associated that it is difficult to determine where metaphor leaves off and fact begins.

Perhaps I cannot conclude better than by an educational metaphor bearing on this subject from the writings of Archbishop Whateley. "An unskilful teacher," he says, "is content to put before his pupils what they have to learn, and to ascertain that they remember it; and thus those of them whose memory is ready and retentive have their minds left in a perfectly passive state, and are like a person always carried about in a sedan-chair till he has almost lost the use of his limbs. And then it is made a wonder that a person who has been so well taught, and who was so quick in learning and remembering, should not prove an able man; which is about as reasonable as to expect that a copious cistern, if filled, should be converted into a perennial fountain."

Mr. Wilson found so much to agree with in the lecture that the function of criticism was well-nigh disarmed. He thought, however, that more examples might have been given of the misuse of metaphor in educational matters. It was not difficult to account for the origin of metaphor on the principle of evolution. In the earliest stages of language, metaphor might be regarded as both the warp and the woof of expression. In scientific reasoning care must be taken not to take metaphor for fact. There were few controversies in the domain of the exact sciences, such as mathematics, physics, &c.; but in the moral and social sciences the position was reversed. Political economy, and even the so-called science of education, might be cited as examples. It might be said, metaphorically, that metaphor might be used for the purpose of driving home truth, and clinching it. As an example of the fallacious use of metaphor, he would instance the term "training" in the case of teachers. It was usually applied to the kind of education that was obtained in the elementary training colleges; and in transferring the use of the term to the education of teachers of another class, it was entirely misleading, on account of the diversity of the conditions of the problem to be solved. He could not do better than conclude his remarks with the old aphorism of Hobbes, that "words were the counters of wise men, and the money of fools."

Mr. Smurthwaite, with regard to what the lecturer had said as to some kinds of knowledge being specially suited to children, and other kinds to adults, gave an example to show how the teaching of Euclid could be employed as the most effective discipline for the training of the mind even of very young children. The lecturer seemed to him to be an evolutionist in education in the sense of believing in the continual evolution of newer and better methods.

Mr. Heppel, while he had nothing to say in opposition to the lecturer, would nevertheless be inclined to regard some of his positions from a somewhat different point of view. He conceived that sympathy was at the root of all real teaching, and he held that it took two to learn. The great diversity of faculty in children was increased by the diversity of conditions of life; and here it was that training colleges for teachers were especially useful, to teach them how so diverse a mass of material might best be handled for the benefit of the average intellect. As to the alleged fallacy of the metaphor about examinations and the pulling up a plant by the roots to see how it was growing, he thought that the lecturer had been scarcely fair to the metaphor as a whole. The kind of examination suggested by the lecturer could not very well be objected to; but, at the same time, it was not to be denied that children who had an examination always before them were not working under natural conditions; and this, he conceived, was the notion that the metaphor was intended to convey. In teaching, there was no direct relation between the fully instructed and the uninstructed mind, and metaphor was useful and necessary in order to bridge the gap.

Mr. Orchard observed that a metaphor involved a comparison of ideas, and was not, in his opinion, a primitive quality of language. Its chief use was to explain the less known by the better known; it must obey the laws of all efficient illustration, and must be true to nature and to fact. The importance of training consisted mainly in inducing habits of systematizing knowledge, and in cultivating a power of apprehending ideas and of observing the connexion between them.

The Chairman, in proposing a vote of thanks to the lecturer, expressed his thorough appreciation, and he was sure that of all those present, of what had been set before them. The immense variety of the stores the lecturer had exposed would aptly serve to show the variety of the teacher's work. He wished that parents could have been there to hear his remarks on the futility of expecting to be able to buy knowledge by the yard, or that the Education Department itself could have heard what he had said as to payment for knowledge by the pound. He had been particularly struck by the lecturer's reference to "moral twilight," and admired the aptness of the metaphor to indicate a special weakness of character, which was often met with in the school as in the world.

Canon Daniel having replied to the remarks of the various speakers, a vote of thanks to the lecturer concluded the proceedings.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A meeting of the Council was held on Saturday, the 15th ult. Present:—Dr. Wormell, Vice-President, in the chair; Rev. R. Alliott, Miss Bailey, Mr. Brown, Mrs. Bryant, Dr. Buchheim, Miss Buss, Mr. Chettle, Dr. Dillon, Mr. Eve, Rev. Dr. Frost, Miss Hughes, Mr. Maxwell, Mr. Pinches, Mr. Robinson, Rev. Dr. Scott, Mr. Southee, Mr. Stièvenard, Mr. Stewart, Mr. Storr, and Dr. White.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the Public Distribution of Prizes and Certificates to the successful candidates at the recent Christmas Examination would take place at the College on the 28th inst., when the Chair would be taken by the Right Hon. Sir M. E. Grant Duff, G.C.S.I. He also reported that the Bill for the Organization and Registration of Teachers in Secondary Schools would be introduced in the House of Commons by Sir Richard Temple in the course of a few days.

The Diploma of Licentiate was granted to Mr. C. Cullen, and that of Associate to Mr. J. H. Knowles, who had passed the required examination.

The Treasurer submitted the report of the Finance Committee, which was adopted.

The Moderators and Examiners for the year were re-appointed.

The Rev. T. W. Jex-Blake, D.D., was re-elected President of the Council; and Dr. R. Wormell, the Rev. Canon Daniel, and Mr. J. Stewart were re-elected Vice-Presidents. Mr. H. W. Eve was re-elected Dean, and Mr. E. E. Pinches Treasurer of the College.

Mr. R. F. Charles, M.A., City of London School, was elected a member of the Council, in place of Dr. F. Cuthbertson, deceased.

The following persons were elected members of the College:—

Mr. A. A. Adams, Greymouth, New Zealand.
Miss E. Berry, 92 Fitzwilliam Street, Huddersfield.
Miss J. A. Britten, 9 Queen Street, Maidenhead.
Mr. E. D. De Clifford, B.A. Lond., Sutton Park School, Sutton, Surrey.

Mr. F. Y. Edgeworth, M.A. Oxon., 5 Mount Vernon, Hampstead.
Mr. R. T. Linford, 3 Wolsley Road, Wood Green, N.
Mr. W. S. Ridewood, B.A., B.Sc. Lond., The Grammar School, Enfield.
Miss M. E. Robinson, 6 Paris Street, Lambeth Palace Road, S.E.

The following books had been presented to the Library since the last meeting of the Council:—

By the AUTHORS.—McLaughlin's Commercial Letter-Writer (English and French); Thornton's Welsh Intermediate Education Act, How to use it.
BLACKIE.—Modern Encyclopædia, Vol. III.
BLACKWOOD. — Working Handbook of the Analysis of Sentences; Buchheim's Schiller's "Wilhelm Tell," 7th Edition, and School Edition (2nd).
CLARENDON PRESS.—Moulton's "Ancient Classical Drama"; Moberly's Cæsar's "Gallic War," VI., VII., and VIII.
LONGMANS.—Warren's Table and Formula Book.
MACMILLAN.—Bell's Milton's "Comus"; Brooksmith's Arithmetic for Beginners; Capes and Melhuish's Livy XXI.; Colbeck's Cæsar's "Gallic War," VI.; Cowan's Pliny's Letters, Books I. and II.; Fasnacht's Von Schmid's "Heinrich von Eichenfels"; Godley's Tacitus' "Histories," Books III., IV., and V.; Page's Virgil's "Georgics," Book I.; Sloman's Greek Text of St. Matthew; Stuart's Scott's "Lay of the Last Minstrel"; Wilkinson's Livy's "Legends of Ancient Rome."
NUTT.—Eve and Zimmern's Exercises to accompany the School German Grammar.
JOHNSTON.—Sixpenny Atlas.
C. G. HIGGINSON.—E. Higginson's English Grammar (Longmans).
Madras Educational Calendar and Directory for 1889.
Report of the Commissioner of Education (U.S.A.) for the year 1887-1888.

DE QUINCEY AS AN EDUCATIONIST.

By J. R. S. CLIFFORD.

I.

It is rather a disadvantage to some authors that, by a mere accident, as it often seems, they come to be associated in the public mind with one particular book they have produced, and this not their greatest effort. Sometimes, indeed, this book gives a far from correct impression of the writer's literary merits, or his personal character. De Quincey's book, the "Confessions of an English Opium-eater," is the work by which he is chiefly known to a number of people—a volume certainly remarkable, even in some respects unique, but we cannot say that any one could gather from it what De Quincey was. Though ours is a reading age, even to this good hour the bulk of his works is scarcely known to the general reader, nor do I think he is much read by authors. (Undoubtedly some men, with whom the public have little acquaintance, have power in the world, because their works are largely read by those who write for the press; this does not seem to be the case with De Quincey.) Educated persons who, for the first time take up the collected works of De Quincey, are amazed to see what a treasure-house of thought, imagination, philosophy, and history his sixteen volumes are. Rightly, has he been classed amongst the many-sided minds, and, though critics have objected that some of his magazine articles are of no substantial value, I believe there is scarcely one that an appreciative modern reader could spare. Poet, philosopher, critic, historian, biographer, moralist, social economist, these words only represent in part what Thomas De Quincey was, and to those of us who teach, he is specially of interest, as being one of the greatest masters of style. An anonymous reviewer says justly that "his works may be placed in the hands of young people with a certainty that they will find there that which will refine their taste, and ennoble their lives, give them a true estimate of the grandeur of their heritage in the treasures of English literature, and supply recreative reading far more attractive than the garbage so many are content to swallow."

I shall not attempt to give a full representation of the position he holds as an educationist, which would need that we should range through thousands of his pages, but shall merely give some idea of his views upon the important subject of education, as these show themselves in certain essays or articles of his. In the early years of this century, some of his opinions and proposals must have been regarded by his contemporaries as absurd and visionary, but time is proving how wise and practical were his utterances. Pope's ridiculous generalization, that a little knowledge is dangerous, and only an abundance of it beneficial, still held sway over many who ought to have seen deeper into the matter, and sensible men argued that, for the majority of people, the three R's were sufficient—if these could be dispensed with even, so much the better. The usual training of girls, in the middle and upper classes especially, was, during the Georgian era, a disgrace to civilization. But, alas! we are, with all modern advancement, still open to reproach in a direction where De Quincey foresaw the perils of zeal for knowledge, namely, that too much attention is given to the cultivation of the intellect, while the emotional and moral powers are neglected. There is one thing also, in which the teachers of a bygone generation had the advantage of us: they took more time, and as they taught fewer subjects, if they did not "ground"—to use their current phrase—their pupils well in these, it was inexcusable.

In the sixteenth, or supplementary volume of his collected works, which contains several choice pieces, and writing towards the end of his life, De Quincey has some wise observations upon superficial knowledge. The cry was already raised, that our age was becoming one of superficiality, and one alleged proof of this is found in the abundance of cyclopædias and text-books. With regard to these, De Quincey argues that they are a necessary consequence of an increasing thirst for knowledge, which leads to a demand for books which contain abstracts and gleanings from a large variety of sources, to economise labour for those who have not the time to make researches on their own account. It is a mistake, says he, to suppose such books are used by those who, in other times, would have gone to the springs of information themselves: they serve to help those who would formerly never have drunk at all. Again, he says, when information is generally diffused, there must be superficiality in some degree; broad extension means also weak intension. Owing to the division of labour in many trades and callings, knowledge has frequently to be narrowed to one particular branch, where the worker has no chance of success if he is not thorough. So, too, in science, the student ought to select his division, and become master of *that*. An evil of not a few modern examinations, however, is this: the range of subjects is too extensive, and yet the questions are too searching to allow of superficiality; hence the temptation to resort to methods by which knowledge can be crammed speedily. Lately there has been some discussion, in an educational quarter, as to whether it is advisable to teach children as a veritable series of dates the Bible chronology generally recognised by our ancestors, professing to extend from the Creation to the Birth of Christ. In a paper composed about 1850, De Quincey criticises this so-called chronology, and places upon an unshakable foundation his belief that all the dates recorded in ancient history, as also those conjectured or calculated, are not of any value. Taking the Jewish or Hebrew annals, he shows that these could not possibly have a correct chronology, except there was a special and stupendous succession of miracles to prevent errors, for all Bible numbers have been liable to constant mistakes in transcription, and the Oriental way of referring to dates is inexact. But, on the other hand, coming to modern history, this author's opinion is adverse to that of some of our friends, who argue that time spent in learning dates is lost. Dates he calls the pivots upon which history turns; not only do they link the history of nations by giving us the concurrence of events, but they enable us to recognise and group the actors in the important occurrences of each nation's history.

Writing upon "False Distinctions," De Quincey, by way of sample, cites a few of these, remarking that a host of them are floating about in the world, which people accept as gospel because they are too lazy to investigate. Here is one of importance as bearing upon education, viz., that imagination and reason are opposed to each other. It is not the fact. Logic, which lies at the basis of reasoning, has no commerce with fancy; but fancy or imagination, he declares, must be always concerned with the act of reasoning. The training of the imagination, it follows, is an important part of education, or should be made one; because, uncultured, it can no more bear good fruit than a slip off a vine merely thrust into the ground and left to take its chance. I suspect, however, that the majority of thinkers will not accept De Quincey's assertion that all literature affords proof that women have less imagination than men. And yet he says they are more easily impressed and excited, a fact ever to be remembered by teachers of girls.

De Quincey regarded it as a misfortune in his day that, as a rule, logic was not one of the subjects taught in schools; he thought it, for the majority of lads, quite as important as mathematics. How much trouble, said he, has arisen in our times, and in all times, from the inability men have shown to make sound deductions or conclusions, even when the facts before them were clear and simple. Doubtless, though it is not an attractive study to some young minds, it has a value, direct, and also indirect. There is no longer the difficulty complained of formerly, that few good text-books exist; with one of these, a teacher may furnish to his class, as De Quincey hints, plenty of illustrations from history, showing how parliaments, governments, and political parties have blundered for want of logic, while inculcating right methods of reasoning. In a brief note upon the subject of

physiology, this author expresses a hope that the great differences of opinion amongst those who have studied it, might be to some extent levelled, and certain obscurities removed, so that the science might be popularised. He would have been gratified to see the present position of physiology, but he might have felt it needful to repeat the warning to scientists, that he who discovers an important fact in physiology is often just the man to draw from it an erroneous conclusion.

II.

Glancing over the titles of De Quincey's essays and articles, it will naturally occur to us that his "Letters to a Young Man whose Education has been Neglected," may contain a summary of the things he considered most desirable in education, with some outlines of the manner in which he thought they should be handled or taught. Unfortunately, these letters are incomplete; the author purposed to extend them, but this was never done. It seems they were not written hypothetically, they were actually intended for the benefit of a certain young man; whether he was a gainer by the hints they contain, we do not know. At the outset, De Quincey decidedly puts his foot upon lectures; as a means in education, he regards them as chiefly valuable when given in a university to prepare students for specific examinations. Apart from that, lectures are useful, he says, in but two ways: firstly, they can be, if needful, visibly illustrated; and secondly, the matter discoursed upon comes more forcibly to the mind by the agency of the voice than when simply read. These are no small advantages; others might be added. His depreciation of lectures, however, is to be explained by the fact that to a man of his mental constitution they were useless: he was a great devourer and digester of books—specially fond of profound or out-of-the-way books. A lover of many books, he was also a hater of not a few, and in addressing his friend he emphatically cautions him against the works written for students by such men as Watts and Locke; all books of this tribe he suspected as gatherings of commonplaces and compounds of good and bad advice oddly mixed.

The child who is making his way more or less slowly through his first reading book has entered his little corner of a wide field, across which the oldest man can traverse but a short distance—the collected, extant literature of his own land. (Somewhere in his works De Quincey has a curious calculation, showing how small is the number of books the most diligent person can properly read even in the course of a long life.) Literature is one of those subjects that are indispensable in schools, as no one can be deemed properly educated who has not acquired some knowledge of the principal books produced in his own country. Compared with mathematics, however, and regarded as a study conducing to mental development, De Quincey remarks that literature is inferior, because the student cannot proceed by those regular gradations which mark his onward course in mathematics. On this account he extols Euclid and mathematics generally, pleading that these studies lead the pupil by stages from the easy to the difficult, and that the various problems stimulate or irritate the mind, rousing it out of the *inertia* into which it too commonly falls. But I suspect only a small number of those who learn geometry will agree with De Quincey in thinking it "delightful"!

Though it must have occurred to other men before De Quincey, he appears to have been the first who crystallised the distinction between the literature of knowledge and the literature of power. "All the literature of knowledge," he writes, "builds only ground nests that are swept away by floods, or confounded by the plough, but the literature of power builds nests in aërial altitudes of temples sacred from violation, or of forests inaccessible to fraud." A book of the one class is but provisional or temporary; a book of the other retains its influence from age to age. The reason why the distinction, marked as it is, fails to impress people is that a large number of books, historical, descriptive, and so forth, occupy a middle position, exhibiting both in variable quantities. Here the question arises—Does not the literature of knowledge receive too much attention from the educators of our day, while the literature of power is only referred to occasionally? Yet the former can only *teach*, the latter *moves*.

The opinions put forth by De Quincey upon the subject of learning languages are not likely to meet with general assent, and I suppose it must be allowed they are somewhat peculiar or eccentric. One thing should be remembered, the dry and even repulsive character of the grammars and text-books chiefly used in and out of schools during the earlier years of this century. So he calls the task of learning a language a hateful drudgery, though really the work of doing this has some of the benefits he sees arising from the study of mathematics. Excessive devotion to the study of languages was, however, more an evil of De Quincey's time than it is of ours, since science and art have come prominently to the front, and he is probably right in thinking that vanity and fashion have had too much influence in this direction. With many men, he declares, the study of languages becomes a kind of dry rot, killing or decaying the powers and faculties of the mind. But, on the other hand, it is true that a knowledge of the names of objects, and the forms of expression, in one or more foreign languages, tends to make a man a thorough master of his native tongue. It is one of the mischiefs attendant just now on the fashion of taking up in a school curriculum a host of subjects, that many pupils leave even high-class establishments with a very imperfect knowledge of the English language in its elements and forms, nor can they read aloud with proper accuracy and expression.

The objection which some were already making to the study of "dead" languages, specially to that of Greek and Latin, is met by De Quincey with the statement that an acquaintance with these opens up to the student a body of classical literature which can be but inadequately known through the best translations possible. Latin, too, has for a long period been the organ of Christian thought as expressed in manuscripts and books of this era, and, from its close connexion with the principal European tongues, it has been called the language of humanity. The Greek language is remarkable for its beauty and its copiousness, but it has fewer advantages to the student than has the Latin. While on the subject of modern languages, De Quincey allows that a knowledge of French is useful in many ways; but, on the whole, he inclines to recommend German in preference, if one of these only is to be learnt. He enlarges upon the intellectual activity of Germany, resulting in the production of books such as the world has had from no other people, and the link by which this language joins us to the great and diverse Teutonic races. In this matter De Quincey occupied a solitary position then, but his views with regard to German are those of the majority now. Two of the passing remarks made by him in these letters I may add as worthy of special note, first, that it is a great mistake for people to be afraid to own that they are ignorant of some things; it is better "to dare to be ignorant" than, on the strength of slight knowledge, to try and meet those who are really well aquainted with a subject. The second is, that in conveying truths to others the process is not like shifting pieces of furniture from place to place, but we have, as it were, to drop seeds into the soil of the mind, which must go through gradual stages of growth.

I may add that teachers in particular cannot but read with profit, besides the above letters, De Quincey's essays on "Conversation," on the "Theory of Greek Tragedy," on "Language," on "Orthographic Mutineers," on "Rhetoric," on "Style," and the "Cæsars," and others.

EDUCATIONAL NOTES AND SUMMARY.

In the *Educational Times* for last November we gave a short account of a concerted movement among the leading provincial colleges connected with the University of London in opposition to the reorganization of this University in the manner recommended in the Report of the University-for-London Commission. A deputation on behalf of those colleges, comprising Dr. Percival, Professors Tilden, Gray, Lawson Tait, and others, and introduced by Mr. Richard Chamberlain, M.P., had an interview with the Lord President of the Council on February 12th, and presented a statement (in support of which Dr. Percival made a forcible speech), setting forth their objections to the Commissioners' scheme. The chief of these were, that under the scheme the University would become a merely local institution; that the provincial colleges would have no voice whatever in its government; and that the examinations would be practically controlled by the London colleges, which would regulate them by their own courses of teaching without any reference to the needs of other parts of the country. His Lordship's reply left the impression that he sympathized with the feelings of the colleges, and that he was not perfectly satisfied with the results of the Commission. He remarked in particular upon the fact that not a single provincial witness was called before it; and although, in the present state of the question, and especially in face of the unanimous decision of the Commissioners that a Teaching

University of some kind was essential for London, he was unable to make a decisive reply to the deputation, he assured them that, in his final decision, his object would be to give an impulse to the provincial colleges, and advance their interests, rather than to injure them.

Occasionally it happens that a man leaving a widow settles upon her by his will certain legacies on condition that she never marries again. A similar dog-in-the-manger policy has been adopted by the Court of Common Council. Considerable discussion took place at the Court respecting the pension of £400 a year which the City of London Schools' Committee recommended should be paid to the late headmaster, the Rev. Dr. Abbott. Ultimately the proposal of the committee was adopted on the understanding that if Dr. Abbott hereafter accepted preferment, or another appointment carrying emolument, the pension now granted would be liable to be "reviewed" by the Council. Why does the Court of Common Council award Dr. Abbott a pension? Is it not because of the great services he has rendered in his capacity of headmaster? How will the quality of these services be affected by a subsequent acceptance of preferment?

The best of Oxford stories have referred to the *vivâ-voce* examinations. For the future these stories will lose the probability of fact, for we learn that the *vivâ-voce* is to be abolished in that Oxford examination known as "smalls." Some of the academic authorities profess to regard the change as "little less than a revolution," yet both examiners and examinees alike desire its removal. The reason is obvious in the case of the victims of the cross-examination, but the fact that the examiners are in favour of the abolition leads us to think that the power to conduct a *vivâ-voce* with celerity and success is apparently a lost art in Oxford.

An energetic effort is being made on behalf of the charities supported by the National Union of Teachers. The schoolmasters and schoolmistresses have an association 6,500 strong, and all over the country they work with enthusiasm for the Orphanage and Benevolent Funds. In the interest of these charities a bazaar has been held in the Memorial Hall, Farringdon Street. On the first day Lady Hart Dyke presided at the inaugural ceremony at two o'clock, Sir Charles Russell and Sir Edmund Hay Currie on the two following days. Teachers' associations could not possibly undertake a nobler work than that which the N.U.T. does in supporting its orphanage and benevolent institutions. The effort commends itself to teachers of all grades, and the work should have their co-operation.

A conference in furtherance of the scheme of commercial education, promoted by the London Chamber of Commerce, was held on the afternoon of February 5th in the Egyptian Hall of the Mansion House. The attendance was of a representative character, and included many prominent educationalists. The Lord Mayor, who presided and opened the conference, moved the first resolution:—

"That this Conference highly appreciates the action of the London Chamber of Commerce in relation to the scheme of commercial education prepared by them, and offers to the Chamber its hearty support in securing the widest possible adoption of the scheme."

This resolution was seconded by Professor N. Bodington, of Leeds, who remarked that he cordially agreed with the solution arrived at on one vexed question—that of the inclusion or exclusion of Latin. He was concerned with the teaching of the classical languages, but he believed a right decision had been come to in excluding Latin from the junior portion of the scheme, and he was not sure whether it would not have been right to have excluded it from the advanced course also. The resolution was adopted unanimously.

The Rev. J. R. Diggle, Chairman of the London School Board, moved the second resolution:—

"That the thanks of this Conference be tendered to the members of the Commercial Education Committee (appointed as the result of two conferences called by the London Chamber of Commerce, and held on the 23rd of November and 14th of December, 1887) for the valuable work they have performed in drafting the scheme of commercial education, giving the requirements of business men in a definite form; that a copy of this resolution be forwarded to the members of the committee."

In support of this resolution the Rev. Dr. Percival, of Rugby, said:—

"That any one who was at all familiar with educational matters, and had been in a position to observe what had been going on during the last few years, must feel that the action of the London Chamber had given a very great stimulus to education. It had aroused an immense amount of interest: it had set all kinds of teachers considering about their methods and conferring together and seeing whether they could improve them at all. It had not only given a stimulus to teachers, but it had also caught the attention of parents, and led a great many parents who were comparatively indifferent to the education of their children to consider afresh whether they were getting the sort of education they ought to get. And this he felt to be of the greatest value, because, if education had suffered from one fault more than another, it was, not the fault of being too utilitarian, but the fault of being too sluggish—he meant that those engaged in education and interested in it had been too much inclined to run along the traditional line in a sluggish and mechanical fashion. No doubt many present had heard how Mr. Matthew Arnold used to say that one of the greatest faults of our educational system was that it was so mechanical. Anything that would set teachers thinking and inquiring whether their methods were the right methods carrying to the right ends or not was in itself a most excellent thing. If the Chamber's movement had done nothing else but this it would have done a great service both to those who were engaged in education and to the nation at large. Of course they were only at the beginning of their work. They had published what he thought most people agreed was a very excellent scheme of commercial education. It had been the subject of criticism, and would, he hoped, be the subject of further criticism. There were various points in it on which people differed—he could not say he himself agreed with every part—but the more it was considered and criticized the more likely it would be to attain to the highest excellence. The certificates also were of great value because they presented a standard for teachers to aim at. Still, with all that had been done, they were only at the beginning of this work. It was not enough to establish a scheme for schools to work out, or to offer certificates, however valuable, or even to give a preference to those who held certificates; for it was just at that point, he held, began the great work for which the merchant himself should be responsible. If they turned to Leipzic they would find the continuation school, with its three hundred or four hundred students, apprentices going perhaps for an hour every day for the instruction, and this not an hour taken out of their evening recreation, but out of their day's work. And what he hoped they might live to see was a time when all the leading men of business in London would make it a part of the engagement of the boy and young man taken into employment that they should go on day by day and week by week with a certain amount of commercial education, taken during the day, and not after the lad or young man was worn out with a good many hours of work in the office. He hoped the merchants, bankers, and others in the City might find it worth while to come together and say to the secretary to the Chamber, 'If instruction can be provided in such and such things during the day we will undertake to send so many students.' If that were done he ventured, on behalf of the teaching profession, to promise that the instruction could be provided."

The resolution was adopted. Mr. C. W. Bourne, headmaster of King's College School, in the absence of Dr. Wace, who had been obliged to leave, moved—

"That, in the opinion of this conference, it is necessary, both with a view of inducing schoolmasters to specially prepare pupils in commercial subjects, and as an incentive to the pupils themselves—(*a*) to secure the widest possible consent of commercial firms to give a preference to candidates for employment holding commercial certificates; (*b*) to institute rewards, either in the shape of scholarships or prizes, for those pupils who may prove, after examination, to be most competent in general or specific commercial knowledge, and earnestly recommends these suggestions to the commercial community."

The resolution was seconded by Mr. D. C. Richmond, of the Charity Commissioners, and, like those preceding, was adopted unanimously.

Dr. Baker, Headmaster of Merchant Taylors' School, has written to the *Times* on the subject of the Commercial Education Scheme. Referring to the Conference, he writes:—

"You say that there was 'a strong general agreement as to the scheme to be adopted,' and that the matter was treated as though the details alone remained to be settled. This is certainly true as far as the speeches delivered are concerned. The resolutions proposed were of a general character, expressing a just appreciation of the action of the London Chamber of Commerce, and tendering well-deserved thanks to the Educational Committee for its labours. To raise a discussion of the details of the scheme would have been plainly out of the question on such an occasion. I shall be glad, however, if you will allow me, as one who has had a good deal to do with the education of boys intended for commercial life, to guard myself in your columns from any concurrence or complicity with regard to one feature in the proposed scheme, that, namely, which you rightly point out as the feature most open to debate, the entire exclusion of Latin from the junior course. I must confess that, as a schoolmaster, I share the surprise expressed by the Educational Committee of the Chamber at the preponderance of opinion on the part of the scholastic authorities consulted in favour of such exclusion, and

only regret that the Committee did not avail itself of the opportunity afforded by Sir John Lubbock's resolution of returning to its former and, as I think, wiser counsels. The retention or exclusion of Latin from the junior course may be called a matter of detail, but in point of fact it is a detail that involves an important principle. The reason given by the 'scholastic authorities' for the exclusion of Latin is that it is an 'unremunerative acquirement.' The new scheme accordingly prescribes a six years' course of instruction, on which boys are to enter at ten years of age, from which all 'unremunerative acquirements' are to be excluded. The scheme practically takes a boy by the hand and says to him, 'My boy, you have now arrived at the ripe age of ten years. You are clearly intended by nature for a man of business. Remember that the true end of education, at all events for a man of business, is to teach you how to make most money. Therefore you cannot begin too early to devote yourself exclusively to "remunerative" acquirements.' Now, to say nothing of the morality of such a line of argument, it appears to me that this is a fatal mistake, even from a business point of view. What is remunerative is not, I imagine, a *quantum suff.* of French, German, science, or of the elements of political economy, and what not, for commercial purposes, but mother wit, sharpened, cultivated, and refined by the best and most suitable instrument in each case. This scheme tars all with one brush. Again, even granting that a course of instruction which wholly omits classical studies may be in one sense more remunerative than one which includes these, we ought, I think, as business men, to look to the other side of the ledger, and to take into account the loss experienced by those to whom classical studies and all the noble literature and noble thoughts that these studies open out are a sealed book. This loss, I have almost daily reason to know, is keenly felt by many business men with whom, in my professional capacity, I am brought into contact. Though they may themselves have had but little classical training, they value that little more than any other part of their school education, and wish their boys to have in a larger measure that of which they themselves feel the loss. No doubt there comes a stage in a boy's education at which it is desirable that he should specialize, whether destined for commerce or other walks of life; but what I wish to press is that this does not come for a good many years after ten. To foredoom a boy to commercial pursuits, for which he may turn out to have no aptitude, at so early an age as that contemplated by this scheme, and to shape his education accordingly, may be not only to mar any chance of distinction in any other departments of life, but very likely to make him a bad man of business."

In reply to Dr. Baker, and in defence of the opinions expressed at the Mansion House Conference, Mr. H. W. Eve, Headmaster of University College School, writes:—

"I should be the last to depreciate a real classical education, but it is generally admitted that in such an education Greek, not Latin, is the most important element, especially from a literary point of view. It is a mere fallacy to argue that the elements of Latin are worth a sacrifice, because an advanced knowledge of Greek and Latin constitutes one of the highest forms of liberal education. The Chamber of Commerce has to do chiefly with the tens of thousands of boys who leave school after spending a considerable time on elementary classes, with no Greek at all, and a knowledge of Latin that does not approach within measurable distance even of such standards as the Cambridge Little-go or the London Matriculation. If they can save these boys from spending precious years on a language which has for them no literary value, but only a disciplinary one, they will have done a good work. The discipline can be gained in other ways. German is, at any rate in the earlier stages, an instrument of training little, if at all, inferior to Latin. It has a literature breathing the very spirit of the classics, and, above all, it is to our time what Latin was to the Middle Ages—the key to the best available knowledge on every subject. Perhaps I may add that, as far as my teaching experience goes, a book like Lessing's 'Laocoon' furnishes as good material (I speak as a schoolmaster) as Cicero or Livy, though not as good as Plato or Thucydides. With one part of Dr. Baker's letter I cordially agree: I cannot too strongly condemn premature specializing in education. If modern languages are to take the place of Latin, as I believe they should for the majority of boys, it is only on condition that they should be studied in a scholarly spirit and in the best literature. If, instead of Schiller and Lessing, reading books on the price of dry goods and the forms of bills of exchange are to find their way into schools, our last state will be worse than the first. There is one real difficulty raised by Dr. Baker. Will not, he asks, injustice be done to the boy, who, at thirteen or fourteen, finds out that he wishes to begin Latin? I think not, at least if his grounding in French and German has been sound and scholarly. In any case the injustice is less than that done in the past to countless schoolboys, who have been needlessly dragged through the elements of Latin in deference to a questionable tradition, or in the hope of producing a few brilliant scholars."

Our readers who saw the announcement in our columns of the National Handwriting Competition in connection with the *Birmingham Weekly Mercury*, will be interested in learning that the result has just been made known. Mr. Osmund Airy, M.A., Her Majesty's Inspector of Schools, was the judge, and awarded the first prize for boys' schools (a silver cup) to Sir Josiah Mason's Orphanage School, Erdington, the headmaster of which is Mr. F. T. Read. The first prize for girls' schools (a silver shield) was awarded to the Liverpool Hebrew Girls' School, the headmistress of which is Miss Rachel Hart. In the individual competitions, for which many thousands entered from all parts of the country, the first prize for boys was won by John Victor Winby, aged thirteen, Tindal Street School, Birmingham; and the first prize for girls by Annie Buck, aged thirteen, South Myton Wesleyan Girls' School, Hull. Twenty-four money prizes were given to children, and seventy-five certificates.

We are again in the thick of the Free Education controversy, but it is regarded as no longer academical. There are signs on all hands that free education will come before long, and the men of light and leading are now turning their minds towards the methods which will best, from their several points of view, effect the desired results. The Archbishop of Canterbury, in the course of a speech at the Jubilee Meeting of the Canterbury Diocesan Education Society, referred to the subject in these words:—

"There was another point on which the Church must walk warily at the present day in order that she might walk boldly in the future. There was the question of fees being remitted, or education being assisted. He thought that this was more than 'in the air.' It had begun to walk upon the earth, and the question would be before them directly. If they should find, when all lips are open and all voices begin to speak, that the political parties in England are agreed that this ought to be done, he was fully alive to the difficulties which would present themselves. He was fully alive to what he thought might be bad issues; but, nevertheless, if all politicians were agreed that education ought to be further assisted, then it would not be the Church's part to step down and say it could not be so. He did not say that there would be no mischievous result from this—he thought there would be—but he did not think that the mischief would be anything like that which would result from maintaining, or even fearing, that religious education and free education were incompatible."

Continuing his speech, His Grace reminded his audience of one important fact which is too frequently ignored in discussions about the possible evil tendencies of "free" or "assisted" education, viz., that the education of our Universities and Public Schools is an "assisted" education. The Archbishop did not think that all of them realized to what extent their own education had been "assisted."

"He supposed that many of them in that room had enjoyed scholarships and fellowships at our great educational foundations, which were due to the munificent gifts of great men in former days, or at any rate had received their education in institutions which would never have existed but for those free gifts. They might have been willing to pay as much for that education as they pleased, but unless these great men had come forward and founded with an open hand these places of learning in their day, they would not have had the opportunity. It would be against the whole course of history if they did not recognise that the upper or higher classes were receiving benefits which, in the first instance, were not intended for them, but which had come to them through no step of their own, but by the working of circumstances which had been irresistible. But perpetually the void made below must be filled up below with new liberalities. He felt, therefore, that in dealing with this subject they would not injure their reputation for wisdom by taking up the attitude that we have reached a line, either in the instruction itself, or in the freeness with which it is dispensed, beyond which we will not go."

Equally judicious is the counsel of the Rev. Dr. Percival, Headmaster of Rugby School, given at a meeting of elementary teachers, held recently at Rugby, for the purpose of forming an Association in connexion with the National Union of School Teachers. Speaking on the question of Education, Dr. Percival dwelt on the importance of giving facilities to all parents to have their children educated under such religious influences as they themselves approved. Moreover, he had no fears of local representation. He did not believe that it would be prejudicial in any way to the good management of schools, unless the denominations, by obstinately resisting it, raised the tide of popular irritation. Interest in schools would itself be an instrument of education, and, above all, would satisfy the sense of public justice. They must bear in mind that the one thing to be kept in view was how to establish the system of national education which would be most beneficial to the people, and founded on the surest basis of equality and justice.

Educationists of the Wesleyan body speak out against the adoption of free education much more uncompromisingly than

do the eminent Churchmen just quoted, and others that might have been quoted. In the course of his inaugural address to the students of the Southlands Training College for Schoolmistresses, the Principal, the Rev. Dr. Greeves, said he saw the greatest possible objection to a universal system of free schools. The probable effects of such a proposal would be (1) to destroy a large proportion of the Wesleyan schools, which were at present giving a good education, for Wesleyans would be unable or unwilling to bear the heavy loss which, under any conditions, would certainly fall upon them; (2) to lower the standing of the scholar and the tone of education in all the best voluntary schools; and (3) to reduce enormously the amount now received in voluntary schools (at present £1,000,000 per annum), because a large portion of this sum is paid for the express purpose of keeping the schools independent of local control, and such local control would inevitably follow any large contribution from the national Exchequer.

The Rev. Dr. Rigg, Principal of the Westminster Training College for Schoolmasters, was equally hostile to the adoption of free education. Speaking on the subject on the occasion of delivering his opening sessional address to the students, he said that "one conjecture had been that free education would at once crowd the schools. In refutation of that assertion he cited the experience of the United States, where, in free schools, the average attendance was far inferior to that in the schools of this country. Pecuniarily, free education might be a present benefit to the Roman Catholics, though it might not last very long; probably also to the Church of England in certain purely rural parishes, for a little season strengthening the hold of the Church of England on the villages. But in the case of the Wesleyans, who had made provision for higher education, it would, with very few exceptions, destroy their schools."

The Bishop of Oxford, Dr. Stubbs, when distributing prizes at Reading School, on the 8th ult., said that he had the greatest sympathy with that sort of school because he owed his own education to a country grammar school very similar in extent, but probably not with such an historical career as Reading School had. He said modern subjects were not included in the curriculum of public schools; but the backbone of education was the old backbone of Greek, Latin, and mathematics, which were the key to all literature, and must continue to be the key to all real culture. On the evening of the same day the Bishop delivered an address at the Town Hall, in connexion with a course of weekly lectures under the auspices of the Oxford University Extension movement. Speaking of the study of history, he said it was co-extensive with the pursuit of human knowledge. History did not rely on demonstration, like science. Probability was the guide of history, and the conclusions were moral and not mathematical. History had a dignity of its own—the dignity of accepting new light and correcting old prejudices. They must come to the study of history as willing to learn and wait. It was of educational value, and made people honest and intelligent politicians. The material advantage to be obtained from the study of history was that it enabled them first to understand what was going on in the great world around them, and to understand what it was their duty to try to do in the most intelligent way.

Professor Butler sends us the following account of St. Andrews University:—

"There is an old city by the sea—St. Andrews—where there are a number of students, not very many, about two hundred and twenty, who constitute a University which is the oldest in Scotland, and who realize academic life more completely perhaps than in any other Scottish University. The Scottish student's life at his University is much more like that of a German than of an English undergraduate. He does not live in college under the supervision of dons and proctors, but enjoys almost complete liberty; and this seems to answer, if one may judge by the moral tone among the students. He lives in lodgings, where he likes; is master of his own time, and is a very independent person. At the same time he is not an unsociable one. Though there is no actual collegiate life, the students supply the want of it by forming among themselves numerous societies for mutual culture and social intercourse. They have literary, dramatic, musical, and political societies, which meet frequently and debate with great spirit. In addition to these, there is a students' club, a Union—like those at Oxford and Cambridge—(and a very comfortable club it is) where they can meet their friends, read the papers, &c. Besides these various societies and means of entertainment the students have abundant opportunities for recreation. They have golf, football, lawn tennis, athletic sports, a good gymnasium, and an artillery corps, so that they have no excuse for not keeping in good health. They are also helped to keep well by the climate. Though cold, it is extremely healthy and bracing—at least, 'for those,' as George Macdonald once said, 'who have anything in them to brace'; and most young men have something to brace. When the sun shines there, it shines very brightly; and it is strange, though pleasant, to see during November—when London is wrapt in fog and gloom—a blue sky and a blue sea, and to hear skylarks twittering overhead. It must not be supposed that with all these allurements the students neglect their studies. They are a remarkably hard-working set. Almost all of them have to make their own way in life afterwards, and they feel that they cannot afford to waste their time at the University. Most of them study with a view to a degree in Arts, and to gain this they must qualify in Latin, Greek, Mathematics, Natural Philosophy, Logic, English Literature, and Moral Philosophy—a pretty good menu—and it takes them three or four years to pass in all these subjects. Other students, again, take degrees in Theology, in Natural Science, and (in conjunction with University College, Dundee) in Engineering.

"English readers will be surprised to learn the extremely moderate cost of such an education as this. At an English University a student cannot, as a rule, get on with less than £150 for living and tuition during the three terms of residence in the year; while at St. Andrews £30 per annum is quite sufficient for the same objects, and many students manage with less. This may seem strange; but the explanation is found—first, in the fact that during the summer and autumn all the available lodgings are given up to summer visitors, who are charged robust prices; but during the winter and spring they would be vacant but for the students, who are therefore welcomed at very low prices; secondly, this cheapness is due to the tradition of plain living amongst the students. They seem to realize what Tacitus said of the life of the inhabitants of Marseilles—'Græcâ comitate at provinciali parsimoniâ bene commixta.'

"We have compared St. Andrews in one respect with the German Universities; but it must not be supposed that the non-religious, or even anti-Christian spirit which sometimes prevails in the latter is characteristic of the St. Andrews students. They have among themselves two missionary societies, as well as a theological society, and have ample opportunities for religious instruction. The Church of England is represented by Dr. Wordsworth, the Bishop of St. Andrews; the Established Church of Scotland, by Dr. A. K. H. Boyd and by Dr. Cunningham, the Principal of the Theological College of St. Mary's. There is also a Free Church minister, Wesleyan, Baptist, and others."

CORRESPONDENCE.

MANUAL TRAINING IN SWEDEN AND AMERICA: THEIR POINTS OF DIFFERENCE.

To the Editor of the Educational Times.

Sir,—I received some time ago the following interesting letter from Professor J. M. Ordway, of the Tulane University of Louisiana; and have more recently received his permission to publish it. It may not be without its interest for some of your readers. I may add that a full account of Mr. Ordway's work in New Orleans, with views of his workshops, is to be found in Mr. Mayo's "Education in the South," issued by the Bureau of Education at Washington.

12 Forest Place Villas, Leytonstone, *Feb. 23rd.* J. S. Thornton.

"J. S. Thornton, Esq. "New Orleans, *Nov. 15th*, 1888.

"Dear Sir,—There is nothing printed which shows the difference between Slöjd and manual training, as conducted in St. Louis and Chicago. The Chicago school is patterned after that of St. Louis, both following the Russian rather than the Swedish system. Instead of making articles complete in themselves, they make mostly only parts. Thus, instead of making a dovetailed box, they make only two sides and dovetail them together. They make a mortise and tenon, without reference to any particular thing in which it is used. They do a few complete articles at the end of the course.

"We started this way at the Massachusetts Institute of Technology in Boston, in imitation of the Imperial Technical School in Moscow, which made a very handsome exhibit of work at the Centennial Exposition, in Philadelphia. But I soon became convinced that this learning the alphabet of work is not the most interesting thing for boys to do. So in 1878 we began to make complete articles, and thus to abandon the Russian system. I was glad to find, on visiting Nääs, that Dr. Salomon had developed the same idea.

"It is far more instructive to the pupil to make the complete dovetailed box, and it is much more satisfactory to him. There are many articles among the Nääs series of models that I should not have our boys here make, as our utensils are not altogether like the Swedish. But I aim to have the pupils make entire things. . . .

"I am glad to see that Slöjd is at last attracting attention in England. When I was in England, in 1882, nobody seemed to know anything about the Swedish movement. Southern and Central Europe are not so ignorant of the matter now as they were then. I have been much interested in reading Paroli Eugenio's "La Scuola Popolare e il Lavoro Manuale Educativo," which shows how well the Italian delegation appreciated the Swedish method. This northern light of Nääs will yet illuminate the world.—Your very truly,

"(Signed) JOHN M. ORDWAY."

To the Editor of the Educational Times.

SIR,—We waste force in the ordinary proof of Euclid IV., 12 and 13.

Why use the cyclic property once, and not continue its use? In Mr. Reynolds' figure, p. 22, join FH, FK.

1. Angles of pentagon are supplementary to the equal angles at F, therefore are equal.

2. (Euclid III., 27, 28) $\angle FHB = \angle FHA$; and so all angles of pentagon are bisected by FH, &c.,

$$\therefore\ HA = HB;$$

and from triangles HBF, FBK,

$$\because\ \angle FHB = \angle FKB,\quad \therefore\ HB = BK, \text{ and so for rest,}$$

$$\therefore\ HK = 2HB = 2HA = HG,$$

therefore the pentagon is equilateral. Yours, &c.,

T. W. OPENSHAW.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending February 28th, 1890.

Auriol (C.): La Défense du Var et le Passage des Alpes, 4fr.
Biré (E.): Paris pendant la Terreur, 3fr. 50.
Bramston's (J. T.) Sermons to Boys, cr. 8vo, 3s. 6d. cl.
Brande's (Dr. G.) Impressions of Russia, trans. from Danish by S. C. Eastwood, cr. 8vo, 2s. 6d. cl.
Bréal (M.): La Réforme de l'Orthographe Française, 1fr.
Carette (Madame): Souvenirs Intimes de la Cour des Tuileries. Series 2, 3fr. 50.
Carette's (Madame) The Eve of an Empire's Fall, cr. 3vo, 7s. 6d.
Corsham's (J. H.) The Principles of Oral Teaching and Mental Training, cr. 8vo, 3s. 6d. cl.
Craven (A.): Le Père Damien, 2fr. 50.
Darwin's (C.) The Expression of the Emotions in Man and Animals, Photographs and other illustrations, 12s. cl.
Delalain (P.): Inventaire des Marques d'Imprimeurs et de Libraires, Part 3, 12fr.
Derby (Lord), by T. E. Kebbel, cr. 8vo, 2s. 6d. (Statesmen Series.)
Duplay (S.) et Reclus (P.): Traité de Chirurgie, Vol. 1, 18fr.
Echoes from the Oxford Magazine, fcap. 4to, 5s. hf. pchmt.
Engineering Estimates, Costs, and Accounts, by a General Manager, 8vo, 12s. cl.
Faguet (E.): Dix-huitième Siècle, 3fr. 50.
Gospel according to St. Matthew, the Greek Text, revised by Westcott and Hort. Introduction by Sloman, 12mo, 2s. 6d.
Gray's (E. C.) Idle Musings, Essays in Social Mosaic, 6s. cl.
Harper (W. R.) and Weidner's (R. T.) Introductory New Testament Greek Method, cr. 8vo, 7s. 6d. cl.
Henry's (V.) Short Comparative Grammar of Greek and Latin Authorized Translation by R. T. Elliott, 7s. 6d. cl.
Herodotus, History of, trans. into English by G. C. Macaulay, 2 vols., cr. 8vo, 18s.
Hicks's (W. M.) Elementary Dynamics of Particles and Solids, cr. 8vo, 6s. 6d. cl.
Hochart (P.): L'Authenticité des Annales et des Histoires de Tacite, 8fr.
Kurtz's (Prof.) Church History, trans. by Rev. J. Macpherson, Vol. 3, 8vo, 7s. 6d. cl.
Mantegazza's (P.) Physiognomy and Expressions, cr. 8vo, 3s.
Margoliouth's (D. S.) An Essay on the Place of Ecclesiasticus in Semitic Literature, 4to, 2s. 6d. swd.
Mozley's (Rev. F. W.) David in the Psalms, cr. 8vo, 4s. 6d. cl.
Nix (L. M. L.): Das 5 Buch der Conica d. Apollonius v. Perga in der Arabischen Uebersetzung, 2m.
Ribot's (T.) Psychology of Attention, cr. 8vo, 3s. cl.
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THE EDUCATIONAL TIMES.

LONDON, MARCH 1, 1890.

THE new Scheme of the Senate for the reorganization of the University of London has now been so widely circulated that it may be treated, we presume, as a *quasi*-public document; and we accordingly propose to offer a few remarks upon two or three points in it which are just now of the greatest immediate interest.

The Scheme purports to be drawn up on the lines of the Report of the recent Royal Commission; and in most of its provisions it agrees pretty closely therewith; nor is it very dissimilar in the same respects from the other schemes of which summaries have, at various times, been laid before the readers of this *Journal*. In particular, we are glad to note that in this Scheme, as in all the rest, the rights and privileges hitherto enjoyed by private students are strictly preserved to them.

But, upon a careful reading of the Scheme by the Report, two or three points of difference attract attention. A minor point, to be merely mentioned and dismissed, is that the distinction, which seemed to us likely to be a useful one, between "constituent" and "associated" colleges, is abolished; only "constituent" colleges are acknowledged but these, as the Commissioners recommend, are to be selected from London and the neighbourhood only.

A point of somewhat more importance is that exemption from examination in favour of London college-students is not carried so far as the Commissioners contemplated, being confined to Matriculation only. Now, we are not at all enamoured of exemptions; and have before remarked (July last) that upon a proper adjustment of examination to the best teaching they should be unnecessary. But, admitting exemption to be expedient, we are strongly of opinion that it should not be allowed at the Matriculation stage, which young people should be required to get over at the end of their school career and before entering on a strictly collegiate course. If anywhere, it could be most advantageously conceded at the "intermediate" stage, so as to leave the professors a free hand up to the degree examination. This arrangement would, in fact, only be a reversion to the original practice of the University; for (leaving aside the medical course) the intermediate examinations were not instituted until degrees were thrown open to private students under the charter of 1858; before that time, students, after matriculating, were admitted to a degree-examination upon producing a certificate of two years' study at an affiliated college.

We note further that, while the Report expressly excludes provincial colleges from any share in the rights and privileges which it proposes to confer on the London colleges (their students being placed on precisely the same footing as

private students), the new scheme, although it does not give them any voice in the government of the University, nevertheless proposes to extend to their students the same exemption that is offered to students in London colleges. If there must be exemption, this concession seems to us no more than bare justice; for the provincial colleges, in equity, certainly have a case, if not, as they assert, a "vested interest." The charter of the University declares it to have been founded to hold forth to all classes of Her Majesty's subjects, both in the United Kingdom and elsewhere, an encouragement for pursuing a regular and liberal course of education; and of the fifty and more old affiliated colleges afterwards enumerated, not above seven are (or were) in London. The provincial colleges, therefore, (as is shown by our brief report, in another column, of the interview of their representatives with the Lord President of the Council,) claim still further recognition in any reorganization of the University; but we do not at present see how their claim can be reconciled with the formation of a "Teaching University" for London, except indeed by a dual executive, or some such awkward contrivance.

The scheme, however, does not profess to be final: it appears to have been adopted by the Senate as a "basis of conference" with University and King's Colleges, and with the Medical and Legal bodies of London; and we believe that negotiations, in the first instance with the two colleges, are actually in progress. The attitude of these colleges for the last three years does not promise a speedy agreement; but it is to be hoped that English practical common-sense and ingenuity in compromise will ultimately assert themselves; for there is no doubt that, whatever the Report may have "recommended," any settlement that would satisfy the University on the one hand, and the colleges and professional bodies on the other, would be sanctioned by the Commission and by the Privy Council.

We are not of those who think that University and King's Colleges would either seriously injure the University or materially benefit themselves by standing aloof; but for them to do so would be a misfortune for a cause we have at heart, namely, the organization of all the institutions in London that give systematic University teaching, if only up to a humble standard. Since, in July 1887, we lamented the inadequacy of the supply of teaching institutions, the requirements of a large stratum of the population have been met by the founding of the series of "polytechnics," and thus the prediction we then hazarded has been fulfilled, up to a certain level, much more rapidly than we dared to expect. We now look forward to the time when Polytechnics, Birkbeck Institutes, Working Men's Colleges, University Extension movements, and the rest, shall be confederated—each group within itself, and the whole by means of some representative body; while above them we hope to see a similar confederation both of the great Arts and Science colleges and also of the great Medical schools, which shall be closely attached to the University, and with which, in turn, the groups of institutions above referred to shall be connected in such a way as to facilitate the promotion of promising students from these to those. The scheme of the Senate does not go far towards fulfilling our programme, but it makes a beginning; for the rest we look to spontaneous action on the part of the institutions themselves.

The Chancellor of the Exchequer is expected to have a large surplus at the close of the current financial year. Good financial authorities calculate that it will amount to £4,000,000, or more. If any such sum be realised, the condition will be fulfilled upon which the Prime Minister a short time ago made the adoption of "Free," or, as he preferred to call it, "Assisted" Education to depend. And perhaps we may hazard the opinion that Mr. Goschen himself had in mind the abolition of school fees, at least in the compulsory standards, when he spoke at Cardiff in November last. Referring to the reductions of expenditure effected in various State departments by the present Government, he significantly excepted the Education Department from these economies:—

"In the Department of Education," he said, "there is an increase of £400,000 compared with what it used to be three years ago. We cannot take credit for generosity in that respect entirely, because a great portion is the automatic increase of school grants through the increase of population, and through the increased proportion of children who come to school. But, besides that, we have gone some way in the direction of aiding other educational departments. We have in many directions increased the expenditure, and if there is to be an increase of expenditure in the future, if there is one Department where I believe the country will grudge it less than other Departments—I am making a dangerous statement from the point of view of a Chancellor of the Exchequer—I believe it would be the Department of Education."

Whether or no these words are to be understood as indicating the speedy advent of free elementary education, we cannot help thinking that, if the enormous—we may even say the apparently insurmountable—difficulties in the way of devising a system of Free Education which would not involve the destruction of existing efficient schools could be got over, then the best of the argument would be on the side of those who are in favour of the application of a part of the surplus to the payment of school fees. Such a disposition of a portion of the surplus revenue would close a controversy which lent itself too readily to the mischievous declamation of those who valued more a good election cry than the educational interests of the poor. And, further, it would put an end to a system that is found in practice to be extremely harassing, not only to the very poor, but to the teachers who are charged with the uncongenial duty of collecting the weekly fees.

One may hold strongly that it is the duty of parents to educate as well as feed and clothe their children, and yet, when parents are unable or unwilling to perform this primary duty, shrink from visiting the sins of the parents on the children. The State, too, is bound to look after its own future, to secure its own stability and prosperity; and these are not best secured by allowing the children of destitute or dishonest parents to become a burden, if not a danger, to the community. Pauperism and crime cost us some thirteen millions a year; a sum equivalent to the weekly school pence would only amount to some two or three millions a year; and if the diminution of juvenile crime since 1870 can be in great part traced to the operation of the Elementary Education Acts, then money spent in the removal of one serious obstacle to the beneficent working of these Acts may prove not only good in itself, but be the means of effecting a diminished expenditure under a head which of all others would be the most desirable.

It is hardly matter for surprise that the suspicion that the Conservative Government is preparing a scheme for the bringing in of "Free" or "Assisted" Education has produced something like dismay in two opposite camps—those

who resisted Free Education as not only bad in itself, but ruinous to Voluntary Schools, and those who not only thought it good in itself, but also that it had the additional advantage of getting rid of Voluntary Schools.

The one party believes that, however carefully the present Government safeguard the interests of voluntary schools, such safeguards will not be respected when a Liberal Government is in office. The other party fears that any scheme of Free or Assisted Education framed by a Conservative Government will have the effect of perpetuating a denominational system.

It is not at all likely that these two parties will combine to defeat the Government scheme. Conservative churchmen should see that, if all the leaders of political parties accept Free Education as inevitable, they are more likely to get from their friends a scheme that will do equal justice as between Voluntary Schools and Board Schools, than from their political opponents who care little for the welfare of the voluntary system. The only effect of defeating or delaying the scheme of their own friends will be to have to accept a less favourable one from their opponents.

There is, indeed, some fitness in a Conservative Government inaugurating a system of Free Education, for it is only the complement of the legislation of the Conservative Government of 1876, which made elementary education compulsory. It would perhaps have been more logical, as well as more considerate to indigent parents, if education had been made free before it was made compulsory; but the inversion of the logical order has had this advantage—that it has brought about the conversion of many who, on various grounds, disapproved of Free Education. It is conceivable that a system of free schools might have been worked without compulsion, but the experience of the last thirteen years has shown that the enforcement of compulsion is practically impossible without free schools.

The Scotch Education Department has issued instructions to Her Majesty's Inspectors of Schools in Scotland in reference to the provisions of the Code of 1890, which possess interest on this side the Tweed as foreshadowing the methods that will be adopted by the English Education Department when the like ends have to be accomplished in English elementary schools.

The Scotch Department now distributes the Scotch share of the probate duties specially assigned to the remission of school fees, as well as the annual Educational Grant. Three years ago a very important change was made in the mode of testing the efficiency of the teaching in Scotch elementary schools. All the scholars under Standard III. have, during the last three years, been subjected to a collective or class test, instead of an individual examination as formerly. The chief inspectors have reported that this change has been attended with no diminution of efficiency in the upper standards, whilst there has been a considerable improvement in the lower classes. Encouraged by these favourable reports, the Education Department has resolved to extend the system to the higher standards. The individual examination test is not, however, abandoned, but it is left to the discretion of the inspectors to resort to it in doubtful cases. The discretion thus vested in the inspectors is to be exercised reasonably, and in accordance with the views expressed in these general terms in their instructions:—"But where my Lords are satisfied that the aim of the schools is good, and that its methods are well adapted and successfully pursued towards realising that aim; where, further, your inspection convinces you that the intelligence of the children is kept in full activity, and that the training given them places them in possession of the essential branches of an elementary education, and trains their faculties in such a way as to prepare them practically for the duties of life, my Lords will not require that you should carry the individual test further than may be necessary as a safeguard against inefficiency."

This change in the mode of determining the amount of grant a school is entitled to will have far-reaching consequences. It liberates the teaching from the cast-iron, mechanical uniformity, hitherto enforced as the condition of grant-earning. The backward pupils will not be subjected to overpressure, nor the advanced pupils kept going over and over the regulation subjects, with a single eye to the passing of the individual examination. Scotch schoolmasters will now have the opportunity of introducing those methods of teaching which Matthew Arnold, in his last report on Continental schools, so highly commended, without fear of pecuniary loss to the school. "The methods of teaching," wrote Arnold, "in foreign schools are more gradual, more natural, more rational, than in ours; and in speaking here of foreign schools, I include Swiss and French schools, as well as German. I often ask myself, why, with such large classes, the order was, in general, so thoroughly good, and why, with such long hours, the children had, in general, so little look of exhaustion or fatigue? And the answer I could not help making to myself was, that the cause lay in the children being taught less mechanically, and more naturally, than with us, and being more interested." And again, speaking of the German schools: "But the higher one rises in a German school, the more is the superiority of the instruction over ours visible. The children had been brought under teaching of a quality to touch and interest them, and were being formed by it. The fault of the teaching in our popular schools at home is . . . . that it is so little formative; it gives the children the power to read the newspapers, to write a letter, to cast accounts, and gives them a certain number of pieces of knowledge, but it does little to touch their nature for good and to mould them."

Even when we have made all possible allowance for the fact that the report was penned by a poet and an essayist, we must admit that a more damaging indictment of a system of national education could hardly be penned than this; and, still, one must acknowledge that it was not the schoolmaster who was so much responsible for it as his paymaster. With more freedom and power of initiative, the Scotch or English schoolmaster need not compare so unfavourably with the foreigner. The existing English system, and the Scotch system now undergoing modification, it will be remembered, were introduced to correct abuses that prevailed at the time of the Newcastle Commission. The Education Department is not blind to the danger that the new departure may produce unsatisfactory results, and so an earnest appeal is made to the local managers to discourage slipshod work. There is every reason to suppose that this appeal will not be in vain. Local managers are more interested in educational matters now, and more competent to discharge the duties cast upon them, than they were some twenty-five or thirty

years ago. We are more familiar, too, with foreign systems of education, and so can compare our own with them.

The "conference" of the London Chamber of Commerce, held at the Mansion House on February 7th, was simply a meeting called to receive the scheme for commercial education, and to express general approval of it. Criticism was not invited. The *Times* somewhat hastily assumes the absence of serious discussion to indicate entire agreement on the part of those present. That this assumption is not valid was shown by a letter of Dr. Baker, which we quote in another column. No doubt the schoolmasters who were present at the meeting not only approve very heartily of the efforts of the merchants to secure a higher commercial education, but also are indebted to them for formulating their wants. With much that was said at the Mansion House, teachers are in complete sympathy; and there was a general desire to maintain the harmony which the Chamber had initiated by accepting the certificate of the Oxford and Cambridge Examination Board. Hence, the schoolmasters present were not disposed to criticise conditions which a little experience would probably soon amend, however defective they might appear to be. It must not, however, be assumed that, because no one opposed or criticised the resolutions, all the proposals were entirely accepted by all who were present. There are details in the examination scheme which will certainly require modification when put to the test of experience, and it may be expected that, directly it is brought into actual operation, a process of natural selection will strengthen the good features and eliminate what is unpractical and unworkable. This desirable result will be facilitated by a free discussion of the scheme by teachers, and a free use of the examinations by pupils.

REVIEWS, NOTICES, &c.

German School Books.—(1) *Schiller's Wilhelm Tell. Edited by K. Breul, Ph.D.* (*Cambridge University Press.*) (2) *Riehl's Kulturgeschichtliche Novellen. Edited by J. F. Davis, D.Lit.* (*Hachette & Co.*) (3) *Schmid's Heinrich von Eichenfels. Edited by G. E. Fasnacht.* (*Macmillan & Co.*) (4) *Elementary German Exercises. By H. W. Eve and Alice Zimmern.* (*Nutt.*)

On glancing accidentally at the first page of the preface to the first volume in our list, we found that Dr. Breul, whilst acknowledging his indebtedness to us for some "interesting quotation" in our notice of his edition of Hauff's *Bild des Kaisers* (*Educational Times*, April, 1889), complains that we had not taken the trouble of carefully reading through his preface to the last-named publication, when we remarked that a number of his etymological notes were too advanced for "junior" students. "If we had only carefully read through his prefatory notice, we should have discovered that he left it to the master to make a selection from his notes." We readily admit that we did not read his preface at all, simply because we belong to the old-fashioned race of critics who read the books themselves, and do not derive their critical inspiration from the authors' prefaces. Besides, we do not approve in any way the process of "grammatical selection," which cannot but be both troublesome and confusing; and finally, we did not only object—as far as we recollect—to the advanced degree of the notes in themselves, but also to their frequency and inordinate length. We think that the editor must himself have been struck with the justness of our remarks, since, on the whole, he has moderated somewhat his philological zeal in editing Schiller's popular play, although he still adheres to his habit of giving etymological definitions which we deem quite superfluous, and others which are most tediously spun out and contain much irrelevant matter. With a number of his remarks we cannot agree at all. Referring to the second line of the play, viz., *Der Knabe schlief ein*, &c., he says, "It would be more correct to say, *ist eingeschlafen*." We pass over the curt manner in which Schiller is censured—here and elsewhere—by this teacher of German, and will only remark that *schlief ein* is here quite correctly used. It is simply the "historical imperfect," where in Latin we should employ the "historical perfect." *Steg*, in line 25, is interpreted as meaning "footpath," but, as it may also denote "a small wooden bridge," it evidently means here the latter, and not the former. In consequence of the thundering noises heard at night-time amidst the glaciers, it is far more probable that the small wooden bridge, placed across a precipice, trembles than the narrow path running by its side. The word *Reis*, in line 30, is translated *branch*, with the additional remark, "more usually *Reisig*"; but the two words have quite different meanings, since the latter denotes, rather, twigs and branches collectively. The expression, *der graue Thalvogt*, "the grey lord of the valley," is explained to refer to the *Föhn*; but it evidently means the clouds only, as may be seen from Scheuchzer's *Chronicle*. In censuring Schiller for saying *kalt . . . bläst es*, "a cold wind blows" (line 40), instead of *lau bläst es*, "a tepid wind blows," the editor literally follows Prof. Meyer; but the latter's criticism is wrong, since a cold wind precedes, as a rule, the bursting forth of the *Föhn*, and Schiller was quite right in saying *kalt bläst es*. On the expression *ein Mann des Todes*, "a dead man" (line 73), we find the remark, "*Mann* has here the old meaning of *follower, servant*," &c., which assertion we are at a loss to understand. The word means here simply *man*, as in the example quoted by the editor from "Schiller's Robber Moor" (*sic.*), viz., *Ich bin der Mann der bleichen Furcht nicht*. Of *Iberg* we find the statement "that he belonged to the peasant nobility"; but the *Iberg* mentioned in the play as Stauffacher's father-in-law, was no historical personage at all. In the note to line 613 the editor asserts—as far as his confused wording can be made out—"that *denken* with *auf* is only used with regard to the future, and with *an* or the genitive with regard to the present or past." Surely it does not require any deep grammatical knowledge to know that the rule is incorrect from beginning to end. The above remarks will, we think, sufficiently show that the notes require careful revision. As regards the introductory matter, the best portion of it is the chapter referring to the history of the composition of the play; but it seems to us that the editor would have done better to give that history with brevity and clearness, instead of giving numerous quotations which, with the appended references, give a learned look to the treatise, but will hardly impart to young readers a definite notion of the subject in question.

We have dwelt so long on the foregoing volume, chiefly on account of the importance it derives from the place of its publication, that there remains little space for the remaining books in our list. Riehl's "Tales" are now fairly well known in this country; having formed, for some time, the delight of grown-up readers of German, and the terror of the sorely-tried young candidates who had to use them as a text-book. The present edition of those charming *novellettes* has, at any rate, the negative merit of not being provided with too long notes, and of having a vocabulary; so that it will afford very handy reading. Some of the notes, which, as a whole, are given without any pretence to scholarship, might have been relegated with advantage to the vocabulary, whilst others require correction, such as the one referring to page 1, line 9, where we are told that Goethe "*held a post* at the High Court of Justice of Wetzlar." As a matter of fact, the poet was there engaged as a *Prakticant* only—*i.e.*, as a voluntary assistant without any pay.

We hardly expected to see Schmid's once popular children's tale, *Heinrich von Eichenfels*, issued again in this country. It used to be read about a generation ago, but we are afraid that the present race of children require something different from Schmid's goody-goody stories. One very curious mistake we discovered in the vocabulary. In speaking of a *baby* the author says, *In dieser schauerlichen Höhle kam nun das holde Kind zur Vernunft und lernte reden*, and the editor explains in the vocabulary, *zur Vernunft kommen*, "to come to years of discretion." It must indeed be a wonderful baby that "came to years of discretion" as soon as it learned to talk.

The "Elementary German Exercises" will be found useful by those who use Mr. Eve's "School German Grammar." The sentences are well chosen, but we think that the vocabulary ought to be much fuller than it is, and given in alphabetical order at the end of the book.

The Federalist: a Commentary on the Constitution of the United States. Edited by H. C. Lodge. (*Fisher Unwin.*)

It is not very long since we noticed in these columns an

excellent book by Mr. John Fiske, entitled "The Critical Period of American History." It dealt, as our readers will remember, with the years 1783—1789, and described with great clearness and force the course of affairs which rendered a re-settlement of the constitution in 1787 a matter of pressing necessity. A Federal Convention met in May of that year at Philadelphia, and sat for four months. Its purpose was to devise such further provisions as should appear to its members necessary to render the Constitution of the Federal Government adequate to the exigencies of the Union, and to report to Congress such an Act as, when agreed to by them, and confirmed by the Legislatures of every State, would effectually provide for the same. On the 20th of September, 1787, the draft of the Constitution was laid before Congress, accompanied by a letter from Washington, who had acted as President of the Convention. The forces of the opposition were promptly mustered, and the fight began; and from no quarter was a more determined hostility shown than from the delegation from New York. We cannot here enter into the details of the strife. Suffice it to say that Delaware ratified the new Constitution on December 6th, 1787, and Pennsylvania and New Jersey followed suit later in the same month. Then came Georgia and Connecticut in January, 1788; Massachusetts in February, and Maryland in April. South Carolina signed in May. The number of ratifying States necessary for the establishment of the new Constitution had been changed during the sitting of the Convention from all the thirteen States to any nine. South Carolina made the eighth State. And when, in June, New Hampshire and Virginia had signed, the Constitution was practically safe. But still New York, North Carolina, and Rhode Island held aloof; and there was a possibility, if not a probability, that the States, instead of uniting in one great body, might in the end split up into two or three distinct confederacies. However, by the end of July, 1788, New York had signed; North Carolina followed in November, 1789; and Rhode Island in May, 1790.

It was almost immediately after the presentation of the draft Constitution to Congress that Alexander Hamilton, the only delegate from New York who had sat in the Convention, conceived the idea of writing a series of short, incisive papers, to explain to the general public the dangers, foreign and domestic, of disunion, the advantages of union, and the real nature of the proposed Constitution. He communicated his plan to James Madison (one of the Virginian delegates, and the principal author of the Constitution), and John Jay, who joined him in the work, and the result was the book whose name stands at the head of this article — *The Federalist*, — perhaps the most famous of American books, and certainly one of the most sound, vigorous, and suggestive treatises on government that have ever been written. Of the eighty-five essays, most of which appeared in *The Independent Journal* and *The New York Packet*, under the common signature of "Publius," Jay wrote some five or six, Madison some twenty-five, and Hamilton most of the rest,—the remainder being written by Hamilton and Madison in conjunction. The first of the essays appeared in October, 1787; and they continued to appear, sometimes as often as three or four in a week, through the winter and spring. They were widely and eagerly read, and it is no exaggeration to say that they did more than anything else in the earlier part of the struggle towards ensuring the adoption of the Constitution. That they were hastily written is evident enough here and there. The references to European history occasionally (and not unnaturally when the period is considered) reveal a somewhat superficial knowledge of the matter referred to—as in the reference to Wolsey, for instance —and the economical views of a hundred years ago inevitably appear to modern eyes a little dim and faded. But, nevertheless, as Mr. Fiske says, "they are struck out at white heat by men full of their subject,"—and the chief of these men were, one the principal author of the Constitution itself, and the other its most brilliant advocate. But, although the essays were written under the strain of considerable excitement, it would be unjust to say that their arguments are merely, or even largely, partisan. In general, their tone is one of grave and high-minded earnestness, not seldom touched by true eloquence, and kept fresh, clear, and interesting by an unfailing consciousness of what the readers' manner of thinking and feeling actually was. In particular, Hamilton's vivid, concrete way of making a point or describing a situation is very noticeable; and he constantly in this way brings home to us, perhaps unconsciously, the greatness of the issues involved in the struggle.

Mr. Lodge's share in the volume before us is limited to providing a sound text, and to writing a short introduction on the authorship and bibliography of *The Federalist*. He seems to us to have done his work excellently. Very serviceable, too, are the Appendices he gives us containing the articles of Confederation, the Constitution of the United States, and the amendments thereto (down to 1870); and the Index is full and complete. The following summary will give our readers a clearer idea of the contents of this admirable set of essays:—first comes a general introduction, then four essays "on the dangers of foreign force and influence"; three essays on the dangers of dissensions between the States; two essays on the Union as a safeguard against domestic faction and insurrection; three essays dealing with the utility of the Union in regard to commercial relations, and a navy, revenue, and economy in government, respectively. Then, after one essay dealing with the chief objections to the proposed Constitution, we come to close quarters; eight essays deal with the defects of "the present Confederation," and then a long series follow, treating of what is wanted for good government, and how the proposed constitution will secure this. And lastly, we wind up with an essay of "Concluding Remarks,"—perhaps the best written of them all. As a rule, each essay occupies about four octavo pages. That every student of constitutional history should study *The Federalist*, may now be accepted as an axiom. But we would go further, and urge that every teacher of history should possess and should master the book; while those of the general public whose minds wander vaguely in the direction of disintegration and separation would do wisely to devote a short space to the consideration of those arguments which persuaded the American States, a hundred years ago, to turn away from such dreams, and to endeavour to grow into one nation, great, and peaceful, and free. The results of that endeavour are evident to every one.

New Zealand for the Emigrant, Invalid, and Tourist. By John Murray Moore, M.D., F.R.G.S., &c., &c. (*Sampson Low.*) —This work is from the pen of a physician of varied scientific attainments, who has had the experience of a nine years' residence at Auckland, and opportunities of gaining, by personal visits and investigations, an accurate acquaintance with the physical characteristics, the diversified climate, and the natural productions of New Zealand. The result has been the accumulation, within the limits of a volume of moderate size, of a very large amount of information of great value and interest for each and all of the three classes of persons for whom the book has been written. In particular, the careful and minute account of the climatic peculiarities of different portions of the country and of the nature and therapeutic action of the very numerous and important mineral springs which it contains, will be of great service to those who travel, not for pleasure merely, but for the renovation of health. The scientific details of the work are relieved by sketches of social life and narratives of personal experience. The following extract will show that the mental peculiarities of the genus "boy" are much the same at the Antipodes as here. Describing an ostrich farm near Auckland, the author says:—

"I am reminded of an amusing exercise a Balclutha schoolboy wrote upon the ostrich, while object lessons on cork and on water were floating in his mind:—'Dear Sir, I take up my pen to let you know what I know about an ostrich. An ostrich is the biggest bird in the world. It is opaque and boyant and lives in the desert of araba and africa, it is of the camel class because it has a long neck. An ostrich has three feathers, which the Prince of Wales says is "I serve." It has three states sold liquid and gas. They have two toes on each foot. An ostrich lays ten eggs at a time and the mail bird helps the hot sand to catch them. They are very fast runners and they would never manage to catch them if the horses did not run very fast in a zig zag style like a Z. It pays well if you can catch a good lot of birds, and the Hawklanders are trying to rear ostriches in that province because they can't grow oats there and tho Maorios eat their sheep.'"

The English Historical Review. No. 17. *January*, 1890. (*Longmans.*)—The first article in this number contains an account of the life and work of the historian Fustel de Coulanges, by H. A. L. Fisher. In it we read the following interesting description of the historical method by which Coulanges worked:—

"To read all the available texts and to report upon them strictly, such was, in the eyes of Fustel de Coulanges, the function of the historian. If every word in the text has been given its due weight, the truth will be disengaged, not hypothetically, but necessarily. After an exhaustive analysis of institutions as presented to us by all the existing documents, their affinities will emerge by a sequence as imperious as that which exists between the flash and report of a cannon. History is not an art,

but the most arduous of sciences, in which subjective elements have no place."

The article is not long, and is well worth referring to by the teacher of history as giving a concise and vivid account of De Coulanges. The next article gives the interesting story of Sir Richard Church (Part I.), by Stanley Lane-Poole. Mr. Lane-Poole has had recourse to family letters and documents, and has made good use of the permission afforded him. Mr. Herbert Harries treats of the important episode of the execution of Major André. He re-states the main facts of the tragedy, and examines the conduct of General Washington, with a view to placing it in a new and more favourable light. The Rev. George Edmundson gives Part I. of a study of Frederick Henry, Prince of Orange. Mr. C. W. C. Oman writes on "The German Peasant War of 1525." Mr. W. H. Stevenson treats of the "Hundreds of Domesday" with minute carefulness and thoroughness. There is the usual supply of notes and documents, which are of the first importance to close students of a particular period. The Reviews of Books are very interesting, not at great length, and by historians of acknowledged position.

The Second Part of Henry IV. Edited by A. D. Innes, M.A. (Rivingtons.) — The editor of this neat and useful little volume, in a short but able introduction, protests against the modern inclination to look upon Shakespeare as an intentional moralist. He merely held the mirror up to Nature, and thus the moral of his plays is Nature's own. Vice is not always vanquished; Virtue not always victorious. Even in the set of four plays of which this forms the third, his object is rather to trace the career of "Madcap Hal" to its culminating point as Henry V., "The Star of England," than to "expand a tag into a trilogy." Furthermore, the plays are interesting as marking a stage in the mental development of Shakespeare himself. He was no longer following examples, and he had not yet reached the time when he was to grapple with vaster problems. "His laughter is still free from the undertone of sadness: the note of triumph is unmarred by the memory of failure." In criticising the play itself, the editor points out that what at first sight seems to detract from the high standard of the play and lend it a certain coarseness—the introduction into it of Doll Tearsheet and Mrs. Quickly—yet shows the many-sidedness of Shakespeare's observation. He also defends Prince Hal from the charge of severity and unfairness in dismissing Falstaff and Poins. The text is that of the quarto edition of 1600, such variations as have been deemed advisable being only noted; and the Induction and Epilogue (spoken by a dancer) are given. Copious notes, grammatical and explanatory, with a glossary of difficult words and their derivations, follow the text; and an Appendix, criticising the authenticity of Shakespeare's history, concludes a very pleasant little work.

St. Thomas of Canterbury: an Account of his Life and Fame from Contemporary Biographers and other Chroniclers. Selected and Arranged by the Rev. W. H. Hutton, M.A. (David Nutt.)—This volume, in the series of English Histories by Contemporary Writers, is larger than most of those we have previously noticed, and contains 285 pp.; but this is not be wondered at, for Thomas Becket filled a very large place in the history of his time. And "great as was the position which Thomas of London, the first man born on English soil who sat in the seat of Augustine after the Norman Conquest, held, while he lived, as statesman and ecclesiastic, still greater was the fame which he won after his death." Had he not lived as he did, we should not have gained some of the finest pieces of writing which the mediæval chroniclers have left us; and had he not died as he did, there would have been no Canterbury Tales. Mr. Hutton has had a mass of Becket literature to select from, and has made the selection so as to show the character of the man and his times, the place which his memory held in the hearts of Englishmen, and the principles at stake in the great conflict as they appeared to his contemporaries. We make a quotation, telling the story of Becket's education:—

"S. Thomas goeth to School.

"Now when young Thomas hath in lowliness and true obedience gone through the teaching he could have in his parents' house, he goeth to school for the gaining of a higher instruction, and becometh a scholar as quick of learning, keen of memory, and clear of understanding in things concerning the heart, no less than those appertaining to book-lore, as age enableth, and time alloweth him. Now the holy book relateth so much of his mastery in learning that, by reason of his having in the end fully and fairly understood the seven arts which are called liberales, he betook himself to studying at school, both inland and even abroad as far as France, mainly in its chief city, Paris, which at all times hath had the most renowned school in northern lands, both as to learned scholars and bookly arts.

How S. Thomas cometh Home from School.

"At the time when Stephen hath become King of England the blessed Thomas cometh home from school. He was now two and twenty years of age, slim of growth and pale of hue, dark of hair, with a long nose and straightly featured face; blithe of countenance was he, winning and loveable in all conversation, frank of speech in his discourse, but slightly stuttering in his talk; so keen of discernment and understanding, that he could always make difficult questions plain after a wise manner.

* * * * * *

"And now that he hath come back home to his father's abode, he shapeth himself according to the wont of those who have lately come back from school, in that he studieth his books and fasteneth in his memory what aforetime he had heard from the mouth of the master. Such, too, is a right common custom among this kind of folk, at the time they make ready to wend their way homeward to their native land, that if they happen to have spare money about them they purchase school books, in order that they may preserve fully the knowledge of the good things which once they understood."

Shakespeare's Cymbeline. Edited, with Notes, by C. M. Ingleby, LL.D. Revised and adapted for the use of schools by H. Ingleby, M.A. (Trübner & Co.)—Students of a larger growth will find this edition of "Cymbeline" admirably suited to their needs. The introduction, the treatment of the text, and the not over-numerous notes are all scholarly and valuable. But we do not think that the book is likely to find its way into schools. The subject of the play would alone render it unsuitable. Moreover, the arrangement of the notes at the foot of the page must perforce rule it out of the list of class-books; while the general character of the notes themselves, good as they are, shows that Dr. Ingleby when he wrote had in his mind, not children at school, but students more or less adult. The Introduction deals exhaustively and well with the sources and date of the play; but does not attempt (as a school edition should) any critical exposition of the play as a work of art, or of the characters as men and women. The text used is substantially that of the first Folio, and every deviation from this and every various reading from the other folios are given at the foot of the page. The notes are brief, business-like, and matter-of-fact. They render many difficult matters quite intelligible; but they afford no assistance towards the appreciation of the play as a play, they betray no consciousness of its being poetical, and they have nothing to tell us about its striking but often difficult delineation of character. So that once more we have to point out that, good as this edition is in its own narrow and rigid way, it is *not* adapted for the use of schools.

Mind. A Quarterly Review of Psychology and Philosophy. (Williams & Norgate.)—The January number of *Mind* is decidedly stiff reading. The articles are as follows:—"Philosophical Development," by Professor Fraser; "The Genesis of the Cognition of Physical Reality," by G. F. Stout; "Double Consciousness in Health," by Alfred Binet; "On Some Current Conceptions of the Term 'Self,'" by Professor Dewey; "Some Proposed Reforms in Common Logic," by Christine Ladd Franklin; Discussions, Critical Notices, New Books, Foreign Periodicals, Notes. The following passage from Professor Fraser's article is a remarkably well-expressed vindication of the study of philosophy:—

"Abstract speculations about the rational constitution of the universe, about matter and spirit, and about the capacity of human understanding for comprehending what is present to it, are remote from the experiences of ordinary men, and thus seem to have no connexion with human interests and affairs. They are accordingly disregarded; for most persons do not even try to think consciously, far less to think out and solve, the problems to which the philosopher is awake. Men in this state of mind cannot see that such questions have any important influence upon human life. Nevertheless, their first (but chiefly unconscious) influence on mankind might be illustrated in the whole social, literary, political, and, above all, in the religious history of mankind. A volume might be written in verification of the summary statement of Coleridge, that 'all the epoch-making revolutions of the world—the revolutions of religion, and with these the changes in the civil, social, and domestic habits of the nations concerned—have coincided with the rise and fall of metaphysical systems: so few are the minds that really govern society, and so incomparably more numerous are the indirect or unconscious consequences of things than their foreseen and direct effects.'"

Manual of Empirical Psychology as an Inductive Science. By Dr. Gustav Adolph Lindner, Professor in the University of Prague. Authorised translation by Chas. De Garmo, Ph.D. (Heath & Co.)—This is an interesting Psychology on the lines of the Herbartian school. Its aim is described by the translator as follows:—"Starting with known and universally recognised facts, the

subject is developed step by step, with ample and apt illustration, being always free from dogmatism or befogging statements." It is described as a text-book for high schools and colleges. If the high school boys and girls of America can follow this very able, but very (in parts) abstruse treatise, they are "going ahead and no mistake." To a student who has mastered his "Sully," "Bain," and "Hamilton," no doubt much that is very interesting, novel, stimulating, would be found in Lindner. This edition has the merit of being neatly got up, not very long, and often is suggestive. A student of philosophy who has mastered the general principles of psychology would enjoy reading the book.

Men and Women. By J. Platt, F.S.S. (Simpkin, Marshall & Co.)—Were we not aptly reminded by the quotation at the head of Mr. Platt's first chapter of "What a strange thing is man," we should have considerable difficulty in understanding how a book such as the one before us came to be written. Mr. Platt's method is this:—Under such headings as "Origin of Species," "The Progress of Woman," "Woman's Destiny," &c., he introduces a number of more or less appropriate and lengthy extracts from all kinds of authors, appending to each a personal commentary, informing his readers how far the writers who are honoured by quotation have the countenance of Mr. James Platt. The discursiveness of the volume, and the want of any approach to finality, is exceedingly irritating. One of the "Concluding Remarks" will be sufficient to show the style and quality of the book. Our author says, "Life's journey will be happiest for those who are trustful, reverent, thankful, and hopeful, yet who do not expect too much; the contented mind is truly a continual feast." To have this sort of thing running through more than two hundred pages is a sheer violation of the reader's confidence and intelligence; and we can only effectively sum up the volume before us by slightly varying a famous epigram, "There is much here that is new and good; but that which is new is not good, and that which is good is not new."

OUR LIBRARY TABLE.

The School Calendar, 1890. (*Bell & Sons.*)—A handbook of examinations, scholarships, and exhibitions supplies a want which all engaged in tuition have experienced. In the "Calendar" we have a concise list of the various public examinations in which boys, and to some extent girls, are called upon to compete, and much valuable information concerning public schools, ladies' colleges, the universities, university colleges, science and technical colleges, and medical schools. This is the fourth year of issue, and many additions and improvements have been made.

Pitt Press Series—A Short History of British India. By E. S. Carlos, M.A. (Cambridge Press.)—This book gives an epitome of the circumstances which have produced the present political and social condition of India. It is, as it professes to be, a short history—*i.e.*, it consists of about one hundred pages, yet within that small space a sketch is given of the physical features of India, the peoples inhabiting it, and the religions. The history is given, beginning with Alexander the Great, going on to the Mohammedan Conquest, the Moghul Emperors. Then, coming to what we may term European direct influence, we have the section, the Portuguese in India, and the history of the East India Company. Then follows the struggle of the French and English, the Conquest of Bengal by Clive, the story of Warren Hastings, the Wellesley campaigns, Burmese War, Sikh War, Mutiny, further wars, and later administration. There is a great deal of information crowded into little space. At the same time the whole history is well connected, and the relative importance of events kept in view. There is, further, an excellent and not too long list of books of reference given, a small map, a list of Moghul Emperors (1526–1857), and the Governors of British India, 1758–1888.

Virgil, Georgic I. By T. E. Page. (Macmillan.)—We are glad to see what we hope is only an instalment of a complete edition of the Georgics. Mr. Page's work on Horace is so well known that we can best praise this little book by saying that it is at least as good as its predecessors. The Introduction is especially excellent, and we venture to think that very few readers of the poem will fail to find some new points to admire under Mr. Page's guidance. What particularly strikes us in the notes is the care with which technical terms are explained, as of agriculture and weaving, and the taste and skill exhibited in the elucidation of the rhythm, as in the note on *sublimem expulsam eruerint*. Mr. Page has heard the poem, and not merely read it.

The Commentaries of C. Julius Cæsar, Books VI., VII., and VIII. By the Rev. Charles E. Moberly, M.A. (Clarendon Press.)—The Historical Introduction to the three books, although it occupies but six pages, is extremely interesting, and will afford boys a clear insight into the events that are recorded in the text. There is a chapter on the mode of translating Cæsar which will set at rest many doubts on the part of the young reader. The maps, which are four in number, are singularly clear and uncrowded. The notes consist mainly of translations and explanations of matters which are otherwise somewhat obscure.

Cæsar: Gallic War, VI. By C. Colbeck. (Macmillan.)—This is a convenient edition, with maps, notes, and vocabulary. The Historical Introduction is very good, as might be expected from the name of the editor. In editions for school use, we think some sentences in chap. 21 should be omitted.

Livy: Legends of Ancient Rome. By H. Wilkinson. (Macmillan.)—The stories included in this reading-book are adapted for junior classes, from the text of the first few books of Livy. It seems worth considering whether, in elementary books, the notes could not with advantage be incorporated with the vocabulary. Exercises in retranslation are added.

Livy, Book XXI., adapted from Mr. Capes's Edition. By J. E. Melhuish, M.A. (Macmillan.)—This edition is, to a great extent, an abridgment of Mr. Capes's larger work, brought within the limits of the "Elementary Classics" series. Many of Mr. Capes's notes have been copied word for word, and most of his translations have been so reproduced. His geographical notes have been retained; but those on etymology, history, and antiquities have been much curtailed. The additions consist chiefly of translations of difficult passages.

The Simple Sentence in Greek. By W. J. Harding. (Rivingtons.)—We cannot recommend this book. The accidence would be much better learned in the grammar, to which reference is made. And the plan of teaching the knowledge and use of the forms of the Greek verb by exacting mechanically equivalents for such phrases (or simple sentences?) as "Use," "That we might have been loosed," "I would love," "Saying" (*sic*), is surely the worst conceivable. The unfortunate pupils would soon hail with joy one or other, according to their temperaments, of the more familiar ideas, "To be about to be struck," and "Let us strike." The idea of teaching the use of the prepositions by a series of sentences expressing local relations in the neighbourhood of the school is, perhaps, a good one, but would have to be worked out by each teacher for himself. The sentence suggested should also be given in Greek, so as to be readily learned by heart. In the few continuous pieces at the end, complex sentences, for which little or no preparation has been given, are introduced freely.

Models and Materials for Greek Iambic Verse. By J. Y. Sargent, M.A. (Clarendon Press.)—Part I. contains the Models. Part II. the Materials. The plan of the book is to fill an unoccupied place between the introductory manual on the one hand, and the bare collection of English passages on the other. At the same time it will be found suitable as a Delectus, or reading-book, for any one who would enjoy, ready gathered, a bouquet of choice flowers of Greek poetry. The method of teaching Greek iambic composition, which is suggested by the book, is by reference to parallel passages in Greek poets.

The Iphigeneia at Aulis of Euripides. By C. E. S. Headlam, B.A. (Cambridge Press.)—The fact that this is one of the Pitt Press Series is a sufficient guarantee to the student that the matter it contains is reliable. The Introduction is masterly and complete, and the text well printed in good-sized type. The notes, which are verbal and grammatical, afford invaluable assistance to the student.

Dryden's Essay of Dramatic Poesy. By Thomas Arnold, M.A. (Clarendon Press.)—Since its republication by Sir W. Scott, in his general edition of Dryden's works, this essay has not been reprinted, until undertaken by the Clarendon Press as one of its series of half-crown English classics. The composition is traced by Mr. Arnold to the enforced idleness of the poet during his rustication at Charlton, Wilts, while the plague was raging in the capital, in 1665. The superiority of the French style, then in vogue, led him to consider whether the rhymed couplet of Corneille might not with advantage be introduced into England. This, and other points relative to the drama of the ancients and the dramatists of Elizabeth's time, and kindred topics, he discusses in the form of a symposium; the whole forming "the first piece of good modern English prose on which our literature can pride itself." Mr. Arnold has done his work well, and a useful and elegant book is the result.

(1) *Scott's Lay of the Last Minstrel, Cantos I.–III. By G. H. Stuart, M.A.* (2) *Milton's Comus. By William Bell, M.A. (Macmillan.)*—The English boy requires little in the way of explanation in studying the clear language and the simple ideas of Scott's poetry; but Indian students, with their imperfect acquaintance with the English language, and their ignorance of Scotch and English habits and customs, need an annotated text. Bearing this in mind, we cannot but consider the volumes before us as successful endeavours to place our well-known classics within the reach of the vast and increasing band of Indian students.

(1) *Cowper—The Task, Book I.* (2) *Goldsmith—The Traveller, The Deserted Village.* (3) *Macaulay—Lord Clive.* (4) *Milton—L'Allegro, Il Penseroso, Lycidas. (Nelson & Sons.)*—These little books belong to the series of Royal English Classics, and are admirably adapted for educational purposes. They have neat cloth covers, are of a handy size, and are sold at a moderate price (3d. each). There is a life of the author in each, and the notes not only explain allusions, but deal with grammatical difficulties, and draw attention to beauties and to faults of style.

A Simplified Grammar of the Spanish Language. By W. F. Harvey, M.A. (Kegan Paul.)—The author trusts that a careful perusal of this little book of 50 pages will enable the student, aided by a good dictionary, to make himself acquainted with the noble but unjustly neglected literature of Spain. We think he may trust so with confidence. A better and more simple introduction to the study of the Castilian tongue does not exist.

Passages for Practice in Translation at Sight. By J. W. White, Ph.D. (Ginn & Co.)—A collection of 150 passages in Greek, selected from the

works of Demosthenes, Plato, Xenophon, Herodotus, Thucydides, Homer, Euripides, Sophocles, Aristophanes, and Æschylus, admirably printed on fine paper in large clear type. The series of which this is the first volume to appear, and yet Part IV., will be published in four parts. Parts I. and II. are designed for use in schools, III. and IV. for use in colleges; elementary directions for reading at sight will be given in Parts I. and II., and Parts III. and IV. will contain, in common, a brief but more advanced discussion of the same subject.

Sous Terre—Episode de "Sans Famille." By Hector Malot. With Explanatory Notes by Dupuis. (*Hachette.*)—Readers of his "Capi et sa Troupe" will be glad to continue the adventures of little Remi in the coal-mine. The book is carefully annotated, and contains a very complete vocabulary. With the aid of these it may be read without any further reference to dictionaries. Altogether it forms a capital class book.

Elements of French Commercial Correspondence. Part II. By G. Korts. (*Hachette.*)—A very useful book. Students who carefully go through the phrases which are given in parallel columns will have little difficulty in writing a good commercial letter. A very good commercial vocabulary is appended.

The Combination Copy Book. (*R. Sutton & Co.*)—This series is designed to enable the pupil gradually to acquire the power of writing whole words without lifting the pen. The copies are limited to commercial forms and expressions. Only two sizes of writing, round and small, are employed, and the books are so arranged that, if desired, one hand can be taken first, to the exclusion of the other. In some of the higher numbers the upstroke is indistinct, owing to defective printing.

Jackson's New Style Vertical-Writing Copy Books, Numbers 9 to 12. (*Sampson Low.*)—These consist of four finishing books to complete the series. Experience shows there is some little danger in introducing this system to pupils who are fairly advanced in the ordinary current hand, which it tends to unsettle, by replacing it by an angular and oblique style of writing that slopes too much from the perpendicular.

Bacon's Excelsior Combination Atlas, for Pupil Teachers, Third Year.—A useful little atlas, in which the superfluous names are suppressed, while the printing is very clear and distinct. It consists chiefly of a selection from the excellent memory maps issued by the same publisher.

A Selection from Pliny's Letters. With Notes, Maps, and Plan. By H. B. Heathley, B.A. (*Rivingtons.*)—In the Preface the author states: "There are several reasons why the letters of Pliny, 'the most elegant writer of his day,' should be more universally read in schools—(1) they are full of human nature; (2) the Latin is generally easy, and runs naturally into English; (3) they supply information about Roman manners and morals which we cannot easily obtain at first-hand elsewhere; (4) they give us the fair and fullest portrait we possess of a Roman gentleman." We recognize among the letters, Pliny's account of the Christians in his province, of the eruption of Vesuvius, in which his uncle lost his life, and his minute description of his Laurentine and Tuscan villas. The Introduction contains a Life of Pliny. The notes are useful and concise.

Outlines of the World's History. By Edgar Sanderson, M.A. (*Blackie & Son.*)—In the present edition, the several sections of the work are published separately. The Parts are four in number, namely—"Ancient Oriental History," "Greece and Rome," "Mediæval History," and "Modern History." No changes have been made in the text, and very few in the typographic arrangement.

Elementary Mechanics, Part II. (*Blackie.*)—Part II. is largely taken up with the discussion of motion, the laws of motion, gravity, specific gravity, friction, work, energy, potential and kinetic, and closes with a chapter on heat. The text-book is extremely cheap at 6d., and well worth the price. A word of praise is due to excellence of the prints.

The 100 Per Cent. First Standard Tutor. By George Beach, M.A., LL.D. (*Joseph Hughes.*)—A little book of thirty pages, giving all that is requisite to ensure success.

Table and Formula Book. By Rev. Isaac Warren, M.A. (*Longmans.*)—A very complete table and formula book, containing an account of some physical and electrical units now in use among scientific men; formulæ in algebra, mensuration, and trigonometry; with information on transactions in exchange and commerce.

New York State Uniform Examination Questions. (*E. L. Kellogg & Co.*)—This volume contains the examination questions issued to the School Commissioners of the State of New York by the Department of Public Instruction, from September, 1887, to August, 1889. The answers are also given as published by the Department.

Elocution, Voice, and Gesture. By Rupert Garry. (*Marcus Ward.*)—A new edition of a very useful little work. The directions are simple, and the chapters on inflection and emphasis particularly good. The addition of several known pieces, carefully annotated by the author, renders it still more useful to the teacher for reading lessons.

Garry's Elocutionist. (*Marcus Ward.*)—A selection of pieces well adapted for elocutionary purposes. It will be all the more welcome because the selection is not of the old hackneyed type. It consists mainly of new pieces.

England—Geographical Terms (*Bacon*) is a small-sized Map of England arranged for the teaching of definitions and geographical terms, and is certainly an improvement upon those maps of nowhere in particular, that are made to serve this humble but necessary purpose.

Photo Relief Map of Scotland. (*Bacon.*)—The ordinary wall map conveys to the pupils' mind but little idea as to real diversification of the surface of a country. The papier-maché relief maps are somewhat clumsy on anything like a useful scale, and their expense is a serious item. The map before us is simply a photo-lithograph of one of the solid relief maps just mentioned, and, except in the matter of colour, gives quite as complete an idea of the general surface arrangements of Scotland as the model from which it was taken.

Excelsior Series of Maps: Palestine. (*Bacon.*)—A well-printed wall map, suitable for schools or library, showing two Maps of the Holy Land, one prepared specially for Old Testament references, the other representing Palestine at the beginning of the Christian era. The colouring in this series is agreeable, blue being substituted for black in rivers, coastlines, &c., and the mountains and hills being shaded in brown, while the general scheme of colour is artistic and pleasant. The names are clearly printed in black, and readable at a distance quite as great as is generally necessary for class purposes. We have also received from this firm a *Map of Asia* for library and small school purposes; it is exactly similar to the well-known large Excelsior Map, and claims the same praise for colour and distinctness we have given to the Map of Palestine.

Excelsior Standard Diagrams. Standard V. (*Bacon.*)—Three excellent lithographed diagrams, mounted on rollers and varnished. No. 1 deals with Latitude and Longitude, and appeals so successfully to the eye that a child involuntarily learns and remembers the uses of, and difference between, the parallels and meridians. No. 2, Day and Night, is designed to explain at a glance the effect upon our planet of its diurnal revolution. No. 3, The Seasons, is perhaps the most successful of the series, and certainly contains much that will be found extremely useful.

Topics in Ancient History. By Clara W. Wood. (*Ginn & Co.*)—A scholarly book of notes, arranged for use in Mt. Holyoke Seminary and College, with telling allusions from all shades of writers, both ancient and modern, to the several departments of ancient history under discussion. The frequent lists of authors recommended for study is especially reliable.

A Guide to the Study of Nineteenth Century Authors. By Louise Manning Hodgkins. (*D. C. Heath & Co.*)—This work is published in the form of leaflets, which originally accompanied a course of lectures on "Authors of the Nineteenth Century." The leaflets are twenty-six in number, and the authoress may be congratulated on her selection of subjects. To give an idea of the nature of the book, we will quote the headings in the leaflet which deals with Robert Browning: "Significant Facts in the Life of Robert Browning," "Biographical Writings," "Selections from the shorter Lyric and Dramatic Poems of Browning," "Selected Dramas," "Browning's Greatest Dramatic Poem," "Selections from Hellenic Poems," and "Selected Books of General Reference on Robert Browning." To a Teacher of literature who finds himself too hard pressed for time to make for himself a careful selection from the author he is presenting, and to the less mature student to whom a judicious choice from a voluminous writer is rarely to be expected, the book will be found to teem with valuable suggestions.

The Elements of Astronomy. By Charles A. Young, Ph.D., LL.D. (*Ginn & Co.*)—The range of topics in this work is large, and many of the statements it contains necessarily incomplete; yet the student who commences the study of astronomy with this text-book will be sure of having his study placed on a firm basis, and will have nothing to unlearn when he pursues the subject to further detail. In the text no mathematics higher than elementary algebra and geometry is introduced; trigonometrical formulæ appear in the footnotes and Appendix only. There is added to the work, as a supplement, a brief Uranography, covering the constellations visible in the United States, with maps on a scale sufficient for the easy identification of all the principal stars.

Aytoun's Lays of the Scottish Cavaliers. The Execution of Montrose. (*Blackwood & Sons.*)—An edition of a stirring ballad specially adapted to junior classes. It contains, beside the ballad, a life of the Marquis of Montrose, a life of Professor Aytoun on the inside covers, and notes.

Arithmetical Exercises, Standards I.–V. (*Blackwood & Sons.*)—The exercises for each standard are published separately, and are adapted to the New Code.

New Editions.

The New Arithmetic. By Seymour Eaton. (*D. C. Heath & Co.*)—The fact that this Arithmetic has reached its fifteenth edition testifies to its popularity on the other side of the "streak." On this side, the use throughout of dollars and cents will prevent it from becoming a fashionable school book. It contains a Preface written by Professor T. H. Safford, for the use of teachers, giving hints as to the methods which should be employed in teaching arithmetic.

French for Beginners. By J. Lemaistre. (*Williams & Norgate.*)—In the second edition of this book, which made its appearance some seven years ago, the author gives a brief scheme of the irregular verbs which are most frequently met with.

Francis's Tables and Memoranda for Farmers, Surveyors, Land Agents, &c. (*Crosby Lockwood & Son.*) — The author has thoroughly revised his Waistcoat Pocket Book, and has made several additions before issuing this the second edition.

Shakespeare's Julius Cæsar. (*Moffatt & Paige.*)—The mass of interesting matter relating to the play is undiminished in the third edition. A thorough revision has enhanced the value of the book.

A Short Geography of Europe. By the late Keith Johnston. Edited by E. G. Ravenstein. (*Edward Stanford.*)—This is a reprint from the fifth and revised edition (1689) of Keith Johnston's "School Physical nd Descriptive Geography."

THE MEDICAL INSPECTION OF SCHOOLS.

The *British Medical Journal* has recently published the Report to the Psychological Section of the British Medical Association of a Committee appointed at its Annual Meeting in Glasgow, in 1888, "to conduct an investigation as to the average development and condition of brain function among children in primary schools." This Report was submitted to the Association which met this year at Leeds, and the existing Committee was re-appointed, "with power to add to their number from outside the medical profession, and to communicate on this subject with various educational bodies."

The investigation hitherto has extended only to 14 London schools. Of these, *ten* were public elementary schools; none of them were under the London School Board, which was not prepared to open its schools to the visits on behalf of the Committee. They are, however, of various grades, and may be taken together as showing an approximately fair average of children. The aggregate number was 1,944 boys and 1,987 girls, in all 3,931; of whom the cases of 254 boys and 214 girls, in all 468, were specially examined, and the results noted on schedules, which were the subject of further comparison and analysis.

In addition to these, four special schools were visited, viz., one district pauper school, containing 637 boys and 440 girls, together 1,077, of whom 85 boys and 44 girls, 129 together, were individually examined; one certified industrial school for 182 boys; one certified industrial school for 103 girls, of whom 132 and 29 respectively were examined in like manner; one school for the deaf and dumb, containing 31 boys and 21 girls, all of whom were examined. In all, 1,413 children were seen, and 341 severally reported upon, in schools which undertake the sole and entire charge of the pupils committed to them, and are already under the supervision of duly appointed medical officers. In this respect the conditions of life are in marked contrast to those in public elementary schools whose attendance will not be for more than about 30 hours, distributed over five days in the week. The rest of their time, including the whole of Saturday and Sunday, is spent under the varied influences and conditions of their own homes. The results observed in the one class are not fairly commensurable with those found in the other, but will be most valuable as recorded separately, in a way which will admit of comparison between the two. Nevertheless, we cannot expect to find any hard and fast line between them. On the *average*, no doubt, those found in pauper and industrial schools are drawn from classes lower in the social scale than those attending public elementary schools; but, on the other hand, the "truant schools" associated with the latter probably contain even a larger proportion of children whose mental development is defective. This brings us face to face with one of the most serious difficulties in our system of compulsory education. The injury done to a day school by one vicious member is very great, and while the desire to retain all who are untainted with crime in the public elementary school is shared by all, it is gravely open to question whether the severe discipline of "truant schools"—all the more severe because it is intended to be only temporary—is the best means of attaining the end desired. Obedience inspired by mere terror leaves the outcast an outcast still, and the more appropriate remedy for mental defects of this nature may be found in the continuous discipline which can be applied only where the child's whole daily life is under fitting control. The treatment of "exceptional children" is referred to briefly in the Report, and has also been under the consideration of the Royal Commission on the Education of feeble-minded children.

It is obvious that from so small a number of cases no general conclusions can be safely drawn; nevertheless the results even of this partial inquiry are full of suggestion, and amply justify the extension of it on a far larger scale, and with more adequate resources. Enough has been done to show that the visits required can be made without any inconvenient interruption to the ordinary day's work of a well-organised school, the exceptions being comparatively few, and such only as are called for by the obvious urgency of the cases which may come under observation, and these generally will be such as have already been a cause of anxiety to the teacher. Familiarity with the nature of the inquiry will overcome the reluctance shown in some quarters to throw open schools to these visits. The doctor and the teacher are bound together by a common sympathy in a great and beneficent work, and their hearty co-operation is essential to the solution of many of the most important problems which concern the future welfare of our race. Especially since the great step made in National Education by the Act of 1870, it has been realised more and more fully that the study of the true conditions of mental and physical health must go on together in order to provide the best means of preparing the coming generation for that keen struggle for life under many varied forms, where place can nevertheless be found for activities of so many different kinds. A struggle life is to all of us, and far better is it to "wear out" than to "rust out." There is no room for dreams of case based on false ideals, but many a weakly child has grown into a vigorous maturity. Many born with high promise have miserably failed too often from the unwitting errors of those who might have guided them to health and prosperity. The blind and the deaf, the dull and the feeble-minded, the vicious and "ill-conditioned," who were at one time abandoned to their fate, are now brought within the influence of appropriate training. But this work is still very imperfectly accomplished. Much power is wasted by the strenuous use of means ill adapted to the ends desired. Managers and teachers cannot be suffered to reject all children who are difficult to teach, but may still be relieved from the undue burden of those who may fairly be described as "abnormal," and who cannot by any means be brought on by the methods best adapted to their fellows.

The extension of this inquiry is advocated on far broader grounds than those which touch the special difficulties of elementary schools. The large aggregation of children, especially in our great cities, is comparatively a new feature in our social life, which affords an opportunity which has never yet been open to us of acquiring a knowledge of the health and condition of large classes which live under conditions the least favourable for mental and physical development. It would be wholly unjustifiable to neglect the means thus placed within our reach, or to ignore the lessons that may be derived from the extended experience which a few years of patient and systematic work cannot fail to afford. On these grounds the cordial co-operation of school teachers and managers may be enlisted. As or the crude schemes set forward for at once putting all schools under medical supervision, we may set those aside as at all events premature. The medical profession are certainly not in a position at present to undertake any such addition to their labours. But let us bring a little sound common-sense to bear upon this very broad question. We do not want the doctor always in the school any more than we want him always in the house. But nevertheless we are all most closely interested in the extension of knowledge, both of medicine and of hygiene, which contributes so largely to the national health. Let us give a work which is beneficent in its aims and sound in its inception fair means of extension, and with its growth means will be found to apply its conclusions to our schools in ways which will not interfere either with their organisation and discipline, or with the responsibilities which rightly fall upon those who undertake the special charge of the education of the rising generation.—R. H.

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

The Pass-lists of the January Examinations outstanding on January 31st have been published during February. At the Matriculation Examination there are said to have been 1088 candidates; but of these only 413, not quite 38 per cent., have got through; last year the percentage (which was then thought low) was about 49. In the Honours Division there are only 19 names; in the First Division there are 300, and in the Second 94. The Honours Division presents a singular spectacle, for of the 19 candidates only five are under the limit of age (20 years) fixed for exhibitioners and prize-holders; consequently one of the prizes remains unawarded. The first two candidates, Mr. E. P. Guest and Miss C. E. Oldaker, are both private students, and both over age. The first exhibition goes to the third candidate, Mr. S. R. Daniels, of Wycliffe College, Stonehouse; the second to the fourth candidate, Mr. S. Wood, of the Normal School of Science and the Birkbeck Institute; the third to the eighth candidate, Mr. W. S. Handley, of Loughborough Grammar School; the first prize goes to the tenth candidate, Mr. J. S. Baxter, a private student; and the second to the thirteenth candidate, Mr. H. Townshend, of the Birkbeck Institute. Of ladies there are said to have been 159 present, but of these only 48 (30·2 per cent.) have passed—2 in Honours (in the second and the nineteenth place), 35 in the First Division, and 11 in the Third. If the ladies be taken out, the other sex have passed at the rate of 39·3 per cent., thus reversing the proportions that we used to expect. Looking at the remarkably disappointing results of the examination in every respect, we cannot help thinking that there is here a suitable case for investigation by the Senate, or Convocation, or both.

The Honours List of the Intermediate Examination in Laws shows twelve names; two are in the first class, but the exhibition is not awarded.

The LL.B. Honours List shows seven names; only one candidate comes out in the first class (Mr. A. Wansbrough Jones, B.A.), but the scholarship is awarded to him. We omitted to note last month that one of the successful candidates at the Intermediate Pass was a lady, Miss R. E. Lawrence, a private student; the same lady's name appears at the top of the third class in the Honours List. At the LL.D. Examination it is said that there were seven candidates; but only three have passed, and no one gets the large gold medal.

At the Preliminary Scientific Examination in Medicine 19 candidates have passed the whole examination; 26 have passed in two subjects, and 20 in one subject. It is to be noted that, in future, candidates for this examination who desire to pass it in detachments will be required to take up first either Chemistry and Physics together, and afterwards Biology, or else the latter subject first, and afterwards the other two together, instead of making any selection or combination of subjects at their own option, as heretofore; but it is to be assumed that those who have already passed a part of the examination will be allowed to complete it on the old plan. Further, candidates who, in future, go in for the whole examination and who fail in Chemistry and Physics, or either of them, will be allowed to pass in Biology; or, if they fail in the latter subject only, they will be allowed to pass in the other two. Truly, the medical students are now accommodated in a way that must excite the envy of candidates in other faculties.

At the Intermediate Examination in Medicine 25 candidates have passed the whole examination, 8 have postponed Physiology, and passed in the other subjects, and 10 have passed in Physiology only, thus completing the examination.

A month or two ago Sir William Jenner and the Dean of Westminster resigned their seats in the Senate. To fill the vacancies the Crown has selected Sir Albert Rollit, LL.D. (a distinguished graduate) and the Rev. Dr. Holden, the well-known classical scholar, who has acted as examiner for several years.

Cambridge.

Mr. Charles Smith, Fellow and Tutor of the College, has been elected to the vacant mastership of Sidney Sussex College. The new Master was born at Huntingdon in 1844. He entered at Sidney with an open Scholarship in 1864; and graduated as third Wrangler in 1868, which was a distinguished mathematical year. The Senior Wrangler was Mr. J. F. Moulton, the distinguished Q.C.; Professor G. H. Darwin was second; and Mr. Christie, the Astronomer Royal, came next to Mr. Smith. In the same year Mr. Smith became Fellow and Mathematical Lecturer of his College. In 1875 he was appointed to the Tutorship. In 1876 he was Senior Moderator, and in 1877 Examiner for the Mathematical Tripos. The new Master is well known as the author of several successful mathematical works, one on Conic Sections, which has passed through eight editions, another on Solid Geometry, and two treatises on Algebra. He is the first layman who has held the mastership of Sidney.

An Examination will be held at Cavendish College on July 8th and following days, when one scholarship of £50 and six of £30 will be offered for competition to candidates who have not commenced residence, and who will be under 18 years of age on October 1st. One or more of the following subjects may be offered for examination—Classics, Mathematics, Natural Science, Modern Languages. Particulars may be obtained from the Master.

Thirty-seven students signed the book of matriculation for the Lent term, and made the usual declaration of obedience to the University statutes and ordinances. As compared with the Lent term of 1889, the entry is smaller by three. The total number matriculated during the present academical year is 985.

The Greek Play Committee has come to a final decision, and has chosen the "Ion" of Euripides for the next performance.

"In Cap and Gown," Mr. Whibley's collection of three centuries of Cambridge wit, has just been reviewed in the *Times*. The reviewer is disappointed with the want of sterling metal in the book. He does not expect much of undergraduates; their wit is naturally immature; but the dons, what have they been doing? They used to produce good things, but in more modern times the austerity of donnish life has killed spontaneous wit. Little worthy of notice has appeared in the various ephemeral University periodicals during the last twenty-five years. An exception is made in favour of the parodies, the staple of undergraduate humour. This want of wit is deplorable, if true, but the reason is not far to seek—"Shoppiness" explains it, as Mr. Whibley points out in his preface.

We learn "there is much talk of reforming the system of examinations by which the Poll man passes triumphantly to his degree . . . there are to be more examinations following each other more closely;" either the Special or the General is to be divided. But "as for the periods of idleness," says the *Cambridge Review*, "we doubt if any scheme in the world can prevent them, without driving away many who would otherwise come up."

The Professorship of Mechanism and Applied Mechanics, held by Professor Stuart, has been vacated by resignation. Mr. Stuart was appointed in 1875, and was the first professor. The election is by a Board of electors, who are the Vice-Chancellor, Professor Cayley, Dr. Besant, Mr. H. Darwin, Trinity, Mr. Airy, Dr. Phear, Lord Rayleigh, Sir F. J. Bramwell, and Mr. Martin, Trinity.

Oxford.

The management of the Bodleian Library has been discussed in Convocation, based upon certain questions addressed to the curators of the Library, which constituted in effect an indictment of the policy pursued by the Curators. The questions implied that an excessive proportion of the revenue was spent in binding, that gaps in the library were not filled up as they should be, nor sufficient care exercised in the purchase of new books and manuscripts, that the curators had failed to co-operate with other libraries in the University, so as to avoid needless duplication, and that they did not carry out their duty in personal investigation of the library. The subject gave rise to considerable discussion, in which Professor Max Müller joined, and defended the curators. The Librarian (Mr. Nicholson) drew attention to the published report of work done, and pleaded that in defence of the insinuations.

The Trustees of Manchester New College, to judge from the report of their annual meeting the other day, appear to have gone to work in a very businesslike manner. The curriculum has been reorganized, and now includes Responsions: that celebrated examination will soon be world-wide in its application; scholarships of £75 have been instituted, tenable by "Oxford collegiate students;" and Mr. Thomas Worthington, a well-known Manchester architect, and himself a Trustee of the College, has prepared plans for the building. The estimated cost is—land and charges, £9,000; buildings and fittings, £30,000; chapel endowment, £10,000; total, £49,000. Towards this large sum £32,694 has been promised, including two subscriptions of £5,000 each. The minority who were against the transfer to Oxford have nevertheless subscribed generously.

The Burns Anniversary was celebrated by the members of the Oxford Caledonian Society, who with the aid of a piper and copious quotations from the poet got through a long list of toasts, after discussing a dinner consisting of such delicacies as "haggis," "shank o' grumphie," "whangs o' cheese," and other items of an equally appetising nature. The proceedings were thoroughly spirited and national.

Other Universities, Colleges, and Schools.

The Owens College, Manchester, has undergone some important changes. We had heard some time ago that it was likely that Professor Greenwood, who has been Principal so long, would shortly retire. We hope that complete rest and freedom from responsibility will enable him to recover health and strength, and to enjoy a "dignified leisure" which is really leisurely. We must congratulate him upon leaving his College in so flourishing a condition, not only as regards science, its success in which at one time almost caused people to think it was only a scientific college, but as regards literature too, with which he himself has been more especially connected.

Dr. Wood, Headmaster of Leamington College, has been appointed Headmaster of Tonbridge School, Mr. Kennedy having declined the appointment on the plea of ill-health. Dr. Wood will commence his duties at Easter.

The Rev. James Robertson has resigned the Headmastership of Haileybury College, which he has held since 1883.

In the Queen's Bench Mr. Edward William Moore, M.A. Dublin, and formerly headmaster of a high grade school under the Leeds School Board, sued Wesley Lee, clerk to the Leeds School Board, to recover damages for libel, charging plaintiff with falsely marking the school register for his own pecuniary benefit. There was no defence to the action, and the jury gave the plaintiff £300 damages.

COLLEGE OF PRECEPTORS.—CERTIFICATE EXAMINATION.

Errata in Class List (Christmas, 1889).

The following should have appeared in the List of Candidates who were First and Second in each subject:—

Mechanics.

1. Day, W. W., Mr. Allan, The Western College, Harrogate.
2. { Aslin, P. J., Mr. Spence, Yorkshire Society's School, S.E.
   { Cross, G. H., Mr. Johnson, Elmfield College, York.

Bookkeeping.

1. { Huck, J., Mr. Grice, Commercial School, Bognor.
   { Barnett, J. Mr. Vaughan, Queen Mary's Lower School, Walsall.

Second Class (Boys).

1st Division: *insert* Barton, G. W., The Royal Grammar School, Sheffield.

Second Class (Girls).

1st Division: *insert* Sayle, F., Lezayre House School, Ramsey, Isle of Man.

Third Class (Boys).

2nd Division: *omit* Eaton, W. S., Ghyll Bank College, Whitehaven.

MATHEMATICS.

2827. (Professor Sylvester.)—If four ternary quadrics in ϕ, ψ, ω, which all vanish for one and the same set of values of the variables, be respectively equal to x, y, z, t, &c.; prove, by a simple application of the dialytic method of elimination, that these last-named four quantities are connected by a cubic equation, and consequently that every cubic surface is unicursal.

Solution by Professor SCHOUTE.

As $$x = F_1(\phi, \psi, \omega), \quad y = F_2(\phi, \psi, \omega),$$
$$z = F_3(\phi, \psi, \omega), \quad t = F_4(\phi, \psi, \omega)$$

vanish for the same set of values of ϕ, ψ, ω, the conics $F_1 = 0$, $F_2 = 0$, $F_3 = 0$, $F_4 = 0$ have a common point P. By a linear transformation of ϕ, ψ, ω in p, q, r, with reference to a trilinear system for which P is the vertex $q = 0$, $r = 0$ of the triangle of coordinates, we find

$$\left.\begin{aligned} x &= b_1q^2 + c_1r^2 + f_1qr + g_1rp + h_1pq \\ y &= b_2q^2 + c_2r^2 + f_2qr + g_2rp + h_2pq \\ z &= b_3q^2 + c_3r^2 + f_3qr + g_3rp + h_3pq \\ t &= b_4q^2 + c_4r^2 + f_4qr + g_4rp + h_4pq \end{aligned}\right\} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (1).$$

[The rest in Volume.]

10269. (F. R. J. HERVEY.)—Cut out the accompanying polygon (erasing the black outline), and cut it into twelve parts, from which reconstruct the polygon, turning the whole figure into its perversion, or image in a plane mirror. [This is one of many species of symmetrical transformation obtainable by the same process, which is applicable to any regular polygon having an even number of sides; the effect produced depending upon the conditions observed in drawing the original figure.]

Solution by the PROPOSER.

On lines drawn from the centre of the given polygon of $2n$ sides to the vertices as diameters, draw circles, and join their intersections so as to inscribe in each a similar polygon. The given polygon is thus divided into *rhombs*, arranged in $n-1$ concentric *zones*; or, omitting $n-2$ sides of each small polygon into $2n$ symmetrical crescent-like *segments*, which can be combined in two ways. [The outline of a segment is that of a similar polygon *folded* along one of the diagonals which divide it least unequally. The rest will be added in Volume.]

10402. (E. M. LANGLEY, M.A.)—PQ any diameter of one of two circles which, cut orthogonally, cuts the common chord at I, and the other circle in C. If AB is any chord of the first circle through I, show that CI is a symmedian of the triangle ABC.

Solution by Professor GENESE, M.A.

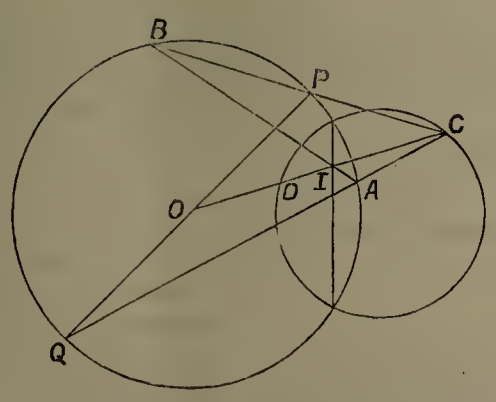
Let O be the centre of the first circle, OC meet the second circle at D, and CB, CA meet the first circle at P, Q; then

$$OD \,.\, OC = OP^2 = OD^2,$$
$$\therefore \quad \angle OPD = OCP = OBD,$$

hence O, D, P, B are concyclic, and $\angle POD = PBD$. So $\angle QOD = CAD$. Now

$$IA \,.\, IB = ID \,.\, IC;$$

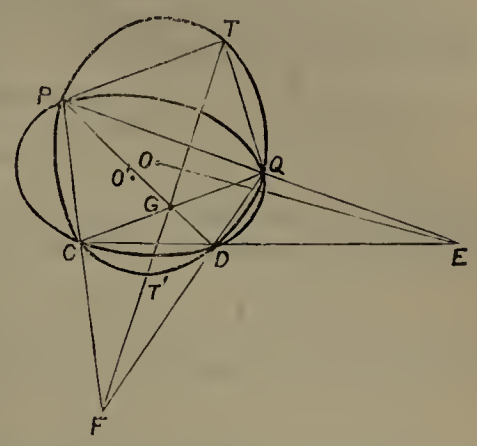
hence A, B, C, D are concyclic, and angles CAD, CBD supplementary; $\therefore$ $\angle$'s POD, QOD are so, and P, O, Q are in a line. But PQ, AB are anti-parallel in angle ACB. Thus CI, a median to PQ, is a symmedian to AB.



10432. (R. KNOWLES.)—Tangents TP, TQ are drawn to meet a conic in P and Q; a second conic, centre O, through TPQ, cuts the first again in C, D; T′ is the pole of CD with respect to the first conic; the chords PQ, CD meet in E; prove that EO bisects TT′.

Solution by R. H. WHAPHAM, B.A.; D. T. GRIFFITHS; *and others.*

Let O′ be the centre of the first conic, and call the conics by their centres; then, we see that T′ is on the conic through T, P, Q, C, D. Now T is the pole of PQ, and T′ of CD; therefore E is the pole of TT′ with respect to conic O′. But, since PQDC is a quadrilateral inscribed in the conic O′, therefore E is the pole of GF with respect to conic O′, therefore TT′ is the same line as GF. But, since PQDC is also inscribed in the conic O, therefore E is the pole of GF with respect to the conic O, therefore E is the pole of TT′ with respect to the conic O, therefore EO bisects TT′.



10433. (H. J. READ, M.A.)—Trace the curve

$$(x+y)(x-y)^2 - 4\,(x^2+y^2) + 5y = 0.$$

Solution by Prof. ANDERSON, M.A.; G. G. STORR, M.A.; *and others.*

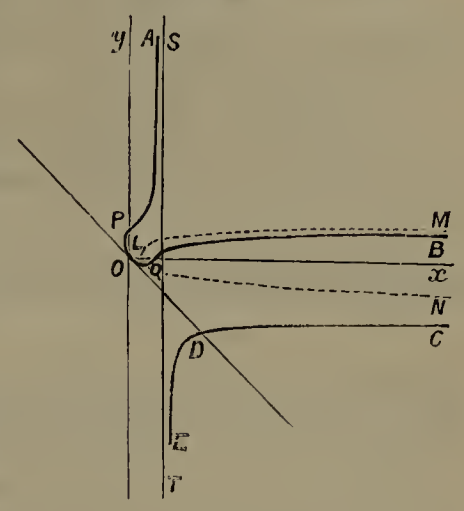
Turn the axes in the direction xy through an angle of 45°, and the equation of the curve becomes

$$xy^2 - 2^{\frac{1}{2}}(x^2+y^2) + \tfrac{5}{4}(x+y) = 0.$$

The curve has two branches APOQB and CDE. The tangent at the origin is the line $x+y=0$, and the line ST, whose equation is $x = 2^{\frac{1}{2}}$, is an asymptote. The parabola MLN, whose equation is

$$y^2 = 2^{\frac{3}{2}}\left(x - \tfrac{5}{16}\,2^{\frac{1}{2}}\right),$$

is a curvilinear diameter, bisecting all chords parallel to the axis of x, and consequently meets both branches at points where the tangent is parallel to this axis.



8457. (W. J. C. SHARP, M.A.)—If E be the spherical excess of a triangle whose sides are a, b, c, show (1) that

$$\sin^2\tfrac{1}{4}E = \sin\tfrac{1}{2}s \sin\tfrac{1}{2}(s-a) \sin\tfrac{1}{2}(s-b) \sin\tfrac{1}{2}(s-c) / \cos\tfrac{1}{2}a \cos\tfrac{1}{2}b \cos\tfrac{1}{2}c,$$

where $2s = a+b+c$; and hence (2) deduce the ordinary formula for the area of a plane triangle.

Solution by Professor LAMPE.

1. Mr. SHARP seems to have in view a method commonly employed in German text-books, *e.g*, in the *Lehrbuch der sphärischen Trigonometrie*, by SPITZ, Leipzig, 1886, where the required formulæ are deduced from properties of the rectangular triangle. Starting from the Gaussian equations,

$$(1) \quad \frac{\cos\frac{1}{2}(a+b)}{\cos\frac{1}{2}c} = \frac{\cos\frac{1}{2}(\alpha+\beta)}{\sin\frac{1}{2}\gamma}, \quad \frac{\cos\frac{1}{2}(a-b)}{\cos\frac{1}{2}c} = \frac{\sin\frac{1}{2}(\alpha+\beta)}{\cos\frac{1}{2}\gamma},$$

we have $$\cos\tfrac{1}{2}E \cos\tfrac{1}{2}c = \cos\tfrac{1}{2}a \cos\tfrac{1}{2}b + \sin\tfrac{1}{2}a \sin\tfrac{1}{2}b \cos\gamma.$$

[The rest in Volume.]

2508. (Professor CROFTON, F.R.S.)—(1) A point being denoted by (ρ, σ, τ), its tri-polar coordinates, or distances from three poles R, S, T, show that all circles represented by $A\rho^2 + B\sigma^2 + C\tau^2 = 0$ are orthogonal to the circle RST. (2) If O be the centre of the circle $A\rho^2 + B\sigma^2 + C\tau^2 = D$, show that A, B, C are proportional to the triangles SOT, TOR, ROS.

Solution by W. J. CURRAN SHARP, M.A.

This question may be generalised into—(1) A point in space of n dimensions being denoted by $(\rho, \sigma, \tau, \nu, \ldots)$, its $n+1$ polar coordinates, or distances from $n+1$ poles R, S, T, U ..., show that all spherics, represented by $A\rho^2 + B\sigma^2 + C\tau^2 + D\nu^2 + \ldots = 0$, are orthogonal to the circumspheric of the simplicissimum RSTU .... (2) If K be the centre of the spheric $A\rho^2 + B\sigma^2 + C\tau^2 + D\nu^2 + \ldots = M$, show that A, B, C, D ... are proportional to the contents of the simplicissima KSTU ..., KRTU ..., KRSU ..., KRST ..., &c. With notation, &c., of the solution of Quest. 9093 and 9170 [Vol. XLVIII., pp. 178–82],

$$V^2\rho^2 = -S + V\frac{dS}{d\lambda}, \quad V^2\sigma^2 = -S + V\frac{dS}{d\mu}, \ldots.$$

[The rest in Volume.]

3799. (J. B. SAUNDERS.)—Find the equation of the curve described by the extremities of a horizontal diameter of the air-bubble of Quest. 3707, supposing its centre to move in a vertical line.

Solution by D. Biddle.

From the solution of Quest. 3707 (Vol. liii., p. 27), it is easy to see that, in the case of fresh water,

$$y = \frac{1}{24}\left[\beta \Big/ \left\{\beta + \frac{\alpha^2}{\cdot 000048}\left[\log 2r\,(\alpha^2 - \cdot 000048\beta) - \log\left\{2r\,(\alpha^2 - \cdot 000048\beta) - \cdot 000096rx + \cdot 000048x^2\right\}\right]\right\}\right]^{\frac{1}{3}},$$

where all the measurements are in feet, and where x is at zero on the surface of the water. In the case of sea-water,

$$y' = \frac{1}{24}\left[\beta' \Big/ \left\{\beta' + \frac{\alpha'^2}{\cdot 000044}\left[\log 2r\,(\alpha'^2 - \cdot 000044\beta') - \log\left\{2r\,(\alpha'^2 - 000044\beta') - 000088rx + \cdot 000044x^2\right\}\right]\right\}\right]^{\frac{1}{3}}.$$

3657. (Professor Minchin, M.A.)—Show that the force by which a particle describes the inverse (with respect to centre of force) of a given curve is $\mu \,.\, r^5 (r^2 - 2p\rho) / p^3\rho$, where r is the radius-vector to any point on the given curve, ρ and p the radius to curvature and perpendicular to a tangent at the point.

Solution by Professor Anderson, M.A.

The force acting from the centre is $-\dfrac{h^2}{p'^3}\dfrac{dp'}{dr'}$, where p' and r' refer to the inverse curve; also $p' = r'p/r$, and $rr' = c^2$; hence, substituting for p' and r' in terms of p and r, we get

$$-\frac{h^2}{p'^3}\frac{dp'}{dr'} = -\frac{h^2 r^6}{c^6}\frac{1}{p^3}\left\{\frac{p}{r} - r\frac{d}{dr}\left(\frac{p}{r}\right)\right\} = -\frac{h^2 r^5}{c^6 p^3}(2p - r^2/\rho).$$

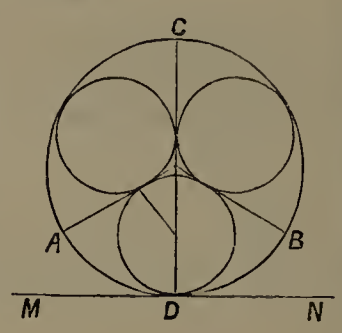
Hence the force is that stated in the question.

3302. (W. Siverly.)—Required the axes of the three greatest equal ellipses that can be drawn in an ellipse whose axes are $2a$ and $2b$.

Solution by Rev. J. L. Kitchin, M.A.

Draw a circle ABC with diameter $2a$; take A, B, C the angular points of an equilateral triangle inscribed in the circle, AB being horizontal; inscribe in the three sectors the equal circles as in figure; and project the whole figure on a plane passing through MN, the tangent at D, at an angle whose cosine $= b/a$. The circle becomes an ellipse whose diameters are $2a$, $2b$, and the three equal inscribed circles, equal ellipses whose diameters are

$$2a\,(2\sqrt{3} - 3), \quad 2b\,(2\sqrt{3} - 3).$$



10329. (Prof. Orchard, M.A., B.Sc.)—Solve, by a quadratic method,

$$x^8 + (x^2 - x)^4 + (x^2 - 2x)^4 + (x^2 - 3x + 2)^4 + 9(x-1)^4 + 7(x-2)^4 + 16x^4 + 63 = 0.$$

Solution by W. J. Greenstreet, M.A.; Rev. J. L. Kitchin; *and others.*

The equation resolves into the product of the two equations,

$$x^4 + 9 + (x-2)^4 = 0, \quad x^4 + 7 + (x-1)^4 = 0,$$

whose respective roots are $1 \pm (-3 \pm \frac{7}{2}^{\frac{1}{2}})^{\frac{1}{2}}$, $\frac{1}{2}\left\{1 \pm \left[-3 \pm (-3)^{\frac{1}{2}}\right]^{\frac{1}{2}}\right\}$.

4054. (Rev. T. Mitcheson, B.A.)—In a spherical triangle, if t = the product of the tangents of the radii of the escribed circles, prove that

$$\tan r = (n^4 t^{-1} \sin^{-2} s)^{\frac{1}{3}}.$$

Solution by G. G. Storr, M.A.; Professor Zerr, M.A.; *and others.*

With the usual notation, we have $\tan r_1 = n/\sin(s-a)$, &c.;

hence $\quad t = n^3 / \{\sin(s-a)\sin(s-b)\sin(s-c)\} = n \sin s$;

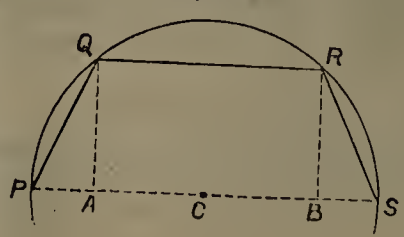
therefore $\quad n^4 t^{-1} \sin^{-2} s = (n/\sin s)^3 = \tan^3 r$.

10217. (M. Leroux.)—Dans un trapèze isoscèle, on connaît une base et les côtés égaux. Quelle doit être l'autre base pour que le volume engendré par le trapèze tournant autour de la première base soit maximum?

Solution by E. M. Langley, M.A.; Prof. Sarkar; *and others.*

Let PQ, RS be the two given equal sides, QR the other given side; then the greatest *quadrilateral* with PQ, QR, RS for sides, and the other side at our choice, is such that the fourth side PS is the diameter of a circle through P, Q, R, S.

[The rest in Volume.]



10312. (Professor Décamps.)—Par un point P pris sur le prolongement du diamètre BA d'un cercle C, on mène une sécante quelconque PMM′; on joint le centre C aux milieux N, N′ des arcs AM, AM′; les droites CN, CN′ rencontrent en D et D′ la perpendiculaire menée au diamètre AB par le point P. Prouver que le produit PD, PD′ est constant, quelle que soit la position de la sécante.

Solution by C. Morgan, M.A., R.N.; R. Knowles, B.A.; *and others.*

$\angle NCA = \frac{1}{2}MCA = MBA = \alpha$,

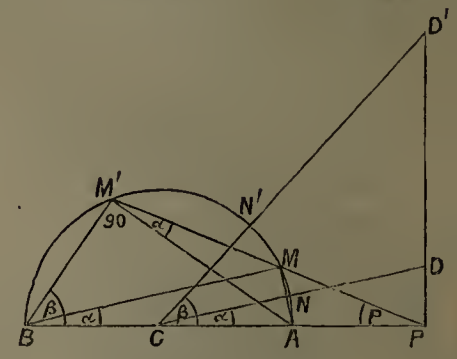
$\angle N'CA = \frac{1}{2}MCA = M'BA = \beta$;

$PD \,.\, PD' = CP^2 \,.\, \tan\alpha \,.\, \tan\beta$;

also $\quad \tan\alpha \,.\, \tan\beta = \dfrac{AM}{BM} \,.\, \dfrac{AM'}{BM'}$;

$AM = \dfrac{\sin P}{\sin\beta} \,.\, AP, \quad AM' = \dfrac{\sin P}{\sin\alpha} \,.\, AP$,

$BM = \dfrac{\sin P}{\cos\beta} \,.\, BP, \quad BM' = \dfrac{\sin P}{\cos\alpha} \,.\, BP$;



therefore $\quad \tan\alpha \tan\beta = \dfrac{AP}{BP}$, $\quad$ therefore $\quad PD \,.\, PD' = CP^2 \,.\, \dfrac{AP}{BP}$.

10429. (A. E. Jolliffe.)—A parabola touches the sides of a triangle at A′, B′, C′; prove that AA′, BB′, CC′ meet on the minimum ellipse circumscribing the triangle.

Solution by Bertrand Russell; Prof. Anderson, M.A.; *and others.*

If the parabola be $\quad (lx)^{\frac{1}{2}} + (my)^{\frac{1}{2}} + (nz)^{\frac{1}{2}} = 0$,

the intersection of AA′, BB′, CC′ is (l^{-1}, m^{-1}, n^{-1}). But $l + m + n = 0$; hence the intersection lies on the conic $x^{-1} + y^{-1} + z^{-1} = 0$, whose centre is $x = y = z$, *i.e.*, the centroid of the triangle. Hence the intersection lies on the minimum circumscribing ellipse.

10410 & 10444. (Professor Curtis, M.A.)—(10410). Prove that there holds among any four points on an equilateral hyperbola the relation (analogous to Ptolemy's theorem) that if the points be 1, 2, 3, 4,

$$(12 \,.\, 34)^{\frac{1}{2}} \pm (23 \,.\, 14)^{\frac{1}{2}} \pm (31 \,.\, 24)^{\frac{1}{2}} = 0,$$

where 12 = the area of a right-angled triangle whose base is the line joining 1 and 2, and the sides of which are parallel to the asymptotes of the hyperbola.

(10444). Prove that the equation of an equilateral hyperbola touching three equilateral hyperbolas (the four curves being similarly placed) is

$$(23 \,.\, S_1)^{\frac{1}{2}} \pm (31 \,.\, S_2)^{\frac{1}{2}} \pm (12 \,.\, S_3)^{\frac{1}{2}} = 0,$$

where 23 is the area of a triangle of which the base is a common tangent to S_2 and S_3, and the sides are parallel to the asymptotes.

Solution by W. J. Johnston, M.A.; Prof. Anderson, M.A.; *and others.*

If we substitute $x = \xi + \eta$, $y = (\xi - \eta)(-1)^{\frac{1}{2}}$, then $x^2 + y^2 = 4\xi\eta$, and all circles are transformed into similarly placed rectangular hyperbolas. If two curves touch, the corresponding curves touch at the corresponding point. Also, square of distance between two points $(x_1 - x_2)^2 + (y_1 - y_2)^2$ becomes $(\xi_1 + \eta_1 - \xi_2 - \eta_2)^2 - (\xi_1 - \eta_1 - \xi_2 + \eta_2)^2 = 4\,(\xi_1 - \xi_2)(\eta_1 - \eta_2)$ = 8 area of triangle whose sides are the join of the points and parallels through them to the asymptotes. From these considerations we can write down at once the above transformations of Ptolemy's theorem, and of the equation of the circle-tangent to three circles.

QUESTIONS FOR SOLUTION.

10476. (Professor Sylvester.)—Prove (1) that it is always possible to transform $ax\xi + bx\eta + cx\zeta + a'y\xi + b'y\eta + c'y\zeta + a''z\xi + b''z\eta + c''z\zeta$, where all the coefficients are real, into the form $Ax\xi + By\eta + Cz\zeta$, by means of two *real* orthogonal linear substitutions imposed on x, y, z and ξ, η, ζ respectively; and show (2) how to construct the equation for determining A, B, C.

—**477.** (Professor Genese, M.A.)—If x, y, z, w denote the tetrahedral coordinates of a point $(x_1 + y + z + w = 1)$, prove that (1)

$$\begin{vmatrix} x_1 & y_1 & z_1 & w_1 \\ x_2 & y_2 & z_2 & w_2 \\ x_3 & y_3 & z_3 & w_3 \\ x_4 & y_4 & z_4 & w_4 \end{vmatrix}$$

= volume of the tetrahedron whose vertices are given by the four rows, the volume of the tetrahedron of reference being taken as unit; and hence (2) $x_1w_2 - w_1x_2$, &c., the coordinates of the join of $(x_1y_1z_1w_1)$, $(x_2y_2z_2w_2)$, are proportional to the moments of the force represented by the join about the edges of the tetrahedron of reference.

[Suggested by Buchheim's account of Grassmann's Multiplication of Points, *Lond. Math. Soc.*, Vol. xv., p. 83.]

—**478.** (Professor Catalan.)—Si l'on a $f + g + h = 1$, l'égalité

$$abc\left\{\frac{f}{a^2} + \frac{g}{b^2} + \frac{h}{c^2} - \left(\frac{f}{a} + \frac{g}{b} + \frac{h}{c}\right)^2 \Sigma\frac{a(b-c)^2}{f}\right.$$

$$= \left\{(af + bg + ch)\left(\frac{f}{a} + \frac{g}{b} + \frac{h}{c}\right) - 1\right\}\Sigma\frac{a^2(b-c)^2}{f}$$

est une identité.

10479. (Professor Godefroy.)—Si $x+y+z=0$, on a

$$\left(\frac{y-z}{x}+\frac{z-x}{y}+\frac{x-y}{z}\right)\left(\frac{x}{y-z}+\frac{y}{z-x}+\frac{z}{x-y}\right)=9.$$

—480. (Professor Niewenglowski.)—Démontrer quo l'équation

$$(1+p^2+q^2)\,x^2-\{r\,(1+q)^2+t\,(1+p^2)-2pqs\}\,x+rt-s^2=0$$

a ses deux racines réelles, quels que soient p, q, r, s, t. Trouver la condition pour qu'ello ait une racine double.

—481. (Professor Cesáro.)—Soit $p_r=(1-x)(1-x^2)(1-x^3)\ldots(1-x^r)$. Démontrer l'identité $\dfrac{1}{p_n}-\dfrac{x}{p_1p_{n-1}}+\dfrac{x^3}{p_2p_{n-2}}-\ldots\pm\dfrac{x^{\frac{1}{2}n(n+1)}}{p_n}=1.$

—482. (Prof. Zerr.)—Give a formula for differentiating $y=x^{x^{x\&c.}}$ and show that the same formula will answer for $y=a^{x^{x\&c.}}$ and $y=e^{x^{x\&c.}}$.

—483. (Professor Steiner.) — Étant données trois circonférences O, O_1, O_2, passant par un même point A, mener par A une sécante, qui rencontre les trois courbes en trois B, B_1, B_2, tels que $BB_1 : B_1B_2 = m : n$.

—484. (Professor Svéchnikoff.)—Résoudre les équations

$$x+y+z=a,\quad x^2+y^2+z^2=a^2+2b^2,\quad x^3+y^3+z^3=a^3.$$

—485. (Professor Décamps.)—Résoudre les équations

$$x^2+y^2=a,\quad z^2+u^2=b,\quad xy+zu=c,\quad xu+yz=d.$$

—486. (Professor de Longchamps.) — On considère deux cercles Δ, Δ', dont les centres sont les points O, O′. La droite OO′ rencontre Δ, Δ', respectivement, aux points A, B; A′, B′. Soient M, M′ les extrémités de deux rayons mobiles, parallèles, et de même direction. Cela posé, AM, B′M′ se rencontrent en P; BM, A′M′ en Q. Démontrer que PQ passe constamment par un point fixe.

—487. (Professor Schoute.) — Of the 16 configuration lines of a configuration $(12_4, 16_3)$ formed by the centres of similitude of four complanar circles, we take two sets of 4 lines, each of which contains the 12 configuration-points; to show that the 4 new points common to these two sets of 4 lines are collinear.

—488. (Professor Hendricks.)—The *à priori* probability that *ace* will be thrown at a single cast with a die is $\frac{1}{6}$, $=k$ say. A, whose veracity is p_1, says that B, whose veracity is p_2, said that *ace* was thrown at a single cast; find the probability that *ace* was thrown. [This Question was proposed in our columns many years ago, but Prof. Hendricks is of opinion that none of the several solutions that were published are satisfactory.]

—489. (Professor Déprez.)—On donne dans un plan deux triangles ABC, A′B′C′; trouver le lieu d'un point P′ tel que les perpendiculaires abaissées de A sur A′P′, de B sur B′P′, de C sur C′P′ concourent en un même point P. Trouver également le lieu du point P.

—490. (Professor Asitya Gophal Sarkar.)—Give a clear and easy geometrical proof of the phenomenon that, when a ship recedes in a straight line from a spectator on the seashore, it subtends a less and less angle in the spectator's eye.

—491. (Professor Mathews.)—Prove that (1), if $Pa+Qb+Rc+Sd=0$, then the result of changing x, y, x', y' into $by-ay'$, $cx-ax'$, $dy-cy'$, $dx-bx'$, in the expression $f\equiv Pxy+Qxy'+Rx'y+Sx'y'$, is $(bc-ad)f$; and (2) that a similar theorem is true when

$$P : Q : R : S = d : -c : -b : a.$$

—492. (Professor Neuberg.) — Cinq forces parallèles se faisant équilibre, on transporte chacune d'elles au centre de la sphère passant par les quatre autres points d'application. Démontrer que l'équilibre existe encore, pourvu que les forces parallèles entre elles.

—493. (Professor Brill, M.A.)—A top is apparently spinning steadily on a rough horizontal plane, the axis appearing to describe a cone of semi-vertical angle α about the vertical, with constant angular velocity Ω. Prove that, if the angular velocity of the top about its axis of figure be very slowly diminishing, through friction and the resistance of the atmosphere, the angle of the cone will be increasing at the rate

$$kA\Omega^2\sin\alpha\,(A\Omega^2\cos\alpha+mga)/(A^2\Omega^4-m^2g^2a^2),$$

where k is the ratio of the rate of decrease of the angular velocity about the axis of figure to its present value, A is the moment of inertia of the top about an axis through its centre of inertia perpendicular to its axis of figure, and a is the distance of the centre of inertia from the end of the peg.

—494. (Prof. Wolstenholme, Sc.D.)—Prove that (1) the Lemoine-point of a maximum triangle inscribed in the ellipse $a^2y^2+b^2x^2=a^2b^2$ is given by any two of the three equations

$$\frac{x}{a}\cos\alpha+\frac{y}{b}\sin\alpha=\frac{a^2-b^2}{2\,(a^2+b^2)}\cos 2\alpha,\quad \frac{x}{a}\cos\beta+\&c.,\quad \frac{x}{a}\cos\gamma+\&c.,$$

where α, β, γ are the excentric angles of the corners of the triangle; (2) at the Lemoine-point, $x/a\cos 3\alpha=y/b\sin 3\alpha=(a^2-b^2)/2\,(a^2+b^2)$; and that its locus is the ellipse $\dfrac{x^2}{a^2}+\dfrac{y^2}{b^2}=\dfrac{(a^2-b^2)^2}{4\,(a^2+b^2)^2}$; and (3) that the Brocard-points are given by the two systems

$$\frac{x/a\cos\alpha+y/b\sin\alpha-\frac{1}{2}}{(a^2\sin^2\beta+b^2\cos^2\beta)^{\frac{1}{2}}}=\frac{x/a\cos\beta+y/b\sin\beta-\frac{1}{2}}{(a^2\sin^2\gamma+b^2\cos^2\gamma)^{\frac{1}{2}}}=\frac{x/a\cos\gamma+y/b\sin\gamma-\frac{1}{2}}{(a^2\sin^2\alpha+b^2\cos^2\alpha)^{\frac{1}{2}}},$$

$$\frac{x/a\cos\alpha+y/b\sin\alpha-\frac{1}{2}}{(a^2\sin^2\gamma+b^2\cos^2\gamma)^{\frac{1}{2}}}=\frac{x/a\cos\beta+y/b\sin\beta-\frac{1}{2}}{(a^2\sin^2\alpha+b^2\cos^2\alpha)^{\frac{1}{2}}}=\frac{x/a\cos\gamma+y/b\sin\gamma-\frac{1}{2}}{(a^2\sin^2\beta+b^2\cos^2\beta)^{\frac{1}{2}}},$$

where $\cos\alpha+\cos\beta+\cos\gamma=0$, $\sin\alpha+\sin\beta+\sin\gamma=0$.

10495. (Professor Morley.)—Let ABC be a triangle, and let F be a focus of the maximum inscribed ellipse. Denoting these points by the complex variables z_1, z_2, z_3, z, prove that (1) $\Sigma 1/(z-z_r)=0$, $(r=1, 2, 3)$; and hence (2) if AF meets the circle FBC again at H, FH = 2AF.

—496. (The Editor.)—Find the equation, trace the form, and show how to find the length and area, of the first negative focal pedal of the hyperbola.

—497. (W. J. Johnston, M.A.)—Prove that the equation of a conic passing through the points of intersection of S and α, and touching the conics

$$S_1\equiv S+\alpha\beta,\quad S_2=S+\alpha\gamma,\quad S_3\equiv S+\alpha\delta,$$

is

$$\overline{23}\,.\,\sqrt{S_1}+\overline{31}\,.\,\sqrt{S_2}+\overline{12}\,.\,\sqrt{S_3}=0,$$

where

$$\overline{23}=(AB\,.\,\sqrt{RP\,.\,RQ})/(AR\,.\,BR\sin\theta),$$

P, Q are the fixed points through which the conics pass; A, B are points of contact of a common tangent to S_2, S_3; R is the intersection of AB, PQ, and θ the angle between AB, PQ; and $\overline{31}$, $\overline{12}$ have similar meanings.

—498. (A. E. Jolliffe.)—ABC is a triangle, and the triangle A′B′C′ is formed by drawing through A, B, C parallels to the opposite sides. Show that a conic inscribed in ABC concentric with its nine-point circle passes through the two points of intersection of the circles ABC, A′B′C′, and the polar circle of A′B′C′, which are coaxial, and has double contact at these points with the last of these three circles and also the nine-point circle of ABC.

—499. (W. J. C. Sharp, M.A.)—A circle is just immersed in a fluid the density of which is known to vary as some function of the depth. It is found that the centre of pressure divides the vertical diameter into two parts, which are as 7 : 3; find the law of density.

—500. (D. Biddle.)—Prove that

$$\pi=\left(366\tfrac{1}{3}+\Sigma_1^\infty\frac{9}{n^2\,(n+1)^2\,\{3+16n\,(n+1)\}}\right)^{\frac{1}{2}}-16.$$

[The materials for solving this question are contained in Vol. L., App. I. The formula is a convenient one for finding π].

—501. (W. J. Greenstreet, M.A.)—A length equal to five-fourths of the radius of curvature is measured off on the normal at any point to the curve $r^3=a^3\cos 3\theta$. Show the locus of points so obtained is the curve $r^{\frac{3}{2}}\cos\frac{3}{2}\theta=(\frac{1}{2}a)^{\frac{3}{2}}$.

—502. (H. W. Segar.)—Show that (1) the curve

$$r^4-2c^2r^2\cos 2\theta+c^4=4a^2c^2\sin^2\theta$$

has two conjugate points other than the origin, and the normals drawn from them are of length $2a$; and (2) draw a figure of the curve.

—503. (Alpha.)—Find the equation of an ellipse passing through the five points (x_1y_1), (x_2y_2), (x_3y_3), (x_4y_4), (x_5y_5).

—504. (Walter Stott.)—Construct a pentagon (regular or irregular), having given the mid-points of the sides.

—505. (R. Knowles, B.A. Suggested by 10385.)—A, B, C, D, taken in order, are the angular points of a parallelogram; the circle ABC cuts AD in A′, and DC in C′; prove that A′D : A′C′ = A′C : A′B.

—506. (Asparagus.)—Corresponding to each point P of a given ellipse (or hyperbola) whose foci are S′, S′, is described another ellipse (or hyperbola) having a focus at S′, a vertex at P, and its major axis equal to the major axis of the given ellipse; prove that the only real common point of this conic and the given one are P, Q, where PQ is the chord normal at P.

—507. (J. White.)—A circle of given radius a rolls upon a fixed straight line, and from a given point in it tangents are drawn to this circle; prove that the loci of the centres of the four circles which can be described to touch the rolling circle, the given line, and the tangents from the given point, are two equal parabolas, and the curve $x^2\,(y-a)^2=4ay^3$.

—508. (J. O'Byrne Croke, M.A.)—Taking the general equation of the parabola as

$$(\alpha x+\beta y)^2+2gx+2fy+c=0,$$

prove that (1) the focus and (2) the directrix are

$$\left.\begin{aligned}x&=\{\beta\,(g^2-f^2)+\beta c\,(\alpha^2+\beta^2)-2\alpha fg\}/\{2\,(\alpha f-\beta g)(\alpha^2+\beta^2)\}\\ y&=\{\alpha\,(g^2-f^2)-\alpha c\,(\alpha^2+\beta^2)+2\beta fg\}/\{2\,\alpha f-\beta g)(\alpha^2+\beta^2)\}\end{aligned}\right\}\ldots(1);$$

$$\beta x-\alpha y+\{fg\,(\alpha g-\beta f)+\alpha f^3-\beta g^3\}/\{2\,(\alpha^2 f+\beta^2 g-2\alpha\beta fg)\}=0\ldots(2).$$

10509. (R. H. W. Whapham, B.A.)—In an epicycloid, let C be the centre of the fixed circle, C′ that of the rolling circle; P any point on the epicycloid; O the corresponding point of contact of the two circles. Prove the following construction for the centre of curvature at P:—Produce CC′ to K, such that C′K = CC′. Join KP. Through C draw CT parallel to KP, meeting PO in T; then T is the centre of curvature at P.

—510. (D. T. Griffiths.)—The three tangents to a parabola at the points A, B, C form an equilateral triangle. Prove that the ellipse which touches sides of the triangle ABC at their mid-points passes through the focus of the parabola.

—511. (R. Tucker, M.A.)—O, O_a, O_b, O_c are the in- and ex-centres of the triangle ABC; through B, C lines are drawn parallel to CO_a, CO; BO_a, BO, meeting AC, AB produced in E_1', E_1; $F_1'F_1$, respectively. With centres E_1, F_1 (E_1', F_1') and radii equal E_1A, F_1A, ($E_1'A$, $F_1'A$), circles are described cutting in L, (L′); prove that, if AL, AL′ cut BC in D, D′, then OD′, O_aD pass through the Lemoine point. The same holds, of course, for the remaining four lines similarly obtained for the other angles.

—512. (J. J. Barniville.)—Given four lines, construct two similar triangles, each of which shall have two of the given lines as sides.

NOTICE TO CORRESPONDENTS.

Correspondents should be careful (*a*) to write each Question and each Solution on a *separate* paper (otherwise, when used for printing, the Editor has the labour of entirely *re-writing* such articles); (*b*) to make their Solutions as short as possible; (*c*) to send all Questions *early in the month*, but not to send Solutions till their Questions have been published; (*d*) to write their names at the *top* of *each* paper; (*e*) to *prepay* the postage in *full*; and (*f*) to send all communications to

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Thursday, February 13th, 1890.—J. J. Walker, Esq., F.R.S., President, in the Chair. The following communications were made:—"Concerning Semi-Invariants," S. Roberts, F.R.S.; "Ether-Squirts," Prof. Pearson, M.A.; "On Class-Invariants," Prof. G. B. Mathews, M.A.; "Note on the Imaginary Roots of an Equation," Prof. Cayley, F.R.S.

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COLLEGE OF PRECEPTORS.

EVENING MEETING, MARCH 19TH, 1890.

THE Chair having been taken by Sir ALBERT K. ROLLIT, LL.D., M.P., Dr. R. WORMELL, M.A., delivered the following Lecture:—

ON COMMERCIAL EDUCATION,

WITH SPECIAL REFERENCE TO THE SCHEME OF THE LONDON CHAMBER OF COMMERCE.

I AM about to criticise, from a schoolmaster's point of view, the Scheme of the London Chamber of Commerce for Commercial Education; and that my purpose may not be misunderstood, I desire at the outset to disclaim any intention of setting myself, or of leading others to set themselves, in opposition to the Chamber in this matter. What we wish is to co-operate with the merchants in raising the quality of the education of those who are destined for commercial pursuits. We desire to direct mercantile and academic influences to the same end. I shall frequently use the word "we" when I know I am describing the experience, or speaking the opinions, of all schoolmasters; but, at the same time, I must say that no one but myself is in any way responsible for the assertions or opinions I shall put before you. Accept them as coming from one individual, and he only a schoolmaster.

The merchants probably have just grounds for thinking that their wants have not been sufficiently considered in recent educational movements. In commerce there are two sections of operators—these are the producers and the distributers of the world's goods. The technical educationists have been exclusively looking at the educational wants of the producers, and the action of the Chamber of Commerce is a reasonable protest against this exclusive attention. But we who, by our professional experience, are schooled to look at all sides of education at the same time, may warn the Chamber not to fall into a like error. The two sides have an equal right to be considered, and each has a special right to be heard as regards its own special needs. But the manufacturer cannot force his own notions on the consumer, nor the latter his upon the former. Take, for instance, the clothworker as a typical producer, and the draper who is immediately in contact with the public as a typical distributer. If the draper says he not only wants cloth to meet the tastes of his customers, but he *will* have it made by machines of his own devising, he is usurping the business functions which are the special prerogative of the clothworker, and so in the matter he cannot succeed. If a clothworker chooses to produce what *he* thinks best for the public, without regard to prevailing fashions, or the general state of trade, his business will come to grief. Now, the schoolmaster is a producer, and the merchant, in part, uses what the schoolmaster produces. The former must, therefore, work to meet the orders of the latter; the latter must be content when he gets what he has ordered, even though the machinery used may be such as he does not understand, or may not be what he expected. When one hundred and eighty-five firms lay down the conditions for entry into their several businesses, the conditions must be aimed at. Even if the declaration simply means that, as examinations are the fashion, and merchants must be in the fashion, so they must have an examination of their own, we must cater for them. But the conditions and the examinations may as well be real aids to commerce, and, in the interests of commerce, I wish to direct the professional experience of teachers generally to the scheme of the Chamber, with the view of pointing out what in it is adverse to the interests of commerce, or antagonistic to other interests demanding no less peremptorily the attention of teachers.

We may remark at the outset that, although hitherto schoolmasters have not had the aid of the merchants collectively, they have not been left entirely without knowledge of what is wanted in commercial circles. Many are in constant communication with individual employers, and are often called upon to select from among their pupils those who fulfil certain conditions laid down by their correspondents. For instance, a merchant, recently writing for a youth for his counting-house, finished his list of qualifications thus: "Take care that he has *not* learnt bookkeeping." A little questioning, however, brought out the admission that he did not object to a boy who had cast a balance, or to one who knew what a ledger was. He would not object to the boys who knew the principles on which all systems of bookkeeping are formed; but he would object to any youth who had been led to think one narrow and inelastic system was right and all others wrong, and who would bring with him the notion that what he could not understand in the methods peculiar to the new firm must be reformed.

Twenty-five years ago a merchant asked me whether I had thought of the causes of the then recent financial catastrophes. I replied by asking another question: "What do you think is the cause?" His answer was as follows:—

"My conviction is that the confusion, anxiety, and loss out of which we are just emerging are fully accounted for by the ignorance and recklessness of a large number of individuals in using the credit offered to them, and of the lack of vigilance and sagacity in those who gave credit. I must leave it to you to consider what resources are at our disposal for preventing like ignorance and recklessness in future borrowers, and for controlling them by more vigilance and sagacity in lenders."

It was a famous merchant who wrote the following:—

"The school ought not to neglect any one of three conditions. It must promote physical health directly, by strict observance of sanitary laws within its bounds, as well as by fitting exercises; and indirectly, by so teaching as to impress the reasonableness, duty, and benefit of such observance; it must awaken intelligence and develop mental faculties, chiefly perhaps, but not solely, by imparting the right kind of knowledge at the right time, and in the right way; it must train in good habits, and aim at the formation of character such as shall give surety for good conduct."

And, again, we have another source of information on these points. We often keep in touch with our pupils for many years after they have left us, and it is often a matter of interest to us to trace in their success or failure the effects or omissions of their early training.

From these sources we have learnt much of what is required by those who are to seek success in commercial pursuits. Strange, peculiar, and unexpected demands are sometimes made upon us; but I venture to think no schoolmaster has ever been asked to supply a youth who could acquit himself well in that exact list of ten obligatory and eight optional subjects mentioned in the examination syllabus we are discussing. At least I will speak for myself. Of the four hundred who leave me for business every year, about three hundred go into the City, many in response to applications made directly to the school. In the sixteen years of my reign, about 3000 applications have come to me, and in no one of them has anything approaching these ten obligatory subjects appeared. I wish, therefore, to put it before you as a matter for serious consideration, whether, in the interests of commerce itself, more recognition should not be given to individual bent on the one hand, and the special needs of different businesses on the other.

Consider what is the common ground of all these demands, leaving out the Chamber for the moment. (Bad boys will often do and say things when they are acting together which no one amongst them would do and say when acting alone.) The real conditions for success may evidently be divided into two classes, A and B; A general, B special. A contains such qualities, due chiefly to education, as intelligence, good sense, self-reliance, love of order, moral purity, accuracy and promptness, and general reliability. B contains the knowledge and skill which formerly a good master taught his good apprentice—knowledge and skill in matters pertaining to business. In the earlier years of education the schoolmaster has to think first of A. He has to awaken and develop intelligence, and to form character. He can get but little help from the merchants in his endeavour to find the best modes of doing these things, for his science is an experimental one. The merchant may with reason ask, on the ground of economy of time, that as far as possible the special studies forming the conditions B shall be made the instruments for producing A. But if they ask that B exclusively shall be used to produce A, they will ask for what they cannot possibly obtain. And where special trade information is insufficient, it should be no concern of the merchant what is used to make up the insufficiency. Surely it cannot matter to the Chamber of Commerce what or how many faculty-making studies the schoolmaster may see fit to use for the purpose, provided the result is satisfactory.

The group A must be our first aim.

Unless this work is first done, the rest will be of little use. It does not take a high degree of shrewdness to see, for example, that even the power to converse in several languages is not highly valued when it is not accompanied by a general education. The following incident is an illustration of this. A foreigner and an Englishman at the St. Pancras Hotel needed an interpreter. The Englishman, seeing one of the attendants of the Hotel passing, asked him if he spoke French or German. With offended scorn the man replied, "No! there are plenty of chambermaids and waiters upstairs who can do that sort of thing. I am the head cellarman."

On the other hand, many examples might be adduced to show with what ease a youth who has acquired, by his early training, power of application and method in study, can learn a modern language, or gain other kind of knowledge, the need of which he finds in business.

One such was engaged a short time ago by a private London bank. He was selected because of general qualities, and not on account of trade knowledge. The bank opened up transactions with a Spanish firm. The young clerk saw what was wanted, and accomplished the astounding feat of learning to converse freely and write correctly in Spanish in three months. The first essentials in business are disciplined capacity and integrity of character; the second, technical knowledge.

All experienced schoolmasters are agreed that we must have some quickening and cultivating studies. We may differ as to the choice of them, but no schoolmaster who understands the responsibility devolving on him dare dispense with them altogether. Dr. Baker, writing of what is remunerative for commercial purposes, gives the first place to mother-wit, sharpened, cultivated, and refined by the best and most suitable instrument in each case. Mr. Eve, while pointing out, in reply to Dr. Baker, that the discipline can be gained in other ways than by teaching Latin, adds: "I cannot too strongly condemn premature specializing in education. If modern languages are to take the place of Latin, as I believe they should for the majority of boys, it is only on condition that they should be studied in a scholarly spirit and in the best literature." Dr. Baker and Mr. Eve, and all experienced schoolmasters, agree on the necessity for something more than mere information. I don't quite share with Dr. Baker his regret that the merchants have not considered what he thinks the best instrument. I would rather the merchants did not trouble themselves about such questions as whether or not Latin should be taught as a principal study in schools, for I am sure they are not in a good position for measuring its efficacy or inefficacy, sufficiency or insufficiency, for producing certain conditions of success which come under A.

Having so far considered principles, let us come to the details of the Scheme. There is a scheme of studies for six years, with time-tables, &c., and an examination syllabus. Let us look for a moment at the requirements in the latter.

"*Obligatory Subjects.*—English, History, Geography, Arithmetic, Algebra, Euclid, Elementary Mechanics, Bookkeeping, Elementary Drawing, and a Modern Foreign Language."

"*Optional Subjects.*—(1) Mechanics and Hydrostatics (a higher knowledge; (2) Shorthand; (3) Drawing (advanced): Freehand and Model, with Designing, *or* Mechanical, *or* Geometrical Drawing; (4) Chemistry; (5) Sound, Light, and Heat; (5) Electricity and Magnetism; (7) Natural History: Botany, Zoology, Geology, and Physiology; (8) Modern Foreign Languages, not taken as obligatory."

You all know something of examinations, and I need not waste time in showing that this may be made the hardest examination for boys of sixteen that was ever invented. It is hard, not so much on account of the quantity as on account of the enormous size of the obligatory portion. It may reasonably be expected that, if we but once give life to the system, it will tend either towards an inglorious extinction or to amelioration, and then to a useful life. If the education of the current generation of business men has not been so lamentably defective as to deprive them of all reasonableness and common-sense, the tendency will be of the latter kind, namely, towards the extinction of the bad and the retention and improvement of the good. It seems to me, therefore, that at the present moment the best course for teachers to take as regards this examination is to advise candidates for City life who happen to be amongst their pupils, to become candidates for the Commercial Certificate. Then it will soon be possible to bring the experience of many examinees and many employers to bear jointly on the conditions, and to make them more reasonable and rational. I should have had more to say respecting this Junior Examination but for the fact that I have just seen the papers recently set, and, judging from the papers only, I must admit that the first examination has not been made such a terrible Juggernaut as it might have been according to the syllabus. It is lumpy in one or two places, particularly in history, but not absolutely crushing.

The Senior Examination rests on a different basis, for its chief use will be as a means of encouraging and registering the efforts of those who have actually commenced business to supplement the knowledge previously acquired by special knowledge, the need of which is demonstrated by experience in trade. But I shall refer to this Senior Examination later on.

The other part of the Scheme throws light upon the first, and accounts for the fact that a reasonable option in the choice of subjects is not allowed, for it shows an utter ignorance on the part of its framers of the rate of growth of capacity in the youthful mind.

The *Commercial Code* has six standards, providing work for years from ten to sixteen. Moreover, it states the number of hours to be given to each subject, and absorbs the whole of the school-time, so that there is no room for any other study. Let me point out its faults.

First, the Commercial Code assumes that the commercial students show themselves at the early age of ten. Dr. Baker has pointed out that, "although there comes a stage in a boy's education at which it is desirable that he should specialize, whether destined for commerce or other walks of life, yet this does not come for a good many years after ten." As a matter of fact, we are not able to separate these students from those whose natural bent lies in other directions until within a year or so of their leaving us, and to enforce on all such a time-table as is here provided would be unfair and disastrous for many.

Again, it is based on a classification by age. A very amusing screen is provided to this fact. The years run thus: 10 to 12, 11 to 13, 12 to 14, &c. At first sight it looks as if in any part we might be allowed two years to accomplish the work, but what is really allowed is, that the age of beginning may be 10 or 11. If ten, then the years are 10 to 11, 11 to 12, 12 to 13, &c.; if eleven, then they are 11 to 12, 12 to 13, 13 to 14, &c. The Commercial Code is based on a classification by age pure and simple.

Political educationists have several times suggested a similar classification for the lower schools. In 1864 Mr. Robert Lowe did so, but he dropped the suggestion with more haste than he dropped his tax on matches; for everybody of experience knows how varied and eccentric is the rate of mental development in children.

Fourthly, let us look at the apportioning of work.

There is evidence in the Code of a scholastic touch here and there, but the evidences are only skin deep. For instance, geography and history have two hours each assigned them per week. This is about what is given in most schools to general geography and history, when there is no reason to make them prominent or special studies. But look into any one of these yearly courses, say the course for the eleven-year-olds:—

"*Geography.*—Two hours per week.
General Geography of Europe, Configuration, &c., principal seas, mountains, rivers, climates, &c. European States, their chief characteristics, physical and political geography, principal towns, population, military forces, &c.
Elementary Economic Geography, with special reference to agriculture, mines, industries, and chief modes of communication."

Wretched and overladen little slaves, these eleven-year-olds!

Take, again, the course for thirteen-year-olds:—

"Commercial Geography of the British Isles, including Agriculture, Animal Produce, Mineral, Textile and Chemical Industries, Commerce, Railways, Steamboat Service, Colonization; Physical Geography of Africa, Asia, America, and Oceania."

What do you say to that for a year's course at two hours per week? I can only say, Do it who can.

English is favoured with an hour a day, but what does it include? Take the case of the eleven-year-olds again:—

"*Writing*—using, as copies, bills, letters, circulars, &c., both in English and in French or German. Spelling, Reading and Recitation. Exercises upon Grammar, Etymology, Simple Composition, and Religious Instruction."

Here are ten subjects, so that the Code provides for one lesson a fortnight in each. In the face of this course, what becomes of the notion that we may secure the results of the discipline of the ancient languages by means of our own literature? Where is there room here for the systematic study of English literature? Some of us can do very well without Latin, others do very well with it. But when we do without it we want English literature or something else in its place. I should not object to the merchants saying, "English literature is not a subject we need care about, so we will exclude reference to it from our commercial certificate"; but I do object to their filling up the school time so as to exclude it. The only trace of it I find is in the history for the twelve-year-olds:—

"*History.*—Two hours per week.
History of England, with Literary History, and Contemporaneous General History."

Follow up this history for another year:—

"*History.*—Two hours per week.
Ancient History, with special reference to Colonies and Commerce; revision of English History."

Next—

"Commercial History of the Middle Ages and Modern Times. Geographical Discoveries."

And then—

"Contemporaneous Commercial History."

So you see we cover all history, ancient and modern, of all nations under the sun, and then add commercial history of the middle ages, modern times, and of the present day.

What value will be a First Class in the History School at Oxford after this? What about an historical tripos now?

But look at the Science. Physics and Chemistry are made mutually exclusive. What God hath joined together, the merchants put for ever asunder.

Then take one year's chemistry—

"*Chemistry.*—Two hours per week. Elementary Organic. Determination of the Composition of Organic substances. Empyrical and Rational Formulæ. Vapour Densities. Specific consideration of Typical Members of the following group:—Hydrocarbons. Alcohols. Aldehydes, Organic Acids. Amines. Carbohydrates. Principles of Organic Classification. *Practical Chemistry.*—Identification of the more commonly occurring substances in the above groups."

All this in two hours a week. Let me ask, what is the shortest time that can be given, with profit, to any single visit to the practical laboratory? *Ans.* Two hours three-quarters to collect and fit up apparatus, one hour to work, and a quarter to disconnect and clear away.

Look also at the next year's course:—

"*Chemistry.*—Two hours per week. Chemistry as applied to the more common industrial processes. Inorganic: Sulphur, Saltpetre, Bleaching Powder, Alkali Manufacture, Glass, Mineral Pigments. Organic: Gas and other illuminating agents, Fuel, Fermentation, Wine, Beer, Vegetable and Animal Dyes, Soap, Candles. *Chemistry, Practical.*—Elementary Quantitative Analysis, Principles of Volumetric Analysis, Use of the Spectroscope, Examination of the Substances connected with the above processes."

How long does it take to make a quantitative analysis of one of those organic substances? I should like to see the chemist who will do a sample of beer, for instance, from beginning to end, in less than six hours.

Why, the nearest curriculum I can find to this is that for the B.Sc. at London, and in the Regulations there I read, "Candidates will be required to show a competent knowledge of *any three* which they may select out of the nine subjects. These nine subjects are all here in the Merchants' Code, with the exception of Mental and Moral Science; and several others, Commercial Law and Political Economy, for instance, are added; but the optional choice is left out, except as between Physics and Chemistry.

Look at the Physics:—

"Experimental illustrations of Heat and Calorimetry, Conduction, Radiation and Absorption of Heat, Magnetism, Natural and Artificial Magnets, the Compass Needle, the Earth as a Magnet, Voltaic Electricity, Batteries, Measurement of Currents, Galvanometers, Ohm's Law, Heating Effects of Current, Electrolysis, Mutual Action of Currents, Magnetization by Currents, Electromagnets, Magneto-Electricity, Induction Coils, Thermo-Electricity."

"Sound, its Production, Propagation in Air. Its Velocity. Reflection of Sound. Musical intervals, &c. Light, Reflection and Refraction. Photometer. Properties of Lenses. Microscope. Telescope, &c. The Polariscope. Spectrum Analysis."

Take another year:—

"*Physics.*—Two hours per week.
A higher course on Electricity and Magnetism, Applications of Electricity, Electromagnets, Coils, Dynamos, Electric Motors and Transformers, Secondary Batteries, Telephone, Microphone, the Electrical Telegraph, Electrical Testing."

Natural History has one hour per week, but look what is to be done in that hour per week for one year:—

"General Anatomy and Physiology, human and comparative, including Digestion, Absorption, Circulation, Respiration——"

and all the rest of it.

Ye Colleges of Physicians and Surgeons, look to your laurels! Then notice—

"*Mathematics.*—Five hours per week.
Arithmetic.—Keep up Mental Arithmetic and Rapid Calculation.
Algebra—Binomial Theorem and higher work.
Geometry—Euclid I.—VI., and XI. (optional), and Mensuration.
Mechanics—Kinematics, Kinetics, Dynamics.
Cosmography—Of the Earth, Sun, Moon, Planets, Comets, &c."

I have such a high sense of the importance of the mental discipline involved in mathematical studies, that I am reluctant to complain of the quantity. I will note but one thing. This covers the requirements for the B.A. degree at London, and there is the Cosmography thrown in.

If this is to be the work in a school it will have to be distributed. For instance, there is no absolute necessity for the student of the theories of exchange or of commercial law to take up photography, photo-gravure, engraving, etching, painting and sculpture, or *vice versâ*. No doubt all these parts of specialized commercial knowledge are wanted, but they are never all wanted in the same individual, and never all in the same house—not even in a monster Whiteley's.

It may be asked how the Chamber of Commerce could have arrived at such a syllabus. The answer is easily found. On the last page but one is the following note:—

"In drawing up this Scheme, careful attention has been given to the French *Plan d'Etudes de l'Enseignement Secondaire Spécial* and to the chief German schemes, of which tables are given below."

Here, then, is the clue. On the Continent they never dream of adopting the order of things educational which by a peculiar inversion seems to be natural to Englishmen. They arrange for teaching long before they think of the examination tests. Now at Rouen, Paris, Antwerp, Leipzic, there are special commercial schools supported by the Government. In some there are no fees, and none are anything like self-supporting, or are intended to be so. The curriculum in each case is special, and no one in either of these countries would dream of forcing that curriculum on any but such special schools. But the curriculum has exclusive reference to the teaching; the time-tables mean that during such hours such teaching is being given. They never mean that all the students attend all the teaching. Sometimes they attend for one subject only, sometimes for several. Often, while doing this, they attend other schools for their non-special work; often they are employed for part of the day in business.

You see, then, how erroneous is the supposition that the Chamber of Commerce, in the matter of this Scheme, is only following Continental models. This part of the Scheme has all the faults alleged against the Government Code and none of the merits, but several other faults of a vital character which would not be tolerated for a moment in the lower schools. The Government Code is said to hamper teachers and lead them sometimes to neglect the best functions of education to secure passes. This fault is intensified in the Commercial Code. The Government Code leaves teachers free to make their own distribution of time. The worst that teachers have said on this point is that, to pass cent. per cent., they had to neglect the bright and able pupils that they might force up the dull to the prescribed dead level. The Government Code has never ventured to say the schoolmaster may not teach other subjects if he chooses, whereas the Chamber of Commerce wishes to appropriate the whole of the school time to its own Scheme. The fact is, that in this part of their Scheme, the merchants are attempting to exercise a craft they do not understand. Their distribution of time amongst the various subjects would not be passed by an inspector of training colleges if made by a candidate for a teacher's certificate, and affords another evidence of the necessity of training for schoolmasters. The Code is not supported, however, by any system of payment for results. It has not even that merit of the Government Code, and it is improbable that any school will adopt it. The greatest mischief it will do is that it will divert the attention of the Chamber from its legitimate work in education. Dr. Percival spoke the views of schoolmasters when he said—

"It was not enough to offer certificates, however valuable, or even to give a preference to those who held certificates, for it was just at that point began the great work for which the merchant himself should be responsible. If they turned to Leipzic they would find the continuation school with its three hundred or four hundred students, apprentices going perhaps for an hour every day for the instruction. And he hoped they might live to see a time when all the leading men of business in London would make it a part of the engagement of the boy and young man taken into employment that they should go on day by day and week by week with a certain amount of commercial education."

There is need of a Commercial Institute in the City, where there shall be well-paid teachers or professors of special commercial subjects, where all the teachers shall have the enthusiasm of specialists, and shall be in close intercourse with business men. The merchants may perhaps be blind to this necessity. I am afraid the matter escapes their notice because young men about them who want advice as to their special studies rather apply to their old schoolmasters than to their employers. At any rate, we often have the necessity forced on our notice. For example, a young man writes to his old schoolmaster thus:—"You will be glad to hear I am doing well. We buy and sell bills of exchange. I know the routine of the business thoroughly, but I should like to get some help in going deeper into the causes of fluctuation. I should like to see within what limits it is possible for a few powerful individuals to 'bull' or 'bear' the rate of exchange between two cities. I suspect, &c."

If the merchants would found and maintain a school where all educational aids needed by ambitious youths who seek to make themselves efficient in the spheres they enter on leaving the ordinary school, they would confer a real benefit on commerce and on the community. The senior certificates would then have a natural place in the arrangements. But even then it would have to be seen that the young apprentices would concentrate their efforts for the time being on what was immediately needed by them, and the certificates must encourage this and must not withhold examination from those who care only to pursue a few special studies. In my opinion, recognition should be given to success in a single group of allied subjects, and a complete senior commercial certificate should be securable piecemeal.

Then you see my conclusions. The junior commercial certificate may become a useful incentive to definiteness of study if it be attainable by reasonable effort. Considerable modifications, chiefly in the direction of relaxation as regards the number of obligatory subjects, are needed in the present Scheme to make it workable. The school time-tables are, however, almost useless. The senior certificates should be connected with classes under able specialists, and should be obtainable by the accumulation of successive passes in a certain selection of parts.

Now, in conclusion, I return to my first remarks advocating an alliance between "town and gown" for these objects. Every honourable alliance takes note of conditions attaching to each side.

Let us see what should be the object and results of the alliance in this case. I need hardly say that the alliance should be real, complete, and sustained by mutual confidence. When the merchants assert the claim of their own more special subjects to systematic study, we can heartily join hands with them. Their wants and our aims are not to be contrasted; they are not antagonistic. We are more disposed than ever to note the conditions for success. We have gradually been deprived of the old means of stimulating pupils to exertion until the fear of failure in life is almost the only ultimate terror held out to a student, and the disappointment of his friends the only immediate one; and the time is close at hand, I guess, when for those who are not prize-winners, and cannot feel a sense of present benefit, nor be stimulated by experience of the creative character of the pursuits to which they are invited, the hope of success in life will be the only ultimate inducement, and the desire of pleasing those who are nearest and dearest the only immediate one. It becomes, therefore, more and more important that we should know clearly what are the conditions of success, and for a knowledge of some of them we must be indebted to the merchants individually or collectively. Hence on our side there are powerful reasons for maintaining the alliance.

The merchants bid us give greater attention to things useful. So did Bacon. Speaking of the three vanities of studies, of which the first is "fantastical learning," he says: "For those things we do esteem vain, which are either false or frivolous, those which either have no truth or no use." The frivolous and showy studies must go. But the merchants must agree that humanizing studies are not to be excluded. They must not insist on the view that all life is for labour, and there is to be no leisure, and they must not object to our view that we have, in addition to other things, to teach a use of leisure, which will make the possessor the happier and the better for it, the better man, and the better man of business.

Man was not created simply that he might do bookkeeping, and commerce is but an instrument made by man for his own sustenance. So even a commercial certificate must take account of the fact that other studies have to be provided for which it is not the province of the commercial certificate to register.

Neither must teachers on their side sneer, like Seneca, at what is purely utilitarian and bread-winning. There may be degrees of excellence in the studies we enforce, and for the sake of the higher we must respect the lower. The roots exist for the tree's sake, and the roots must be tended that the tree may live. Man, though his arms stretch to heaven, is rooted in the earth, and nothing is unworthy of the notice of the educator which will enable a man to earn his bread.

We may feel profoundly how much education is capable of accomplishing, and admit that education, as hitherto conceived and conducted, has not accomplished all the good that might reasonably have been expected of it; but we need not despair of witnessing better results from one better conceived and better conducted.

There is a great cry about, that *secondary education needs organizing*. This may or may not be true. It depends on who are to be the organizers, and what is to be the nature of the organizing. It does need extending; it needs a better provision; it requires that the merchants shall do as did their forefathers, who taxed their profits for education. It needs a government ordinance to make it impossible for any one to take any part in it who is not duly qualified; but it will not be helped by any efforts of amateurs, however distinguished, to place it in chains of their own welding.

They are not friends of education who ignore all the lessons of the past, or who ruthlessly set aside the influences which have hitherto been effective in the hands of schoolmasters for building up intelligence and integrity.

To violate or extinguish any of these influences would be to commit treason against our country, for it would be to sap the foundations of its prosperity. But to maintain the educational system, and to invigorate it with the improvements which wisdom and experience suggest, may be alike the task and the glory of the trainers of youth and the men of business.

It is for the purpose of advocating a wise and liberal application of these principles that I have taken up so much of your time.

The Rev. Dr. Wace said it was certainly a matter for congratulation that the Scheme for the establishment of a regular course of commercial education should have been subjected to systematic discussion in a meeting like the present, which was sure to be attended by those

who were fully competent to form and express an opinion on the matter. He ventured to express some little regret that Dr. Wormell's criticism should come forward rather late in the day. The plan was initiated by the Chamber of Commerce in the spring of the year 1888, and in May or June of that year they were submitted, among others, to a very large number of teachers and masters of schools throughout the country. He should be very much surprised to find that they were not submitted to Dr. Wormell.

Dr. Wormell said he had received copies of the Scheme, and both in writing and in other ways had expressed his objections to it.

Dr. Wace desired to call the attention of the meeting to a letter written by Dr. Wormell to the Secretary of the Chamber of Commerce, in which, referring to the Scheme, he had made use of the words, "We are thinking of adopting it with a few modifications." The whole lecture that evening had been a general indictment of the so-called "Merchants' Code" as being adopted without reference to the wishes of the teachers. But take Dr. Wormell's words with any modification they liked, they seemed sufficient to show there could not be such a gulf between the wants of teachers and the Chamber of Commerce. He was particularly anxious to insist on this point, as he earnestly deprecated the general impression which Dr. Wormell had done so much to convey, that this was a "Merchants' Code," and that the merchants of the City of London had deliberately attempted to impose on the teaching profession a scheme out of their own heads, without consideration for the wants and feelings of that profession. The Chairman was a member of the Chamber of Commerce, and he knew what great pains had been taken by the Chamber to prevent anything of that kind. He really must remind the meeting of what had occurred. It was felt, as Dr. Wormell admitted in the paper, that they must first of all ascertain what the merchants really wanted, and then endeavour to ascertain by means of experienced schoolmasters and others what were the best means of obtaining that. Accordingly, after the first draft of the Scheme was drawn, a very large number of circulars were issued to business houses in London, and throughout the country. He had with him a letter that was issued in May, 1888. It stated that the Scheme had been drawn up on the basis of the systems approved by experience abroad, and had been carefully revised by Sir John Lubbock and the Principal of King's College, London, with due attention to the plans recently put forward by the Universities of Oxford and Cambridge and some other authorities in the country, and with the assistance of eminent teachers. The letter proceeded as follows:—"We have reason to think that, if some such Scheme were put forth as generally approved by men of business, it would afford both a valuable guide and an important impetus in the development of commercial education in our schools. We purpose ultimately to submit it for revision in detail to masters of schools and other authorities on practical education, but we are anxious to be assured, in the first instance, that the main objects at which it aims commend themselves to the judgment of commercial men." In answer to that request, the Chamber of Commerce received a large number of answers from houses of business, and the Scheme was, in the first instance, modified to meet the requirements which men of business said they wanted in their employés. When modified it was sent, with another circular, for consideration by a large number of schoolmasters. It appeared, from what Dr. Wormell said, that the number of those who replied did not correspond with the number of those to whom it was sent—that is to say, it was sent to a great many more than those who returned answers. The Chamber of Commerce, however, had received fifty-five answers from scholastic authorities—for instance, from the Headmasters of Clifton College, the City of London School, University College School, Godolphin School, Hammersmith, the Brewers' School, the Mercers' School, the Stationers' School, St. Saviour's Grammar School, Southwark, the Bristol Grammar School, the Exeter Grammar School, Dean Close's School, Cheltenham, and other well-known schools. They were numerous and very representative masters, and their answers were all read and analysed. Their general remarks were put in the report, and there were special remarks upon each subject. In fact, there were fourteen pages of analysis of the suggestions and criticisms of schoolmasters alone on this Scheme; and yet they were told that this was a Merchants' Code, as though the merchants had imposed it out of their own heads without taking advice beforehand. The most important circumstance in the whole of the Code, viz., the omission of Latin, was due to the advice of schoolmasters, and was adopted by the Chamber of Commerce most reluctantly, against the renewed protest of the President, Sir John Lubbock, upon the advice of schoolmasters alone. The members of the Chamber of Commerce were, by a decided majority, disposed towards the retention of Latin, but they also said that French and German were necessary, and the schoolmasters said if French and German were necessary they could not teach Latin at the same time, and it was in accordance with the advice thus given that the Scheme was finally framed. Other important alterations were introduced into the Scheme at the suggestion of members of this College. The opinion of schoolmasters had been taken, and that opinion had been deferred to by the Chamber of Commerce. If he were disposed to go into personal questions, he might venture humbly to suggest that his position at King's College had given him some opportunity for knowing a little about education and its requirements, and that he had the advice, in the little he contributed in the matter, of the experienced teachers in that institution. He thought that all such language in the address of Dr. Wormell as spoke of this simply as a Merchants' Code was unconsciously used under a misapprehension of the circumstances under which it had arisen. In the next place he wished to deprecate, as irrelevant, the quotations which Dr. Wormell thought it necesary to read from the schedule of subjects which were to be taught. He could make similar play if he chose to refer to the programme of the school in Cowper Street of which Dr. Wormell was the head. The mere enumeration of the subjects taught was no sufficient illustration of the difficulty of the matter. They must remember that the whole of this question arose from the complaints of merchants in the City that English boys were not able to hold their own in competition with French and German. The Chamber of Commerce were deeply impressed with the fact that, unless they could bring them up to something like the same kind of level, English commerce would suffer. He held in his hand the plan of studies and programmes of secondary special instruction in the Lycées and colleges of France. It began from ten to eleven years on the average; and taking the boys from eleven to twelve years on the average, what would any one think of the subjects set in history, for such boys, as the following:—"Louis XI. and Charles VIII.; Struggle of Royalty against the House of Burgundy and feudal system; Political unity of France; England; the coming to the throne of the Tudors; Discoveries and conquests of the Spanish and Portuguese; Wars of Italy; The Renaissance in Italy and France," and so on. These were the subjects for the "overdriven slaves" of French boys between the ages of eleven and twelve. This was the way other boys were trained. Take, for example, Physics:—"Different conditions of matter; Liquids in equilibrium; The principle of Archimedes; Atmospheric pressure, barometers, Mariotte's law, manometers, pneumatic machines, pumps and hydraulic presses and syphons; expansion of objects by heat." Dr. Wormell made an observation which, if it could be sustained, would have great weight in this matter, viz., that these are mere suggestions, that this teaching was going on throughout the whole time, but that the boys did not go through it. He should be very much obliged if Dr. Wormell would tell him his authority for that statement, because the scheme in France provided that all the subjects should be studied. He had in his hand the 17th Annual Report of the Vienna Academy, and there there were two courses—one a single year's course for those leaving the gymnasium, from which it appeared that the number entering for the regular course (and he supposed the regular course would mean going all through the subjects of instruction) was 115, and those who left it during the course of the year were only 12. When he came to the three years' course for boys from 14 to 17, he found the total number who entered for the regular course was 684, and those who remained at the end of the first half-year was 670, and those who remained at the end of the second half-year amounted to 671; so that it would appear that, with a few exceptions, they all went through the regular course. He could not conceive what the French plan meant by expressly providing that pupils were to be examined year by year, particularly at the end of three years, in the course of instruction laid down, unless it was that they should be examined in those specific subjects. This reference to the French course reminded him of the criticism of Dr. Wormell, that it was prescribed specifically for definite years, and that definite hours were assigned. He was sorry that the omission of further explanation should have led any one to form the impression that it was intended that boys should be forced at a given age, whatever their capacity, into certain courses. He was at a loss to suppose how any one could imagine that a body of merchants or teachers should be so stupid as to suppose that all boys between given ages could be made to learn certain things. He supposed, indeed, although there was a good deal of eccentricity in boys, that they could not manage the teaching unless there was considerable regularity, and unless they could say what a boy ought to be studying at the age of 10, 11, 12, or 13. All that was intended in marking this out was that that was the average study which boys should be doing at that age. If a boy was not able to do the work at that age, then he would be in a lower class, and if he could not rise up to it in good time the best thing would be for him to leave the school. So with regard to the time-table, he could not imagine how it could be supposed that the Chamber of Commerce thought that education could be managed according to the regularity adopted in France. But they were bound to see how many hours there were in a week which could be given, and how the course could be divided, and they merely suggested by the time-table the manner in which the hours per week could be devoted in order to do the work. He should have doubted whether thirty hours per week was the whole of the time that boys in the third year could afford to give to study. He would further point out that Dr. Wormell had cut the ground from under his criticism by the observation that he had seen the first examination papers under this system, and had found them by no means unreasonable. Why was that? Because the Chamber of Commerce was not so unreasonable as to undertake the examination itself; not so unreasonable as to think it could judge of what boys could do. Instead of doing that, it came to the College of Preceptors, and asked that body, representing as it did to so large an extent experienced teachers to conduct the examination for them, and to see that questions

were not put which were beyond the reasonable range of boys at that age, and so to feel their way gradually to the introduction of the system. The Chamber of Commerce, by coming to this College, had disclaimed in advance all attempt whatever to impose on the schoolmasters of the country a standard which they could not attain. They had asked the College to interpret the Code in a manner which was practicable. Dr. Wormell had recounted some of his inquiries, and said they all knew something of examinations, and that therefore he need not waste time in showing that this might be made the hardest examination for boys of sixteen that ever was invented. Certainly. If they would name any subject to him, he would make it the hardest that could possibly be made for an examination. They could examine to any extent on any subject, and with reasonableness and ease upon the hardest subject. If one set the subject of cosmography, they might ask questions which would puzzle the cleverest; but boys could answer simple questions on the planetary system. Of course there were questions which could not be answered. [At this point a member asked how long a time was permitted to a speaker, and Dr. Wace at once sat down.]

Mr. Easterbrook said there were just one or two points which he should like to touch upon. He thought he was echoing the sentiments of every one present if he thanked Dr. Wormell for the clear and lucid manner in which he had made a statement of the weak points in the Scheme; for, as practical teachers, they thought there were weak points in it. The lecture was the first authoritative statement in this way from a practical teacher, and he had long been hoping that there would be a discussion upon this subject. It must be allowed that the Chamber of Commerce had made out a very powerful case that some change was necessary, and, with all due deference to Dr. Wormell, he thought he had not quite done the Chamber credit so far, although it was no doubt unintentional on his part. They had shown zeal and ability and public spirit in the trouble which they had taken to collect information and formulate plans. If any one read the reports which had been issued, they could not fail to see that great credit was due to the Chamber. He should like to mention a few of the difficulties which had occurred to him. In the first place, although Dr. Wace had mentioned that he was responsible greatly for this Scheme, still it was a Scheme from a merchant's point of view, and they had to think of others besides merchants. All the boys did not go into the merchant service, and consequently they had to think of those who did not. First there was the omission of Latin. How many of them were in a position to strike Latin out of the curriculum? He took it that very few were in that position. If so; what were they to do? Either put Latin in as an alternative to one or more subjects of the Scheme, or else to put it in as an addition. If it was put in as an alternative, they would have to decide whether or not the boys should take it at the early age of 10 or 11. If it was taken as an addition to this Scheme, the Chamber of Commerce had already taken up the thirty hours of the week. No time was allowed for other time-consuming but yet necessary matters, as assembly, short recreation, music, drill or gymnastics, and if Latin was added, the hours would at once mount up to thirty-five, omitting Saturday. That meant seven hours a day, or an attendance from nine to five, which was considerably exceeding the hours of attendance at King's College. Then, again, they had not allowed too much time for any one subject; and he would show that in the case of the two main divisions of the work, English and mathematics, it was simply impossible to do the work in the time mentioned. It was all very well to say you need not keep to those hours. In the fourth year, for boys from thirteen to fifteen, the English consisted of literature, language, composition, and religious instruction; writing, deciphering, German copy, shorthand; and for this four hours per week were allowed. He did not see how it could be done in the time. It was assumed that the large range of subjects included under the term English could be learnt, somehow, without any definite time being given to any one subject; but it appeared that those who drew the Scheme had forgotten that attention had to be paid to such common matters as English spelling. If the Scheme was carried out, they would have boys coming with a certain amount of undigested knowledge, and totally unable to write a letter grammatically. In the fifth year, under the head of Mathematics, they had five subjects, every one of which required an hour to itself, and it was impossible to do it in the time fixed. The same remark applied to the sixth year. He did not complain of the quantity of mathematics at all. In fact, he quite approved of Dr. Wormell's remarks upon the matter. According to the Scheme, as years went on, the time given to mathematics was decreased; but his own experience was that the time required to be given increased rather than decreased. Dr. Wormell spoke so fully about the sciences, that he need not say anything about that, except that it was simply impossible that the practical chemistry could be done in two hours a week, to say nothing of the theoretical part of the subject. One point which had not been touched upon was the question of age. Although boys differed very much as to age, they had to take the average age of a particular form, and having done that, he found the age stated was considerably higher than the age mentioned in the Scheme. He found the age to be somewhat over twelve, whereas the Scheme put it down at eleven. His boys were very much less advanced for their age than others, or the Scheme was altogether wrong. It was only by taking the Scheme in detail like this that they could see whether it could be made a practical one. He thought the Chamber of Commerce should understand that the teachers of the secondary schools of the country did not criticise the Scheme in any carping spirit. They quite acknowledged their public spirit in what they had done, and were ready to welcome any well-considered plan to make education more useful and practicable, if sight was not lost of the proper view of education, viz., that an education should be given best suited to the times, so as to send boys from school as well equipped as their continental rivals. If the Chamber of Commerce had brought home to every teacher the fact which was very fully brought out by the report, that they were behind other nations in the attention paid to modern languages, they would have done some good, and their work would not have been thrown away. Any one who had travelled on the Continent could not have helped noticing the number of people, in Germany especially, who spoke two languages besides their own, and that was one of the great points the Scheme was intended to bring out. The Scheme was not perfect as a workable scheme. It erred in expecting too much from the majority of boys. He said this from his own experience of a large number of boys. He should like to know if at any other school there were a majority of boys, of the ages mentioned, who could take up the Scheme and work it through. The Chamber expected a large number of things from boys, which only a very small number were capable of. There were many things which it would be well for boys to know, but then they had to see how many could be taught efficiently in the time at their disposal, and of two subjects which were equally good from an educational point of view, it was a safe rule to take that subject which would be more immediately useful to them in future life, and that was what masters wished to do. Masters were of opinion that the number of subjects was too many to be taken in the time at their disposal. After all, a few things well done were far better than a smattering of a number of things.

Mr. W. Brown said that, as the head of a school of over 300 boys, nine-tenths of whom were intended for commercial pursuits, he had watched with much interest the progress of this agitation for a more commercial education in secondary schools. With the view of showing his objections to the Scheme, he might perhaps be forgiven for making allusion to his own career. When eleven years ago he established his school in London, starting with the schoolmaster's ideal, that a good general education was the foundation for a successful life, he at first included in his curriculum Latin as an essential subject, both as being the basis of much of our own language, and as valuable for mental training. The pressure of parental opinion had, however, in the course of time, induced him, following the example of University College School, to give up Latin as a subject that all must learn, and to replace it by German in the upper forms, French being obligatory throughout the school. Great was his surprise, therefore, when he found in the original Scheme of the Chamber of Commerce, Latin made a compulsory subject. This difficulty, it was true, had been removed in the second issue of the Scheme, in which Latin had been cut out. Again, he had had for years past to contend with commercial men about the retention of Euclid as a subject in his curriculum. Next to Latin, no other subject had been so constantly denounced as useless for practical purposes. But it was on account of its value in training the reasoning powers of his pupils, and not for its commercial utility, that he prized it and would not let it go. But at the same time it was not essentially a commercial subject; it was a very difficult one for boys to acquire, and he failed to see on what grounds it could be required as an obligatory subject in a commercial examination. But the subject of History was, in his opinion, still more objectionable, and it occupied a large place in the Scheme. This subject was generally regarded by schoolmasters as specially burdensome to the memory, while it had little to recommend it as a discipline; and he regarded the attempt to include this as an obligatory subject in a commercial education as unendurable. Nor were these the only non-essential subjects made compulsory in this remarkable Scheme. If there was one subject that was difficult for a boy to understand and grasp, so as to apply it to work out problems in it, it was Mechanics, including, as it did, statics, dynamics, and hydrostatics. He had found it utterly beyond the capacity of the ordinary boy, and held that it could only be taught with any effect to those who had made considerable progress in mathematics; and yet this also is made compulsory in the Commercial Scheme. Further, he contended that Drawing, as a subject requiring special aptitude—though he taught it throughout his school—should have been included among the optionals. Taking all these points into account, and considering the requirements of the oral examination in foreign languages, he contended that this was the hardest examination that had ever been devised as a test of school education. What practical teachers would regard as a fair examination would be one in which, firstly, the obligatory subjects were few in number, and such as were evidently of prime importance in a commercial career, viz.: (1) English, including good writing, spelling, and composition; (2) Arithmetic thoroughly, including mental; (3) Accounts; (4) Geography; (5) Modern Foreign Languages (one at least—he would not mind two); secondly, that such subjects as History, Euclid, Algebra, Mechanics, and Drawing should be included among the non-obligatory subjects; but that a minimum number of these non-obligatory subjects be required of each candidate. For years past

schoolmasters and parents had been unanimous in demanding from the various examining bodies a diminution in the number of compulsory subjects. At the Oxford and Cambridge Local Examinations, the only real "obligatories" were English Grammar, Dictation, and Arithmetic. The College of Preceptors had of late years made important modifications in their scheme, giving greater liberty of choice of subjects; and even the London University had been compelled to relax the stringency of its Matriculation Examination in the matter of obligatory subjects. In the face of all this, he would ask the meeting to condemn the Scheme of the Chamber of Commerce as retrograde and reactionary, as imposing again a burden which it had taken schoolmasters and parents half a generation to remove. Had, in the first instance, a representative committee been formed, consisting of commercial men to say what they required, and of schoolmasters, to say what they could do to meet those requirements—a committee on which different classes of schools should have been represented, and including also representatives of the chief examining bodies—a Scheme might have been elaborated which would have been acceptable to the great bulk of the profession, and have preserved that freedom, in regard to arrangement of time-tables and otherwise, which was essential to the healthy life of a school. He ventured to express dissent from Dr. Wormell on one point. He strongly disapproved of schoolmasters giving any countenance to the Scheme, as it at present stood, by sending in candidates to the examinations. If they disapproved of the Scheme, let them have the courage of their convictions, and absolutely decline to enter for it. Indeed it could only be rendered possible at the present moment by the examiners setting papers that were easier than they ought to be, and such a method of procedure had the further disadvantage of making the Chamber of Commerce believe the Scheme to be workable, and, in consequence, of postponing the time when they might reasonably hope to have their objections met and provided for.

Mr. Eve said there was a well-known story of the late Master of Trinity saying, after one of the younger members of the Society had been laying down the law at a Fellows' meeting, "We are none of us infallible, not even the youngest." He ventured to apply the Master's words to the youngest educational authority, the Chamber of Commerce. He had listened with very great interest to Dr. Wormell's paper, and the remarks of Dr. Wace, at least when he left personal questions alone, and came to the practical part, and was very glad to see that he admitted that the Scheme was a counsel of perfection. Dr. Wace was kind enough to consult him during the preparation of the Scheme; his chief suggestions had been in the direction of cutting down the original draft. He thought there had been no such scheme laid out in English secondary education before, and therefore it was not surprising if it was very far from perfect; for instance, one could trace in it the hand of a very eminent scientific man who took an interest in the whole subject, and who had evidently laid down the scientific lines on his own exalted ideas. He thought Mr. Brown's suggestion as to a conference an excellent one. The Scheme had come from an outside authority, after consulting experts; if the process had been reversed, and experts had drawn it after consulting the outside authority, it would probably have been much better. On the whole, it seemed likely to have a stimulating effect, and he had no doubt that the Chamber of Commerce, as the youngest educational body, would have the modesty of youth, and accept gratefully criticisms upon it with a view to eventual modifications. The examination was, happily, by no means as formidable as the Scheme of education. If one compared the examination with the sixth, or even the fifth year, one would see that the standard was not nearly so high, and the authorities of the College of Preceptors had done their best to make the examination as reasonable as possible in point of difficulty. He thought that the compulsory subjects were too numerous, at least if all were to be carried up to examination point. There should, no doubt, be an opportunity for examination in most of them, but if five or six, at the outside, were made absolutely compulsory, he believed it would be a distinct gain. He wished to say one or two words on the history included in the examination. The subject prescribed was the Commercial History of the British Isles, their Colonies and Dependencies, and in sending out instructions to the examiners this was the point which puzzled him most. It was felt that they had no right to put questions on the paper which did not bear directly on commercial history, and in this respect he thought the Chamber of Commerce might probably like to alter what they themselves had laid down. The natural paper to set for such an examination would be a paper on the History of England, with a few questions on Commercial History. As to the general standard of the examination, he thought that if the papers were only a little bit harder, it would be equal to the London Matriculation, which they all knew was fatal to a great number of boys who had the opportunity of a higher education than the bulk of those who went into business. It was certainly harder than the Preliminary Medical or Legal examination. He had pointed out what he thought were among the main defects in the Scheme, but if the College of Preceptors and the Chamber of Commerce would work heartily together to amend the Scheme they would arrive at a very decent result, and probably have done something to stimulate and direct the education of those boys who were destined for business. He thought that schoolmasters were greatly indebted to Dr. Wormell for dwelling on that side of education which a scheme of this kind could not possibly put in black and white. He did not doubt that those who drew it up felt this as strongly as Dr. Wormell, only it was sometimes difficult, when hours were put down for different subjects, to leave time for the undefined or uncatalogued work of the schoolmaster, on which subject he recollected hearing an interesting paper from Dr. Wormell.

The Chairman here regretted to say that he was obliged to leave in order to attend the Speaker's Levee, and called upon Mr. Eve to take the chair, which he accordingly did.

Mr. Bourne said there was perhaps only one sentence in the paper which he could accept without qualification, and that was the following:—"What we wish is to co-operate with the merchants to raise the quality of commercial education." With reference to the whole discussion, he thought the speakers had been crying bogey and fighting a shadow; they were professing to be extremely frightened at a Scheme which they had not yet tried, and which they did not mean to try. He always understood that the proof of the pudding was in the eating. After the Scheme had been tried for some years it would be sufficient to come forward and urge the objections. The objections which had been urged so far were entirely imaginary—imaginary, because they did not know for certain that they existed. The Scheme had not yet been tried, and they had not yet arrived at the point of either modifying or improving it. He strongly urged upon the meeting to give the Scheme a fair trial, and if it was found wanting it might then be modified. They must not forget that German and French boys in large numbers did submit themselves to a scheme in every point as rigorous as the present, and succeeded in passing the test, and then they came to England and supplanted English boys, and therefore he could not see why English boys could not do as well as French and German boys. At the commercial schools in Vienna the boys practically took the whole of the time-table, and this time-table he had been carefully through, with the assistance of the Head of the Commercial Department at King's College, and it appeared that the Scheme was on all fours with the Scheme of the Chamber of Commerce, being only in one or two minor matters a little more rigorous. With regard to the general question on the paper, it seemed to him that the whole of the attack was upon the time-tables, and not upon the Scheme, and what they, as schoolmasters, had to deal with was the Scheme. He was quite content, while he did not admit the force of Dr. Wormell's criticism upon the time-tables, to give the Scheme a fair trial, as tested by the examination of the College of Preceptors, and the Oxford and Cambridge Joint Board, and when he found it unworkable or deficient in any respect he should be ready to say so. The Scheme was not intended for the grocer's boy, but to give education to those who would subsequently be the leading men in the commercial world, and it was essentially necessary that this fact should be borne in mind. If the standard of commercial education was at present low, that was not an argument for lowering it in the future. One of the speakers regretted that this was not a scheme which could be conveniently worked in combination with any other, but that was not the fault of the Scheme. It must be decidedly worked on its own lines to be perfect. Those who could not organise their school so as to give commercial education had no right to ask that the standard of that education should be made lower.

Mr. G. Brown said the last speaker gave them to understand that the object of the Scheme was to prepare for commercial life the men who would be the heads of commercial life in time to come. But he thought the object of the Scheme was to prepare those who were to take their place as privates in the ranks of business. A committee had been appointed by the Chamber of Commerce to deal with the question of commercial education, but on looking down the list he did not find the names of many practical schoolmasters. This fact explained why the Scheme was overburdened, and why the distribution of time and of subjects was not in accordance with the views of practical teachers. If the Chamber of Commerce had selected their committee from persons conversant with what was required, the Scheme might have been put forward with every chance of success. Instead of asking schoolmasters to send their opinions of the Scheme by letter, it would have been much better if a meeting had been called, when the whole question could have been thoroughly discussed. Another point to be considered was this: they were told that French boys did a great deal of work in less time, but, comparing the schemes, it would appear that the French and German schemes and two others had been put together and divided by three, which brought out a remarkable result as to time. He contended that the Scheme was overloaded, and if English masters were to fit their pupils to cope with the competition of foreign clerks, they must simply take up the subjects which were required. They ought to let it be understood that they were not antagonistic to the Chamber of Commerce, but they did not want an immense amount of work thrust upon them which was useless for business purposes. The action of the Chamber of Commerce in inducing a number of business firms to take candidates who had passed their examinations in preference to others, he characterized as a kind of boycotting of schoolmasters, in order to make them adopt a Scheme to which they objected; and he urged the schoolmasters to unite in resisting the pressure.

Mr. Orchard said he was not hostile to the Scheme, but he did desire to see it modified so as to make it practicable. It appeared that Latin of late had become unpopular, and no doubt it was not directly a

commercial subject; but nevertheless, as Dr. Baker had pointed out, it did cultivate mother wit, in addition to which it helped to a knowledge of the English language, and this was of importance with regard to a right understanding of the meaning of words, and the expression of thought in clear and precise terms. These things were as important to commercial men as to those intended for professional life.

Dr. Wormell, in reply, said he had two regrets to express. He seemed not to have made it clear that he thought they were much indebted to the Chamber of Commerce for its efforts in behalf of education. He also regretted that the special courtesy he had shown to Dr. Wace in sending him beforehand a proof of his paper had been ill requited. He had been charged with inconsistency, because, while he thought the Scheme very imperfect, he had sought to mend it and use it. He confessed he had done so. He had never ceased to hope that his suggestions for its improvement would be adopted, and he had never given up the intention of using it if so amended. He was told that once he went so far as to express his intention of adopting it if amended. That was some time ago, and before his attention was drawn to the shackles formed by the *years and hours* attached to the work. He had never once signified approval of these figures in any shape or form. Dr. Wace had read from his own syllabus to show that it resembled the other, but he neglected to tell them that what he read was not assigned to any age, and the number of years required to accomplish it was not stated. He was sure now, and always had been since he saw the figures of the Commercial Scheme, that they rendered it unworkable. He ventured to think that this opinion, coming from one who could not work it if he would, was not eclipsed by that of one who would not work it if he could. He thanked those present for their sympathetic attention.

Dr. Wace expressed his regret if any one supposed that he had attacked Dr. Wormell. What he wanted to show was that Dr. Wormell's observations showed that the Scheme was not one so hostile to schoolmasters as the paper would lead any one to suppose. The only reason he did not communicate with Dr. Wormell upon the subject of the letter was simply that it only came into his hands an hour before he entered the room.

A vote of thanks was then given to the Lecturer for his paper, and the proceedings terminated.

COLLEGE OF PRECEPTORS.

DISTRIBUTION OF PRIZES AND CERTIFICATES.

The Public Distribution of Prizes and Certificates to the successful candidates at the last Christmas Examination took place at the College of Preceptors, Bloomsbury Square, on Friday, the 28th February.

The Chair was occupied by the Right Hon. Sir M. E. Grant Duff, G.C.S.I., who was supported on the platform by Mr. H. W. Eve, Dean of the College; Mr. E. Pinches, Treasurer; the Rev. Canon Daniel, Vice-President; Mr. Bidlake, Dr. Dillon, Mr. Hagreen, Dr. Kemshead, Mr. Langler, Mr. Nasmith, Mr. Reynolds, Mr. Robinson, Dr. Turpin, Dr. Weymouth, and others.

The Chairman, in opening the proceedings, said:—Ladies and Gentlemen,—It is with no little diffidence that I rise to make even the brief remarks which I have in my mind to an audience which knows infinitely more about education than I can pretend to do. I recognize, however, the fact that it is the law of this institution that the person whom you select to distribute the prizes, on this occasion, should make some remarks on that momentous subject, and I dutifully submit to that law.

Your Secretary was good enough to send me your Calendar a week or two ago, and I confess it was not without some surprise that I learned how far-reaching was your activity.

I am informed that the number of candidates examined last December, the most distinguished of whom are now to receive their prizes, was 9,511. At the last Midsummer Examination the number examined was 5,129, so that the total number examined during the year was 14,640, while about 4,500 schools, both public and private, in all parts of the country, are now on your list, and send in candidates from time to time.

The examination of teachers, not only in regard to their general knowledge, but in the principles and practice of education, was, as all know, begun by the College earlier than the examination of pupils, though it has not attained the same development, and for many years past the training of teachers has been provided for by you through the delivery of systematic courses of lectures on theories and methods of instruction, by such authorities as Dr. Fitch, Professor Robertson, Professor Meiklejohn, Canon Daniel, Dr. Sully, Mr. Oscar Browning, and others.

I am told, too, that you are accumulating a fund for the establishment of a Training College for Male Teachers, and in the meantime several scholarships for intending teachers, tenable at existing training colleges or at schools of repute, are annually offered for competition.

I learn also that the College is promoting a Bill in Parliament for the organization and registration of teachers in secondary schools, intended to remedy some of the abuses of unlicensed teaching without interfering too much with the liberty of instruction which has hitherto prevailed in this country. It is pleasant for one who remembers what schools and colleges were between forty and fifty years ago to see how great is the range of acquirement which you encourage, and to reflect that this lengthening of the cords of the educational tent is not peculiar to your own organization, but is going on to some extent in many spheres which hardly touch each other over the whole of England. Even as late as 1850 there were only two avenues to distinction in the University of Oxford—classics and mathematics. The result was that a great many young men, possessed of respectable abilities and of a fair amount of mental activity, but not possessed of any strong passion for these subjects, either led an altogether idle life or pursued their studies in a very half-hearted and desultory way.

The so-called classical teaching was not even good as classical teaching, in that it did not give the youths submitted to it a proper acquaintance with the classics. Of course, the only object which should lead reasonable men to the study of Greek and Latin as a part of general education is that, through becoming acquainted with these tongues, they may be brought into contact with ideas with which they are not brought into contact by the study of modern literatures. The study of the classics, in short, is but a portion of the course through which every wise man who has an aptitude for such pursuits should desire to be put—the course, namely, which brings his mind into relation with all the most memorable things which have been said either in prose or verse. But nothing of that sort was even attempted. A certain number of books were chosen very arbitrarily. To some of these an amount of importance altogether disproportionate to their real value was attributed, whilst others, equally or more valuable, were quite left out of the course.

I remember the late Mr. Matthew Arnold telling me that he had casually alluded to the writings of Marcus Aurelius in conversation with a great scholar—the man, perhaps, of all others who would have been selected to coach a promising youth forty-five years ago for the Balliol Scholarship—and that that gentleman had replied: "Dear me, I had not the slightest notion that Marcus Aurelius had left any writings behind him!" Every one who remembers those days could cap this story.

The chief cause of this narrowness of reading was that it was thought necessary to spend a most disproportionate amount of time in writing reams and reams of often very indifferent verse, and not more valuable prose, in Greek and Latin.

An infinitesimal percentage of the youths submitted to this sagacious discipline, who had a pronounced faculty of literary mitation, strung together exceedingly pretty verses. Are they not written in the "Arundines Cami" and the "Anthologia Oxoniensis," and in so many other volumes? I should like to know what the best Roman judges would have said about all but a mere fraction of the best verses. It is so unspeakably difficult for even the cleverest man to write in a language which he only knows through books, without making blunders which a native of the country in whose language he writes would instantly detect. I will give an instance of what I mean. A gentleman, whom I will not name, but who has distinguished himself in many ways, wrote, I have been told, in the days of his youth what was considered an excellent translation of Gray's "Elegy," in whole or in part, I do not remember which. In the course of his work he came to the line,

"The paths of Glory lead but to the grave."

This he rendered, I should have said very felicitously, by the words—

"Ad tumuli fauces ducit honoris iter."

But the great Cambridge Latinist of his day is reported to have observed: "My impression is that to the mind of a Roman that line would have conveyed some such idea as this: 'The road of civil office leads to the jaws of a hillock!'"

The ordinary compositions, however, which passed muster were often much more akin to those lovely verses which Mr. Wilfrid Ward has preserved in the really masterly Life of his father, which he has recently given to the world—a perfect model, by the way, of tact and good feeling employed in the treatment of a very difficult subject—very amusing, too, in parts. The

verses I allude to run as follows. I quote from memory:—

"There are some islands in the Northern Seas,
At least I'm told so, called the Hebrides;
The people of these islands have no wood,
Therefore they can't build ships,—they wish they could."

While a good deal even of the more idiomatic prose soared, I am afraid, by no means above the level of that delightful work by an educated native of India, entitled "The Memoir of the Late Honourable Justice Onoocool Chunder Mookerjee." It is possible that, although that charming composition is familiar enough in the East, there may be some persons present who have not had the advantage of making its acquaintance. I will quote, accordingly, a passage which may give them an idea of the pleasures which are in store for them when they do so, as well as illustrate what I am attempting to put before you—the pitfalls, namely, into which persons may fall in a language which they only know from school study:—

"And having said these words, he hermetically sealed his lips, not to open them again! All the well-known doctors of Calcutta that could be procured for a man of his position and wealth were brought; they did what they could do, with their puissance and knack of medical knowledge, but it proved after all as if to milk the ram! His wife and children had not the mournful consolation to hear his last words; he remained *sotto voce* for a few hours, and then went to God at about 6 p.m. The doctors all returned with tears in their eyes that they could not cure him; his wife, 'whose anguish it would be impossible to describe,' shrieked bitterly, weltering on the ground and tearing her hairs in frenzy, that she will never be able to exchange a word with him any more; his children did *fondre en larmes* that they will never be able to see their dear father any more; his friends, all who came to see him, could not see him alive, and departed broken-hearted; his servants cried out for him whom they will never serve any more; and there remained in the hall the corse of him who was a day before on the bench of the High Court deciding the fortunes of thousands of individuals! The body was removed and consumed to ashes, according to our Hindoo rites and ceremonies. The house presented a second Babel, or a pretty kettle of fish."

The production of an immense deal of matter that was not more precious than this was the chief result, to a very large number of the persons submitted to it, of the much be-praised old classical system of this country. You and a great many others have very much shaken some portions of that bad system, and I begin to hope that, before next century is far advanced, those who devote any considerable portion of their time to classical studies will, thanks to the omission of composition in the dead languages as a part of *general* education—for I would still encourage it in a few—have had time to read before they leave college everything that is supremely and incomparably good in Greek and Latin literature. Never were truer words penned than those of Armstrong—

"Faith! I am not clear,
For all the smooth round type of Elzevir,
That every work which lasts in prose or song
Two thousand years, deserves to last so long."

Still, true as they are, it is just as true that, without coming to know what is supremely good in Greek and Latin, no one, the bent of whose mind is towards literature, is able to give his faculties thoroughly fair play.

It is very certain that "the ancient world in building up Christianity built itself bankrupt," but it is no less certain that those who take adequate pains to acquire the most valuable portion of the bankrupt's assets will find their account in doing so. In a great many other ways you, and the like of you, have already effected great reforms.

I remember a very eminent man, who was destined to be the head of one of the most important of English banks, telling me that all the time he was at Eton he did not do one single sum in arithmetic. Indeed, the attitude towards that branch of knowledge in many places in those days was not badly defined by a clever Oxford tutor, who will live for a generation or two in the pages of Ruskin's "Praeterita," and who playfully remarked: "I am aware that two and two make four, but no consideration upon earth would induce me to impart that knowledge." All that, I am told, thanks to you and others, is very much changed.

Then, again, within my memory the study of many branches of physical science was treated, at best, as a harmless eccentricity. A person of my own age with whom I am intimately acquainted was born with a very strong interest in botany, and showed signs of taking to it in early life. His tastes, however, were treated by those who had charge of his education as so utterly unworthy of a human being in the full possession of his senses that he dropped it entirely until he had left the University. Now I observe that botany is one of the subjects in which you examine. There is another branch of knowledge which has been getting a portion of its rights of late. I mean geography, which till recently was quite absurdly neglected. I receive the most gratifying reports of the progress of interest in geography, both in Oxford itself and from those who have been examining students connected with the University Extension system. I must only whisper it, but I am afraid it is true, that the young ladies write even better papers than the young gentlemen.

My own creed is that geography, in the highest acceptation of that term, should form, so to speak, the central column of English education: that from earliest childhood to the end of systematic education a wider and wider acquaintance with the planet on which our lot is cast, should be required, especially from all persons who aspire to take an active part in the affairs of that planet. Not, I think, till that is recognized will other immensely important studies, which sometimes occupy too much, sometimes too little attention, fall into their proper place.

Human faculties and the period of youth being limited, it is high time that an altogether new kind of Commission should be appointed, which might be called a Commission of Wise Ignorance. Its function should be to eliminate from general education everything that could possibly be spared with a view to finding room for what cannot be spared. Fifty years ago such a Commission would have had to clear right and left, so much was there which was utterly stale, flat, and unprofitable. When men of my time of life think of the Greek plays they had to learn by heart, and the Greek grammar which they also learned by heart in Latin, and the fatuous divinity lectures to which they too often listened, and in which they were expected to receive with respect such statements as the following:—"Deborah, that means a bee. You will find her name alluded to in another passage of Holy Scripture, 'Sweeter also than honey or the honeycomb'"—and the topsy-turvy teaching of the Jewish history, and the time that was given to the Ethics of Aristotle (I trust that great man—one of the greatest of men—did not know about it, for he would have been very angry), and Dean Aldrich, and the other people who picked Dean Aldrich to pieces, and a hundred other absurdities which I pass by, one wonders that there ever was time to learn anything useful at all.

You, however, gentlemen, and others who have preceded or followed you, have got rid of a great many foolish, and introduced a number of sensible things. I have a sort of suspicion that the "Commission of Wise Ignorance" would find a good deal to amend in the modern education of girls. I cannot help fearing that some of the follies that used to exist, and probably exist still in many boys' schools, have been inflicted on their sisters. When I read the exchange of views which took place some time ago in the Press as to girls' education, between two very excellent and distinguished ladies, Miss Beale and Miss Sewell, I was not at all convinced that the victory remained entirely on the side of the representative of modern ideas on this great matter. Still, on the whole, when one remembers how slowly goes the history of the world, against what powerful vested interests the reformer of thirty years ago had to struggle; how hard to break is the cake of custom; how tremendous is the power of routine; I think those who have only now arrived at the time of life when their children are going to school have a vast deal to be thankful for.

We are a long way off yet from not only grasping, but steadily working out in practice, the truth that the real object of all general education worthy of the name, as distinguished from bread studies, is, in the words of Matthew Arnold, "the enabling ourselves, by getting to know, whether through reading, observing, or thinking, the best that can at present be known in the world, to come as near as we can to the firm, intelligible law of things, and thus to get a basis for a less confused action, and a more complete perfection than we have at present."

We are a long way still from that, but some sort of notion that that is what has to be striven for is, I think, coming into people's heads. We may not be able to echo the enthusiastic words of the gifted dreamer who said, a hundred years ago:—"Over the evening gate of this century stands written: 'Yonder is the way to Virtue and Wisdom,' as over the evening gate of Cherson stands the proud inscription: 'Yonder is the way to Byzance.'" Still, on the whole, things have been better in the nineteenth century than they were in the eighteenth, and we may hope they will be better in the twentieth century than they have been in the nineteenth.

The Prizes and Certificates were then distributed, after which

the Dean of the College, Mr. H. W. Eve, said:—The Chairman had set the example of telling anecdotes, and he therefore, perhaps, might be permitted to introduce one. There was once at Cambridge an official known as the Esquire Bedell, a learned man whose main duty was to carry the mace before the Vice-Chancellor, especially when he went to the University Church; and he remembered hearing that very learned man, and really he was, perhaps, the ablest man in Cambridge of his time, say that after hearing University sermons for thirty years he thanked God he was still a Christian. So, in his capacity as Dean, it had been his pleasure to listen to a great variety of views on education expressed from the chair at his side, and he thought he also might be thankful if he still retained any definite views on that much vexed subject. He had heard speeches, ranging from the very simple epigram of a late Lord Mayor, "Classics must go: Commerce must grow," up to the highly suggestive discourse that they had all been listening to with so much pleasure—a discourse of which they would, he thought, hardly see the full suggestiveness and the full interest until they came to read it, and think over the many allusions and the interesting information on all manner of subjects that had been compressed into a short three-quarters of an hour. With a great deal of that speech he most heartily agreed, and, above all, he thought they had to thank the Chairman for a phrase that he hoped would become historic—"a Commission of Wise Ignorance"—a phrase which deserved to take its place beside another phrase with which the Chairman's Indian experience would have made him very familiar—the words "masterly inactivity." There was, indeed, he thought, room for a Commission of Wise Ignorance. Both as to subjects and as to parts of subjects the question was what to leave out; but to no subject did it apply more than to that for which the Chairman had spoken so warmly to-day—the subject of geography. He wished that, under the presidency of their Chairman, the Geographical Society would give some guidance as to what they should leave out in their geography teaching. There was one other problem which he would set before this "Commission of Wise Ignorance." He would ask them to try and discriminate between what they ought to know and what they ought to learn at school—for he was not sure that they were always the same. He did not know whether, among the very many subjects to which the Chairman had given his attention, he had ever specially given it to teaching; but, if he might venture to say so, he should always look back upon him as one of his schoolmasters. Some twenty-five years ago he (the Dean) had been spending a few months in Germany, and naturally began to be interested in contemporary German history, and he had the good fortune also to get hold of the Chairman's admirable "Studies of European Politics." For not only did he learn from it a good deal about Germany, but a still more important lesson — how it was possible to apply to modern politics, to the complicated problems of modern Europe, the trained discrimination of a scholar and a man of science. There was one other point on which he would like to say a word, and that was as to the new experiment they were trying in acting as examiners for the Chamber of Commerce. The week after next the first examination of the Chamber of Commerce would be held under their auspices. It was fair to say that the scheme was that of the Chamber, and the College of Preceptors were simply carrying out their wishes. He did not expect that the scheme would be approved in all its details; but he thought it was a very distinct gain to education that the Chamber of Commerce should have set to work to formulate what they, as men of business, wanted. He thought that, after a few examinations, both schoolmasters and the Chamber of Commerce, and especially the Chamber, would have learned something. In conclusion, the Dean asked the meeting to give their most hearty thanks to the Chairman for presiding on that occasion, and for his most instructive and interesting address.

The Rev. Canon Daniel, in seconding the vote of thanks, said he felt sure they could not have listened to the Chairman's admirable speech without thinking that once more light had come to them from the East. He had often suspected the slight value of the languages we learn, or are supposed to learn, to speak and write. That conclusion had been forced in upon his mind by various personal experiences in travelling abroad. In his intercourse with foreigners he had sometimes been greatly astonished at the impression which his own feeble endeavours in foreign languages seemed to produce upon natives, and he could certainly say that some of the impressions made upon his own mind by foreigners speaking English were equally extraordinary. Still, he did not think he had ever so adequately realised as he had that afternoon the sort of effect produced when one attempted to write in a foreign language. The specimen of Baboo English which the Chairman had read to them threw a very valuable light, not merely upon the Latin and Greek we are supposed to write, but also, he was afraid, upon the French and German, the Italian and Spanish. But they must not lose heart. The study of language was not to be wholly valued by the perfection of the language as spoken and written, and the Chairman, he was sure, would be the first to admit that the disciplinary value of studying a language deserved special consideration. Since the days that the Chairman had spoken of they had begun to realise that there were other classics than the classics of Greece and Rome. Modern languages had their classics; English had its classics; and these would challenge comparison with the noblest remains that have come down to them from antiquity. He remembered reading in Hallam's "Literary History," in a criticism of Bacon's Essays, a passage to this effect—that "it seemed to the author that Bacon's Essays, with some two or three other similar works, might, with enormous advantage, be added to the curriculum of our public schools." In those days no boy attending a public school ever read in class Shakespeare or Milton, or any of our great writers. The only acquaintance the boys had with English literature, so far as school was concerned, was through the medium of the passages which they had to turn into Latin and Greek; and, as one might expect, they hated those passages with an intensity proportioned to the irksomeness of the associated task. The Chairman had spoken about a "Commission of Wise Ignorance," and he thanked him most heartily for the phrase. It was a condensed argument which would lay hold of the public mind, and he prophesied for it a long period of useful existence. They certainly did want to learn what to leave out. The tendency had been of late to include whatever could be brought in. That was a tendency which they saw exhibited in all directions in education. One person said that this subject was of the greatest importance; and another that that was also of the greatest importance; a third commended political economy as one of those things that no English citizen should grow up in ignorance of; while yet another put in a claim for physical science. Then they were told that modern languages were of the first consequence—they must have French. Somebody else contended for German. Then, for South American commerce, the only language worth knowing was Spanish. So it went on. One subject was added to another, until the curriculum became encyclopædic; the teachers broke down, and sometimes the child broke down too. Now there was a great deal to be left out in each individual subject that was taught. They were not sufficiently discriminating. The Dean spoke of geography. He would also mention history as one of those subjects in which he had been compelled to learn much which he should like no child of his to learn, because he was convinced it was of no use to him, or to anybody else. It might serve some sort of purpose, but children certainly should not be called upon to treasure it up in their memories or be expected to reproduce it on days of examination. There was, he thought, one other cause of this great blunder which they made in attempting too much, and that had been hinted at by the Dean —namely, the mistake of assuming that all education must be comprised within our school days. Now education was life-long, and they could only achieve very little at school. If they laid foundations there, they would have done as much as could be reasonably expected. When their children went out into the world they must continue their education. They would supply them with keys that would open to them chests of untold wealth, and they could not reasonably be expected to do more. One word upon the modern education of girls. The Chairman did not speak about the modern education of girls in terms of such complete satisfaction as of some other features of modern education. But he was sure he would agree that the education of girls had enormously advanced. The old charge that was brought against it was general inaccuracy. Now that was a fatal defect in any education, but he was sure that in that respect the various examiners of the College of Preceptors would bear him out in saying girls' schools have enormously advanced. The great mistake that had been made by girls' schools—and he spoke particularly of the high schools—of the country had been in grafting upon the old curriculum for girls the curriculum for boys, and in attempting to combine two distinct forms of education. If girls were to learn Latin and Greek, they must be content to forego some of the old subjects which used to be included under the name of accomplishments. He did not know whether

it was desirable that that should be the case, but he did most distinctly realise in his own mind that it was impossible for girls to combine the curriculum of girls with the curriculum of boys—between the two stools they would fall to the ground.

The vote of thanks having been carried by acclamation,

The CHAIRMAN said: I beg to thank you, Mr. Dean, for the very kind and only too flattering manner in which you have proposed the vote of thanks, and I beg to thank all those present for the manner in which they have accepted it. I am afraid that the effect of the sermons which you alluded to in the opening of your remarks is not an uncommon one, for in the very last weeks I heard of a conversation very much to the same effect between a gentleman nearly connected with the person who told me and the verger of another famous church, He, too, had listened to a very large number of different views from an University pulpit, and he also thanked Heaven that he remained a Christian man. Lest any of you should have the same sort of feeling about education on this occasion, as you have already heard three speeches about it, I think the very best thing I can do is to sit down.

EDUCATIONAL NOTES AND SUMMARY.

THE Bill for the Organization and Registration of Teachers engaged in secondary, or intermediate, education in England and Wales, was introduced by Sir Richard Temple, and read a first time in the House of Commons on Monday, the 10th March. The following is a brief summary of its principal provisions. It is not intended to apply to Scotland or Ireland, nor to any of the seven schools mentioned in Section 3 of the Public Schools' Act of 1868, nor to any public elementary school, whether under a School Board or otherwise, coming within the operation of the Education Act of 1870, and the Acts amending the same. A corporate body, called the Educational Council, is to be established, consisting of sixteen members, of whom the Education Department, the Universities of Oxford, Cambridge, and London, and the College of Preceptors shall each elect two, the remaining six (of whom two may be women) to be nominated in the first instance by the Queen with the advice of the Privy Council, and four of these to be subsequently elected by the general body of registered teachers. The functions of the Council will be—the organization and registration of teachers in schools under the Act; the inquiring into and reporting on the courses of study and examinations required of those teachers; the examination, where necessary, of teachers; the inquiring into and reporting on the examinations of schools under the Act conducted by the Universities, the College of Preceptors, and other bodies, and the performance of such other duties as are mentioned in the Act. The qualifications requisite for being placed upon the Register are—(1) That the applicant shall be 21 years of age; (2) shall be a graduate by examination of any University which the Council may consider sufficient for the purposes of the Act; or (3) hold a certificate by examination of the Education Department, or (4) of membership by examination of the College of Preceptors, or (5) from the Educational Council itself, or (6) a certificate of having passed a special examination of any University in the United Kingdom attesting the fitness of the holder to practise as a teacher, or (7) of having satisfied the Educational Council of fitness for registration as a teacher of a special subject; or, finally, is at the time of the passing of the Act *bonâ fide* engaged as a teacher in a school under the Act. After a date to be fixed by Order in Council, the last-mentioned shall cease to be of itself a qualification. Evidence of good moral character, and a statutory declaration of the applicant for registration as to his or her qualifications, may be required. After a certain date unregistered teachers will not be entitled to recover fees. The register is to be annually issued, and an annual report is to be made by the Council to Parliament. The Bill is backed by four well-known names—Sir Richard Temple, Sir Lyon Playfair, Viscount Lymington, and Sir Albert Rollit—chosen from both sides of the House, with the intention of divesting the Bill of any party character.

THE explanation about the Toronto degrees in Music has been made. We learn that the responsibility lies with Trinity College, Toronto, which, *more Americano*, is a University in itself, and not with the University of Toronto proper, which has nothing to do with Trinity College. Meanwhile, the appeal of Mr. Barwick, of Toronto, for the restoration of the Toronto University Library, recently destroyed by fire, is being responded to with a graceful liberality which will be heartily approved by the Senate of the University, and cordially appreciated in Canada. Both Oxford and Cambridge have made a grant of books, and a Committee, including the Prime Minister, the Archbishop of Canterbury, the Vice-Chancellors of the Universities of Oxford, Cambridge, London, and Dublin, the Principal of the University of Edinburgh, the Lord Mayor of London, Mr. Bryce, M.P., Cardinal Manning, Earl Granville, the Marquis of Dufferin, Mr. W. H. Smith, Sir John Lubbock, the Duke of Westminster, the Duke of Norfolk, and Sir Lyon Playfair, Sir George Baden-Powell, M.P., and Mr. Staveley Hill, Q.C., M.P., has been formed, and will shortly issue a public appeal.

THE University of St. Andrews will open professorial classes for the education of women in the summer of 1890. Scholarships will be awarded by public competition amongst intending students at the commencement of the session. The subjects of instruction will be those now taught at the University, and the lectures will be of the same character as those given during the winter session to men. They will also prepare for the L.L.A. diploma of the University. The classes will begin on the 15th of May, and will continue till the end of July. Intending students must send in their names and addresses to The Secretary, The University, St. Andrews, N.B., on or before the 1st day of April, with an intimation of the class, or classes, they propose to attend.

FROM the Class Lists for the University of Cambridge Local Examinations, held last December, we learn that, of the 477 boys who entered as seniors, 291 (or 61 per cent.) have gained the certificate, but of these only 103 (or 22 per cent. of those who competed) have been placed in the three classes. Comparing these passes with those of the juniors, we find the result encouraging; for, of 4,459 candidates at the Junior Examination, 3,055 (or 69 per cent.) have passed, 1,060 (or 24 per cent.) being classified. Of the senior girls, 909 (68 per cent.) have passed out of 1,343 competitors, 189 (or 14 per cent. of the total number of candidates) being placed in the three classes. The percentage of passes in the list of juniors is greater than any of the preceding, 1,739 (or 74 per cent.) passing, out of 2,348, and the percentage of classified candidates is far greater than that of the seniors, although less than that of both the senior and juniors boys, there being 468 (or 20 per cent. of the candidates) in the classified lists.

THE Local Examinations and Lectures Syndicate report that they held the second examination for commercial certificates simultaneously with the ordinary local examinations in December last. Twenty-four candidates entered at eleven of the centres. Certificates have been awarded to six of the candidates. At the examination held in December, 1888, forty-nine candidates entered, to eight of whom certificates were awarded.

THE proceedings at the anniversary meeting of the Royal Historical Society are of some interest. Seventy Fellows were elected, many of them belonging to the Royal Geographical Society, and their candidature is considered as a tribute of respect to Lord Aberdare, late President of the Geographical, and now President of the Historical. This accession was also due to the receipt of the Royal Charter of Incorporation obtained by the President. The increase of funds places the Society in easier circumstances, and there is a disposition to proceed with the design, long in hand, of enabling the Society to afford scope for discussions of the political sciences, for which we have no provision in the metropolis.

THE death is announced of Dr. Solomon Schiller-Szinessy, Mr. Schiller-Szinessy was a German Jew who came to this country years many ago, and was a rabbi of a synagogue at Manchester. He was invited to Cambridge to catalogue the Hebrew manuscripts in the University Library, a task he has left unfinished, and was appointed for three years teacher of Talmudic and Rabbinical Literature in 1866, a post transformed subsequently into a permanent readership. His knowledge of Rabbinical Hebrew was enormous, but he had little appreciation of modern critical methods, and clung to the traditional beliefs of his co-religionists. He was a pious, kind-hearted man, but somewhat quick-tempered, and became in consequence more than once involved in personal controversies.

THE Oriental Seminary of Berlin seems to be in a flourishing condition. Not less than thirty-two courses have been announced for the ensuing summer term. Advanced classes will be formed for Chinese, Japanese, and Arabic.

THE schoolmistresses and female teachers of Germany have decided to hold, next Whitsuntide, a general meeting at the historical palace of Eisenach, simultaneously with the *Deutsche Lehrertag*, to be held at Berlin. The meeting in question will be the first of the kind ever held in Germany.

THE Eighth Congress of the National Society of French Teachers in England will be held at Harrow School, on the 21st of April, at the kind invitation of the Headmaster, Rev. J. E. C. Welldon, M.A. The discussion will bear on the "Teaching of French in English Public Schools."

THE Annual Report of the Teachers' Training Syndicate (Cambridge) for the year 1890 has been published. Although the lectures appear to have attracted a fair number of undergraduates, only one Cambridge man entered for the examinations. The total number examined in 1889 was eighty-five, two men and eighty-three women; as against fifty-eight in 1888, and sixty-three in 1887. The reports of the examiners show that the standard reached in the examinations has been well maintained, except in the theory of education.

THE University of the City of New York has formally established the School of Pedagogy, and will grant degrees and recognitions to those who complete its courses of study. This school will be put in every respect on the same plane as the departments of law, medicine, and theology, and give all students who are prepared to enter it a professional training equal in every respect to the demands of higher instruction. This is the first time in the history of education that a University has formally recognized teaching as a profession, equal in scholastic dignity and importance to the other learned callings. Recognition is everything in this world. The bondage of teaching has consisted in the fact that it has not been recognized as having any professional rights worth noticing.

IT looks, says the *Educational News*, as if quite a crop of Registration Bills was about to spring up in Parliament. The first is already in the field; and other two are following hard on its heels. The elementary teachers are excluded from that which has made its appearance; but they are to be recognized in those to come. So many Bills can only have the effect of defeating each other. "Partial registration must be strenuously resisted."

THERE has been recently published the report of the Oxford Delegacy of Non-Collegiate Students, as the body is styled, which looks after the undergraduates not attached to one of the old foundations. It shows that since 1882 the number of unattached students steadily declined; but this year there is an increase, due probably to the opening of Mansfield and Manchester New Colleges. It also seems that non-collegiate students have a tendency to become collegiate, and thus pass beyond the control of the Delegacy. Last year twenty-eight did this, and on the whole 927, out of a total of 1,915, have made the non-collegiate system a preliminary to college life.

A WRITER in the *Revue Pédagogique Belge* comments upon the excessive severity with which corporal punishment is administered in Prussia to young children for trivial offences. He was present at a sound caning of a child of eleven for playing truant. When he spoke to one headmaster about this, the answer was: "But how could we maintain proper discipline without it?" The *Fremdenblatt*, of Vienna, publishes the report of a case lately tried before the Supreme Court of Administration in Prussia:—

"The teacher may inflict reasonable corporal punishment. He must be careful not to cause bad wounds which might endanger the life or the health of the pupil. Black marks, swollen stripes, or bruises do not come within the term 'bad wounds,' for all serious corporal punishment leaves behind such traces. The teacher shall not be acting unlawfully in punishing a pupil from another class than the one in which he teaches; the punishment may be given outside the school building. The conduct of pupils out of school will also be subject to scholastic discipline. The clergy are authorised to administer corporal punishment during the divinity lessons. The conduct of the teacher is not actionable as long as he has not inflicted 'bad wounds.'"

THERE is, at last, some prospect of a final settlement of the proposed reforms in Christ's Hospital, London, commonly known as the Blue Coat School. The Charity Commissioners have been engaged for several years in discussing and framing a scheme for the reformation of this splendid old foundation. It is now decided that there are to be five schools. Three are to be boarding or hospital schools; the boys' boarding school is to accommodate 700, the girls' boarding school 350, and the preparatory school 120. These boarding schools are to be maintained "within a convenient distance from the City of London." The day schools are to consist of a science school for boys, with accommodation for 600, and a girls' school for 400. Both of these schools are to be situated within three miles of the Royal Exchange. By Section 66 it is provided that the school buildings in the City hitherto used for the purposes of the hospital may be used for the purposes of the boys' school under this scheme until other suitable buildings are provided for that school, but no longer. To the hospital school no child will be admitted whose parents or next friends will not be in need of assistance towards the education and maintenance of such child.

LORD SALISBURY, when addressing his followers at the Carlton Club on the 20th inst., referred to the question of free education, or, as he said he preferred to term it, "assisted" education. Although it was not in the programme of the present session, and the proposals of the Government were not in the most distinct form before the country, he regretted to see that a good many people were already pledging themselves on the subject, and forming opinions upon what they had not seen. He did not ask them to pledge themselves to support free education, but to abstain from hostile criticism of the Government policy until they had seen it, and to consider the question from two points of view. One common idea was that it would be a concession to socialistic opinion, and that we should pauperize the working classes. His reply to that was, that education had been made compulsory, that a burden had been imposed upon the poorer classes which they had never had before, and which their grandfathers had never dreamed of, and that you could not be said to be pauperising them if you asked the whole community to share it. He also asked them to look at it from another point of view. Suppose that the subject were left untouched by the present Government, and that their opponents should obtain a majority in a future Parliament. They would deal with it in such a manner that the voluntary schools would be swept away. Either, therefore, the education question must be taken up and dealt with so as to safeguard and protect the voluntary schools, or the latter might altogether disappear. That was the choice before them. If they chose to deal with assisted education themselves, they might put the voluntary schools in a position from which no future hostile majority could dislodge them; and if they chose to pass the question by, they might be pronouncing their doom.

THE Report of the United States Commissioner of Education for the year ending June, 1888, has been recently published. The volume is more than ordinarily interesting. It deals not merely with the common schools, but with all the educational institutions of the Union. It is stated therein that the land grant of 1862 for the establishment of technical colleges is now supporting forty-eight institutions. Among these are the Arkansas Industrial University, the State Agricultural College at Colorado, the Maine State College of Agriculture and the Mechanic Arts, the Massachusetts Institute of Technology, the Missouri School of Mines and Metallurgy, and the Scientific School of Rulgers College. In thirty-eight of the colleges an officer of the Army or Navy is told off to act as Professor of Military Science and Tactics. This is a very remarkable arrangement, as the Americans are the least military nation in the world, their standing army being about twenty-five or thirty thousand men, to a population of sixty millions. Where the State has more than one school endowed from the Federal Land Act, 1862, the Governor of the State reports on the school which in his judgment most closely approximates to the requirements of the existing law, and the school so marked out is held to have the first claim on the services of the naval or military officer assigned to the State.

A CROWDED assembly of people interested in the London Society for the Extension of University Teaching listened to a discourse by the Duke of Argyll, in the Mansion House, on "The Application of the Historic Method to Economic Science." The Chancellor of the Exchequer, president of the movement, remarked that there were now ten thousand students attending the various

classes. If the Council could only induce the wealthy City companies to endow them with £1000 a year, they would consider the scheme placed upon a sound and permanent basis, and the president, secretary, and members would be relieved of considerable anxiety. The total working expenses amounted to £600 per annum.

The Schools Examination Syndicate of Cambridge University, which during the past year has conducted examinations at eighty-four boys' schools, states in a report on the examination for commercial certificates, held this year for the second time, that the number of candidates was less than at the first examination, but that the results were decidedly better. A considerable improvement was exhibited in commercial correspondence and conversational French and German. Shorthand was, however, again very badly done. As a result of a conference between the London Chamber of Commerce and the Syndicate, additions will be made to the subjects of examination next year. Three books of Euclid, questions on the commercial history of the British Isles and Colonies, and elementary drawing and mechanics will be the most important additions. The London Chamber of Commerce has agreed to recommend the acceptance of commercial certificates granted by the Board as of equal value with those which it will itself issue at the examinations which the Chamber intends to institute.

The object of a Bill introduced by Sir Henry Roscoe, M.P., is stated as being to clear up any doubt as to the legality of the provision of technical and manual instruction in public elementary schools. At present, he says, it is questionable whether the managers of these schools may include such instruction in the time-tables, so that attendance at it may be counted as attendance at the school. The effect of the Bill would be to remove all doubts on these points. It declares that the managers of any public elementary school may provide technical or manual instruction for the scholars either on the school premises or in any other place approved by the inspector; and attendance at such instruction is to be deemed to be attendance at the public elementary school. The conditions on which Parliamentary grants are to be made in aid of technical or manual instruction in public elementary schools, are to be those contained in the minutes of the Education Department and of the Science and Art Department in force for the time being. The Bill has been already blocked by Mr. Kelly.

During the past two winters an educational movement of a missionary character has been carried on in the metropolis under the title of "The People's Lecture Scheme." In connexion with this scheme, which is under the auspices of the Gilchrist Trustees and the London University Extension Society, several short courses of three lectures, each upon scientific topics of a popular nature, were delivered in the largest halls available for the purpose in a number of thickly-populated industrial centres of London. The purpose of the promoters of the scheme is twofold. In the first place, the desire to demonstrate the possibility of interesting large numbers of people in a course of three lectures as an educational advance upon the single popular lecture; and, secondly—which is by far the more important object—the short course is intended to be merely a preliminary to more complete work of a similar character. These short courses of people's lectures are free to the public, and, consequently, with a popular lecturer it is not difficult to fill a large town-hall holding from 1000 to 2000 people. Having attracted the people there, the University Extension method of work is fully explained, and it is announced that, if a sufficient number of the audience express a desire for it, a course of ten or twelve lectures upon the same subject will be arranged. Voting papers are freely distributed in the hall, and those in favour of continuing the work fill them in with their names and addresses. In this way a very fair test of the feeling of the district with regard to the matter is obtained.

A student at Somerville Hall, Oxford, thus describes the life from day to day:—

"Each student has a room to herself, which serves for both bed and sitting-room, and, of course, every one tries to make her room look as little as possible like a bedroom. The bed is covered with drapery, cretonne, &c., down to the ground, and makes a very comfortable sofa; underneath it are kept the bath, jug, and basin, so that our rooms really look very little like bedrooms. Some of us go to lectures at the colleges, and some to lectures for students only. You know, of course, that we are able now to go in for the same examinations as the men, so we have to do the same work. I will try to give you some idea of how we spend the day. We have prayers and breakfast at eight, and afterwards go into the drawing-room and read the paper and talk, or stay in the dining-room (which is the library also), and begin our work. At 9.30 we go to our rooms and light our fires, which have been laid, or begin work, or go to lectures. Lunch is from one to two; we go in and help ourselves, and come out when we like; it is a very informal meal. After lunch we go for walks, play tennis, pay calls, &c., till four, when there is afternoon tea in the drawing-room; after that we work till seven, when we have dinner. Then we stay in the drawing-room till eight, and if there is any society, Browning or Literary, it is held then; otherwise we go to our rooms. From ten to eleven is the time for visiting each other, and giving cocoa-parties (they are *such* fun). We do not have pianos in our rooms, but hire one for practising, and arrange our special times; and there are also two pianos belonging to the hall, but they can only be used between lunch and tea, while the other can be used all day, as it is in a room apart. 'Freshers' do not entertain the first term, but are invited out by the old students. Tea-parties are rather more formal than supper-parties, to which we generally go in dressing-gowns. There is generally a pleasing variety in the china at our parties, as hardly any of us have more than two or three cups and saucers, and so borrow from our neighbours. We do not go alone into the town, but two together, and are not allowed at all in some places, college quads and gardens among the number, without a chaperon."

According to the *New England Journal of Education*, "the Mexican Government provides a normal school, with a four years' course, and pensions every student during his entire course, requiring public school service for at least three years. A teacher of five years' service, who is incapacitated for work, draws a Government pension. After twenty years teachers may retire on one-half pay, and at the end of thirty years they may retire on full pay. Such facts are eloquent."

THE LONDON CHAMBER OF COMMERCE.

EXAMINATION FOR JUNIOR COMMERCIAL CERTIFICATES.

March, 1890.

The above Examination was held at the College of Preceptors, Bloomsbury Square, on the 10th to 14th of March. The number of candidates was 65, of whom the following obtained certificates:—

	CANDIDATE'S NAME.		SCHOOL.
1	Blake, H. E.	*al. eu.*	Bedford Grammar School.
	Brousson, H. L.	*al.*	Owen's School, Islington.
2	Brousson, K. M.	*al. d. e. eu.*	Owen's School, Islington.
	Campbell, W. D.	*al. d. e. eu. m.*	Owen's School, Islington.
3	Carsberg, A. E.	*al.*	Owen's School, Islington.
	Fenner, E. G.	*al. e. g.*	Owen's School, Islington.
	Furtado, M. C.	*al. d. eu. f. g. m. m*.*	Owen's School, Islington.
4	Hodgson, A. G.	*al. d. d*. e. eu. g. ger.*	Owen's School, Islington.
5	Linstead, H. G.	*al. e. el. eu. g.*	Owen's School, Islington.
6	McFarlane, G.	*e. s.*	Owen's School, Islington.
7	Nabarro, D. N.	*a. al. d. e. el. eu. g. m.*	Owen's School, Islington.
8	Nathan, C.	*al. ger.*	City Middle Class Schools, E.C.
9	Passmore, F. S. S.	*al. d. g.*	Owen's School, Islington.
10	Plowman, P. C.	*al. b. e. s.*	Hillmartin Coll., Camden Town.
	Smith, C. H.	*al. eu.*	Owen's School, Islington.
11	Toyer, S.	*al. el. eu. m. s.*	Norton College, Luton.
12	Woolfe, A. W.	*al. b. eu.*	City Middle Class Schools, E.C.

In the above list small italic letters denote that the candidate to whose name they are attached obtained distinction in the following subjects respectively:—

a. = Arithmetic.
al. = Algebra.
b. = Bookkeeping.
d. = Drawing (elementary).
d.* = Drawing (advanced).
e. = English.
el. = Electricity and Magnetism.
eu. = Euclid.
f. = French.
g. = Geography.
ger. = German.
m. = Mechanics (elementary).
m.* = Mechanics (advanced).
s. = Shorthand.

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THE EDUCATIONAL TIMES.

LONDON, APRIL 1, 1890.

No American Institution has, on the whole, better answered its purpose than the "common school." Its peculiar glory was that it gave every citizen of the States a fair and equal start in life, and stimulated him by the hope that he might one day attain to the highest office in the Republic. The mingling in the schools of the children of rich and poor, of educated and uneducated parents, produced the happiest results for teachers and pupils. "In justice to our own teachers," said Dr. Dale, speaking of what he saw a dozen years ago in the States, "it should be remembered that a large proportion of the children in the American common schools belong to a much more educated class of the population than the children attending similar schools in our own country. Even in Philadelphia a considerable number of the children of wealthy parents attend the common schools of the city. In New York a still larger proportion than in Philadelphia of the children who would be sent to private schools in England attend the common schools." In Chicago and Boston, Dr. Dale also found that the professional classes and the prosperous tradesmen pursued the same course in respect to the education of their children, and his comment on this practice is, that the presence in the common school of a large number of children accustomed to the refinements of a pleasant and even luxurious home, must have an influence on their less fortunate schoolfellows which it is not easy to estimate, and must greatly aid the work of the teacher.

Excellent as the results of this Free School system have been in a new and unsettled country, there are not wanting symptoms that it is losing its popularity in the older and more populous States of the Union. This is a fact of very great significance to us, now that we are about to adopt a Free School system of elementary education. From the last report of the Commissioner of Education in the States, which has only recently been published, although it is for the year ending June, 1888, we learn that there is going on in the older and more cultured States a gradual transfer of pupils from the public to the private schools. American citizens in those States are withdrawing their children from the Free Schools and sending them to schools in which fees must be paid. This is not to be attributed to any decline of efficiency in the public schools, as the Commissioner states that they are supplied with "better teachers and better material appliances for education than ever before, and more money is expended upon them." The facts and figures by which he supports his inference as to the retrograde movement in public schools, and the advance in private schools, are these. He finds, in the first place, that the increase in the enrolment of scholars for the year under review does not keep pace with the increase of population of school age.

In the year 1886–7, 20·38 per cent. of the total population was enrolled in the public schools; whereas in 1887–8 the percentage was only 20·10. Another interesting and relevant fact is that during the decade ending 1887 there was a decrease in the enrolment in the public schools of all the States, except those of the South Atlantic sea-board and the south central area. And even in these States the Commissioner tells us that growth has been now arrested, "after having reached a point in its development considerably below that occupied by the Northern States." The Commissioner next inquires if the decline of numbers in the public schools is compensated by an equivalent advance in the numbers attending private schools. On this point he finds that in fourteen States and territories the average increase of the private school enrolment was 6·98 per cent., a percentage much higher than the public school increase in the same States. "The most complete and trustworthy data," says the Commissioner, "upon this head are furnished by a group of States comprising Massachusetts, Rhode Island, Connecticut, New York, and New Jersey." In these five States the public enrolment increased in the year by 4,938, or 0·28 per cent.; whilst the private school enrolment increased in the year by 12,956, or 0·73 per cent. That these figures are approximately correct is confirmed by the fact that their sum almost exactly corresponds to the increase for the year of the population of school age in those States. The conclusion at which the Commissioner arrives from these facts is, "that in these States, and presumably elsewhere, there is going on a transfer of pupils from public to private schools," and he adds, what is undoubtedly true, that "the circumstance is of the greatest significance, and demands the greatest consideration." The explanation he gives of this social revolution, public school retrogression, or whatever other designation may apply to the group of facts we have been considering, is probably the true one. He thinks it is to be found "in connexion with conditions arising from the growing complexity of our civilization, and the development of far greater extremes of wealth and poverty,"—that is to say, America, as her wealth and population increase, will have no immunity from the social and educational problems that present themselves for solution here. The wealthy citizens of New York, Boston, Chicago, and other large cities will come, in time, to regard with as much repugnance the sending of their children to the common schools, to mix with the poorest of the population, as the inhabitants of Mayfair and Belgravia would to sending their children to our Board schools. Wealth and poverty differentiate the school training. The child of the wealthy man wants, or his parents want for him, an education of an order not to be had at the public school. Hence he is sent to a school where he can have any educational luxury he is ready to pay for. "There is," says the Commissioner, "an increasing prevalence of a belief in the necessity of certain forms and subjects of instruction that the public schools do not and cannot give."

The bearing of these facts on our Free Education controversy are direct and obvious. That a system of Free Education will not destroy voluntary or private schools, is one lesson to be learned from American experience; in fact, that experience justifies the fears of those who, like Dr. Gladstone, of the London School Board, object to Free Education because of its tendency to multiply private-adventure schools.

In judging of the possible results of contemporary educational movements here by the light of American experience, we must be on our guard against assuming a greater similarity of institutions than in fact exists. To begin with, a very much larger sum is spent on education from public funds in America than here. Our cousins have been long struggling with a difficulty which seems never to have embarrassed any other people, in the Old World or the New. Their revenue enormously exceeds their expenditure. Annual surpluses of from fifteen to twenty millions baffle the wit of American politicians to dispose of. Congress, it is true, has no power, under the constitution, to levy a tax in support of education; for, as we have often pointed out, there is no such thing as a federal or national system of education in operation in the States. Education is local, the affair of each particular State. But, notwithstanding this, Congress has appropriated an enormous amount of public property to the creation or augmentation of the permanent school funds in the several States. Land appropriations, larger in area than Great Britain and Ireland, have been set apart by Congress for common schools, technical and agricultural colleges, and universities. Under an Act passed in 1836, it was provided that, whenever the annual surplus exceeded five millions, it should be divided among the States. The sum so distributed has in many of the States been constituted a permanent school fund. Under the Agricultural College Act of 1862, 48 educational institutions received last year the benefit of the land grant made for their support. The annual educational revenue of the States is, in fact, about twenty millions. Thus, in point of public expenditure, we are far behind the Americans. There is one other matter on which American experience falsifies the expectations of the advocates of Free Education here: namely, that it secures regular attendance. The average attendance in all American common schools is only 65·7 of the enrolment. In England and Wales it is 76 per cent., and in Scotland 77 per cent. Nor is this all. In England and Scotland, to earn a grant, the school must have been open at least 400 times, reckoning morning and evening as separate attendances, and every scholar for whom a grant is claimed must at least have been present at 250 of these. The public schools in America are open, on an average, only 129 days in the year, and the number of average attendances is only 93·7, so that the American scholar spends only some three months in school, whilst in England or Scotland the scholar spends from eight to nine months in school. We commend these facts and figures to the thoughts of those who think on educational matters.

SCHOOLMASTERS who desire to see the art of teaching resting on the sure basis of science will welcome any solid contribution towards determining the correlation between the intellectual, moral, and physical capacities. No art, indeed, of equal importance to mankind, has ever been so little fortified by a well-ascertained body of scientific doctrine. The most skilful and successful practitioners of the art, if not wholly sceptical as to the possibility of constructing a science of education, are largely indifferent as to whether one is constructed or not. They are contented to pursue empirical processes which have answered in practice, without inquiring why they have so answered. Few men, indeed, have the requisite patience, industry, and mastery of scien-

tific method to qualify them for laying the foundations of the most difficult of all the sciences. In fact, it is not one science merely, but a group of sciences, that needs to be founded before we get a science of education. The educator has to deal with intellect, character, temperament, and physique; he can make little progress unless he takes account of individual differences of intellectual power; but for the most part he neglects individual differences of character, temperament, and physique. The province of a science of education would be to show us the inter-action and correlation of these, to the end that our methods of instruction may harmonise and synchronise with the known laws by which human faculties operate and develop. To discover these laws, so far as they may be discoverable, we must begin with the observation of facts. Having ascertained and examined facts, we proceed, by inference and induction, to the difficult task of detecting the law or general principle which these facts may yield. Having discovered a law or general principle, there remains for the schoolmaster the bridging of the gulf which divides such laws or general principles from their specific applications.

The enormous magnitude of the task that thus lies before those who are engaged in forming the basis of a science of education has not, we are glad to record, deterred investigators who certainly do not fail in appreciation of its difficulty from undertaking it. To this sanguine and self-sacrificing order belong Dr. Venn and Mr. Francis Galton, who, under the title of "Cambridge Anthropometry," published in *Nature*, of the 13th inst., give the results of about a thousand measurements taken at Cambridge during the last two years. These measurements, as proposed by Mr. Galton, and carried out by a Cambridge Committee, were—(1) a test for eyesight; (2) a test of the muscular strength of the arms when employed in an action similar to that of pulling a bow; (3) a test of the power of "squeeze" of each hand separately; (4) measurement of the size of the head. This is taken in three different directions, viz.: from front to back, between the two sides, and upwards from a line between the eye and the ear. The product of these three measurements gives the "head volume." (5) A test of breathing capacity; (6) the height; (7) the weight. These tests were applied exclusively to students, mostly undergraduates, there being only a sprinkling of Bachelors and Masters of Arts, nine-tenths of whom were between the ages of 19 and 24, inclusive. It should be borne in mind that the object for which these measurements were undertaken was "to determine by actual statistics the correlation between intellectual and physical capacities." The students were divided into three classes—(A), (B), and (C)—embracing (A) scholars of their college, and those who have taken, or doubtless will take, a first class in any Tripos; (B) those who go in for honours, but fall short of a first class; and (C) those who go in for an ordinary degree, to which class also are assigned those who fail to pass.

The main fact which the statistics so collected yield is that, with the single exception of the power of "pull," there is practically no difference between the physical characteristics of the different intellectual grades (A), (B), and (C). The comparison of "head volumes" yields two noticeable facts: (1) that the heads of the high honour men are distinctly larger than those of the pass men, and (2) that the heads of all alike continue to grow for some years after the age of 19. The general conclusion drawn by Dr. Venn is, that "it does not appear that intellectual superiority is in the slightest significant degree either correlated with any kind of natural physical superiority or inferiority, or that it tends incidentally to produce any *general* superiority or inferiority."

Mr. Francis Galton adds to Dr. Venn's paper his own deductions from the statistics collected by the latter; it will be seen that they are what most of us would expect, viz.: (1) Although it is pretty well ascertained that, in the masses of the population, the brain ceases to grow after the age of nineteen, or even earlier, it is by no means so with University students. (2) That men who have obtained high honours have had, on the average, considerably larger brains than others at the age of nineteen. (3) That they have on the average larger brains than others, but not to the same extent, at the age of twenty-five; in fact, their predominance is by that time diminished to about one-half of what it was. (4) Consequently "high honour" men are presumably, as a class, both more precocious and more gifted throughout than others. We must therefore look to eminent University success as largely due to a fortunate combination of these two helpful conditions.

These conclusions are certainly in accord with experience. Every one knows a brilliant University man who, in his after career, is overtaken and left behind in intellectual pursuits by contemporaries who did not come near him in school or University days.

The measurements of character *per se* have not been attempted at Cambridge, but Mr. Galton is sanguine enough to believe that such measurements are not only possible, but that very valuable results would emerge from statistics of men's conduct in small everyday affairs, which he seems to think would give the simplest and most precise measure of character.

Should Headmasters be teachers? The question is becoming a somewhat important one; and a similar question is now not unfrequently asked with regard to headmistresses also. Should the Heads of large educational establishments spend any portion, or any large portion, of their time in actual teaching? and, if so, should they be selected for their posts because of their skill in teaching? Younger enthusiasts answer at once and emphatically, "Yes." They point out that the only strictly professional prizes are the Headships; and maintain that the prizes of the profession should be awarded for professional fitness, viz., skill in training and educating the young. The older amongst us, especially those who have themselves been the Heads of schools, are not quite so ready and so positive in their answers. They find that the great mass of the work which they have to do—the general supervision of the management and the buildings, the seeing of parents, the care of the finances, the correspondence, the general discipline of the place, the arrangements of time-tables and syllabuses, and much else of a like kind—that all this, if well done, occupies very nearly their whole time, and that the little that remains over (if any does remain) is too uncertain and too scrappy to be of much use if devoted to part of the regular teaching. And, further, the demand which all this makes on them is found to be but very slightly a demand on their skill in teaching: it is rather one on their skill in organizing, directing, managing. It is quite possible to possess admirable skill in teaching, and yet to be

but a poor organizer and ruler. So some of us find it difficult to answer positively. The public, however, as represented by Boards of Governors and School Councils, seem to find no difficulty whatever in the problem. They commonly (almost always in boys' schools) ignore skill in teaching altogether. Within certain limits as to age, they select the candidate who has the best degree (or some similar distinction), and who they have no particular reason to believe will turn out a bad ruler. Sometimes their choice is even more limited by their belief that they ought to choose a clergyman—a belief which, if logically carried out with regard to all education, should lead them to agitate for the admission of women to Orders, unless, indeed, they share the conviction of some Eastern nations, that girls have no souls worth thinking of. But this method of selection, which governors seem little disposed to abandon, does not appear to us entirely satisfactory; for of all possible methods it is that which brings with it the greatest possible risk of miscarriage. For its special purpose it is almost wholly a blind choice. It is only fair, however, to point out that, until those engaged in the work of education have provided themselves with some publicly recognized test and standard of professional fitness, governing bodies must perforce choose somewhat in the dark. And so we seem likely to continue yet a while to have headmasters who have had little or no practical experience of managing and teaching boys, and headmistresses whose main idea seems to be to exact implicit obedience from their staff.

But there is another aspect of the question which reveals quite as much difficulty, and is even more important. Supposing the best possible method of selection employed, and the best possible Head chosen, how is he or she, with the extremely limited time at his or her disposal, to bring any personal influence to bear on the pupils? In a boarding-school the Head's own boarding-house offers some opportunity out of school. But in a day-school what is the Head to do? One only learns to know a pupil properly by having constantly to deal with him or her in class; and we are all full well aware that "the little daily unremembered acts (and examples) of kindness and of love" are those which have most influence, which do most for the formation of character—not the distant and intermittent exhortation or exercise of authority. With the troublesome children one is sure to come in contact fairly often; with the distinguished children now and then; but with those who are neither troublesome nor distinguished, seldom or never. A child of this last kind—and such form the vast majority of every school—may easily pass through all the classes and never exchange six intimate words, or six words of any sort, with headmaster or headmistress. The matter is, as we have said, important—as important as it is hard to deal with.

The remedy for the first difficulty is evidently registration of distinctly professional fitness. To the second aspect of the problem we shall return again later on, and endeavour to point out what it is possible for us to do, and how our limitations should influence the solution of the whole system.

Mr. Rowland Hamilton has just read before the Royal Statistical Society an extremely valuable and painstaking series of investigations in the statistics of education. Mr. Hamilton had in a former paper compared the progress of ten years, 1872–82. The figures then brought forward showed that, whilst the population had increased between 13 and 13½ per cent., the average attendance of scholars under education at the public expense had augmented by no less than 125 per cent. in the decennial period, or an average of 12½ per cent. per annum. Such a startling increase was, of course, attributable to the Act of 1870, and could not be expected to go on in the future at anything like this rate of increase. However, in the last six years, 1882–8, whilst the population has increased only by about 8 per cent., the increase of average attendance of scholars in Board schools has been no less than 20 per cent., and in voluntary schools it has come up to 46 per cent., a total of 66 per cent., or an average of 11 per cent. per annum. This rate of progress exceeds what might have been fairly expected. The statistics thus collected and arranged show how large in extent, and weighty in its importance, is the elementary school system. It has not even yet reached a normal condition; nor are we yet able to measure its consequences. It is supported by great national cost, and many hoped before this to see a saving of poor-outlay and prison-outlay, to counterbalance the cost of this education. It is but fair to expect that a time ought to arise when there would grow out of the educational outlay a remunerative ability, on the part of the mass of the people, to help themselves to more effectual support, so as to prevent their becoming a burden on parish rates, or on charity; and that increased thrift and habits of self-respect might be produced by a more general education. Mr. Hamilton's statistics do not show in advance in what number of years such an improvement can be looked for.

Although for this and similar hoped-for evidences we must wait, yet there is no questioning the value of such researches amongst statistics as that supplied by this paper. Dr. Fitch bore testimony to the singular accuracy and skill with which the figures had been dealt with. He was unable to put his finger on a single fallacy in reasoning, or a single inaccuracy in the manipulation of the figures. "The paper is an historical document, and any one who wishes to know what is the present condition of elementary and higher education, what point had been reached in our progress, what are the problems that yet remain to be solved, and what are the various steps by which our present success has been attained, cannot do better than take the paper, and put it by him for permanent reference."

REVIEWS, NOTICES, &c.

The Latin Gate. By Edwin A. Abbott. (*Seeley.*)

In this book the author may be said to take leave of the profession in which he has so long held a leading place. Its main object is "to provide a series of interesting and stimulating translation-lessons for beginners in Latin, and to prepare them rapidly and easily for translating unseen passages." But it is much more than a new reading-book. Dr. Abbott states and endeavours to solve the problem how best to teach Latin in second-grade schools. "In such schools as these there seems to be no choice but either to reform the study of Latin or to exterminate it." He believes that such an extermination "would be a deplorable calamity, reacting most injuriously upon the whole of the education of our middle classes." Many, no doubt, will endorse this without realizing as keenly as the author that the study of Latin on its present lines, by boys who are to leave school at sixteen, is practically a failure. The failure has been, to some extent, concealed by the system generally adopted in public examinations. The first object of Latin teaching in all cases, and in most cases its only object, should be to enable the pupil to read Latin authors with facility, which can be tested only by "unseen" translation. "Hitherto," as Dr. Abbott says, "perhaps

both examiners and teachers have been deterred from laying sufficient stress on 'translation at sight' by the fear that most boys of sixteen in middle-class schools would utterly fail to render a simple Latin sentence into correct English, though they might have learned Latin for three, four, or even five years." How many such leave school able to understand and enjoy a chapter of Livy or a Latin speech of the Public Orator at Oxford or Cambridge? Many would probably feel that it was in a manner presumptuous to attempt such a thing without the indispensable preliminary process of "getting it up" as "home-work." The failure appears largely to arise "from uninteresting methods of teaching, and from the misapplication of time and energy to the acquisition of mechanical rules and forms which have stupefied instead of stimulated." In other words, attention has been concentrated on cramming grammatical irregularities and on grinding out by rule what is dignified by the name of "composition." The reform to be aimed at is twofold. In the first place, not only must Latin be acquired more rapidly through the aid of French and English, but "it must also aid the learner to enlarge his vocabulary in both languages—English as well as French—for an English boy's knowledge of English is far more scanty than is generally supposed." In the second place, Latin must be taught so as to afford a literary stimulus; time must be found to introduce a boy to Latin literature and to the genius of the Latin language.

If we now proceed to consider how far the book is likely to serve its purpose, we are met at once by the difficulty that much of it is addressed rather to teachers than to learners. It is true that Dr. Abbott does not tell us for what class of beginners in Latin it is intended, and a student old enough and resolute enough to work through the book by himself, and to use all the references with which the pages are studded, would learn not only Latin, but a great deal besides, including, as may be expected, many good things from Bacon. But in a school-book for use with beginners we cannot help thinking that notes and illustrations which aim partly at superseding the teacher, and partly at instructing him, are out of place. Would it not be better to issue two editions of such a book—one a text edition, containing only what should be in the hands of the pupils, unencumbered with bewildering references, the other a large paper edition, giving on the same page with the text the help and hints which Dr. Abbott is so well able to give to younger and less skilful teachers, with space, such as has been afforded to some extent in the vocabulary of the present book, for the insertion of additional matter, such as the use of a school-book never fails to suggest?

Then it strikes us that the proverbs and short sayings which compose the first series of reading lessons would prove, in practice, much more difficult than the extracts from Phædrus and Cæsar which come last. They are difficult alike in manner and in matter. Such sentences as *Abeunt studia in mores, Nil interest habere ostium apertum, vultum clausum*, even when illustrated from Bacon and Shakespeare, are surely beyond the powers of what are generally meant by beginners. A few such "aculeate sayings," and such longer sentences or short stories as make up the second and third series of lessons, might very well accompany reading lessons from a plain narrative, each relieving the other. But perhaps Dr. Abbott contemplates the postponement of the study of Latin until the last two or three years of school life, when some considerable progress may have been made in French. It seems to us a fault in the book that translation is divorced from composition. We should like to suggest that, besides the general vocabulary, there should be, for the earlier lessons, separate vocabularies. In these, special illustrations might be given from French, as the chapter on "Latin through French" will be chiefly available only at a later stage.

We have chiefly confined ourselves, as is indeed due to a book whose author is so distinguished as Dr. Abbott, to pointing out what we consider to be drawbacks to the book's usefulness. Those who know the author's other works (and what teacher does not?) will easily believe that there is throughout the book a wealth of acute suggestion, from which teachers, at all events, cannot fail to learn very much.

Queries. An illustrated Journal of Literature, Art, Science and Education. By Charles A. Wenborne. (Buffalo, N.Y., U.S.A.)—This American monthly is unique in character, and peculiarly educational, and hence a descriptive notice of the numbers of 1889 may afford interesting information to some of our readers who have not seen the work. It is a bookish literary periodical designed to encourage the acquiring of definite, exact, and precise knowledge of authors and their works of all ages, and it is a marvel how so much of this kind of knowledge is got together month after month. Every subject has a serious and a facetious aspect, and sometimes one, sometimes the other, and sometimes either one or the other, as the reader chooses to view it, is given. The "question department," from which the journal takes its names, illustrates this point. In the July number, for instance, we have first a number of characters in dramatic literature named, and are asked to give the play in which they are found, and to name the author:—"Baradas, Aminadab Sleek, Mrs. Haller, Glenalvon, Armand Duval, Pepe, Miss Constance Neville, Adam Winterton, Oldabella, Calanthe, Triplet, La Frochard, Solon Shingle, Wat Worthy, &c." The answers to questions are always given two months later; for instance, the answers to the above appear in the September number as follows: "'Richelieu,' Lord Lytton; 'The Serious Family,' Morris Barnett; 'The Stranger,' A. Von Kotzebue; 'Douglas,' John Home; 'Camille' (Dame aux Camelias), Alex. Dumas fils; 'Francesca da Rimini,' George H. Boker; 'She Stoops to Conquer,' Oliver Goldsmith; 'The Iron Chest,' George Coleman the younger; 'Fazio,' Rev. H. H. Milman; 'Damon and Pythias,' John Banim; 'Masks and Faces,' Charles Reade and Tom Taylor; 'The Two Orphans,' Adolphe D'Ennery; 'The People's Lawyer (Solon Shingle), J. S. Jones; 'Jack Cade' (Aylemere), R. Conrad." Then there are quotations given, sometimes general and sometimes under special headings. For instance, fifty quotations are given under the head of "Poetical Compliments to be Identified," such, for instance, as the following:—

(1) "Perhaps he was not hero born,
Like those he sung—Heaven only knows."

(2) "The snow was falling as if Heaven dropped down
White flowers of Paradise to strew his pall,
The dead around him seemed to wake and call
His name as worthy of so white a crown."

The answers are to the first "Stoddard on Moore," to the second "Longfellow on Richard Henry Dana," and so on. Then there are curious words given for derivations; for example: "Haversack, haberdasher, wench, fanatic, sincere, Charterhouse School, kick-shaw, minion." The derivations of which are: "*Hafersack* = oat-sack. *Habt ihr dass, Herr?* = Have you that, sir? *Mensch* = a human being. *Fanum* = a fane or church. *Sine cera* = without wax. *Chartreuse* = Carthusian monastery, hence Charter'ouse. *Quelque chose* = something. *Mignon* = darling." Some of these, indeed, are a little startling and very original. The "Questions on History" require generally a single word or a date for answer. Those in geography the names of places or persons. The facetious questions are on geography, botany, zoology, and history, and are often very amusing. The ordinary letterpress affords much information of a literary character of the type required by the questions: there are biographies of literary men, for example, of John Hay, author of the—(1) "Pike Country Ballads," co-author of the "Life of Lincoln" in *The Century*, and of William Blake who "wrote and painted for children and angels." Then there are original poems and original criticisms, the former not often good, the latter generally so, and criticisms on authors selected from other authors, as, for instance on Blake, Keble, Coleridge, Faber, &c., from George Macdonald; on Keats, Burns, Shelley, Newman, from J. C. Sharpe; on Bentham, Beattie, Bulwer, Smollett, Goethe, &c., from Carlyle. There are selections from authors—(1) Collected from the same author as Gems from Scott, Gems from "The Vicar of Wakefield." (2) Selections on the same subject from different authors. The "Historical Notes" are curious, rather than elaborate, such as the first historical mention of common things, or their first introduction into a particular country. Miscellaneous articles, under the head "Multum in Parvo," cover everything. The whole is a production which could hardly appear anywhere but in the land which gave birth to the Spelling Bee, and other Bees of allied family.

Christian Conduct: Sermons Preached in the Chapel of Mill Hill School, by Charles Anthony Vince, Headmaster. (Hodder & Stoughton. 1890.)—We heartily congratulate Mr. Vince, the boys of Mill Hill School, and their parents, on the tone of this volume. From beginning to end there is a manly ring in the utterances of the preacher, and no lad or young man can read these sermons without being impelled to a nobler life. Mr. Vince gives frequent evidences of ripe culture, and while we do not find the power of illustration so conspicuous as in Fames's "Marlborough Sermons," or the eloquence which characterises Mr. Wilson's discourses at Clifton, or Mr. Welldon's Harrow

sermons, we have a directness of appeal and an enforcement of moral lessons which ought to secure for this volume very widespread acceptance among all interested in the religious training of youth. The title accurately describes the scope of the addresses. Mr. Vince explains, in a short Preface, that his appearances in the school pulpit have been occasional only, and that the services are usually conducted by ordained ministers; hence he has felt at liberty to restrict himself to the ethical side of Christianity, leaving more distinctly doctrinal topics to others. In the first sermon in the volume, which was also the first preached by Mr. Vince at Mill Hill, the keynote seems to be struck in the solemn enforcement of responsibility for influence, and the special appeal to elder boys to beware of causing younger ones to stumble. We quote a few sentences, which indicate the tone of the discourse:—

"Reflect, I beseech you, you who by your achievements in school or at cricket or football have won the admiration of your younger brethren, what a duty is imposed on you by that little eminence. Nobility is an obligation, says the French proverb, and it is nowhere truer than in the little aristocracy of a school. There are some of you, I can assure you, who have larger opportunities of doing good or evil by your example in this place than may recur for a very long time in your future life. For it is here at school, in the time of boyhood, that small things are so important. Here the good habits are formed which make virtue so much easier in after years; here are the small beginnings of vice which may corrupt a whole character and poison a whole life. . . . It is often so easy to cause the little ones to offend. Let me take one example. Every one of you knows what a power for good lies in the memory of your homes, in the ever-present thought of the tender love of father or mother or sisters. But that delicate invisible chain that links the soul of a boy at school to his distant home, and may so often check his footsteps wandering into temptation, is so easily broken. You ridicule some little turn of speech that a boy has brought with him from home, associated perhaps in his memory with the happiness of his father's fireside; you scoff at some little habit of neatness or comfort that his mother has taught him, and at once, by that silly snigger or loutish chuckle, the spell of home affection is broken; his memories of his dear ones become something to be concealed, to be cherished in secret or not at all, to be kept apart from his daily life. In mere clumsy thoughtlessness you have impaired one of the good forces of your brother's life. You have caused him to stumble."

It would be easy to multiply similar extracts, but we can only refer our readers to the book for themselves. Every sermon is worth perusing, but perhaps we may specially mention those on Christian Gentleness, Protestantism, Christ in the Family, and Christ in the School, as illustrations of wise handling of the topics named.

The State: Elements of Historical and Practical Politics. A Sketch of Constitutional History and Administration. By Woodrow Wilson, Ph.D., LL.D. (*Heath & Co.*)—This is, as its title implies, a study in comparative politics. It is necessarily tentative, as no such book has probably been written before, of similar scope and aim. It contains a sketch of the Theories of the Origin of Government, and of its general development. It then describes in detail the governments of Greece, of Rome, enters into a discussion of the City as the centre of ancient politics, treats of Roman dominion and law, proceeds to Teutonic polity and government during the Middle Ages, the government of France, of Germany, of Switzerland, Austria-Hungary, Sweden, Norway, of England, of the United States. It will thus be seen how wide a survey it includes, and, to show that it is "up to date," it is only necessary to say it gives a succinct account of the constitution of County Councils in England. It treats of the government of all these countries, both historically and as constituted at the present time. Finally, the author (so far, indeed, chiefly the compiler from works of reference to which he draws attention at the end of each chapter) writes five interesting chapters on the subjects of (1) the Continuity of Development; (2) the Nature and Forms of Government; (3) Law: its Nature and Development; (4) the Functions of Government; (5) the Objects of Government. The book contains nearly seven hundred pages, but, to students who are content with a good epitome of the general features of the government of each country, it will save references to quite a library of books. Further, for the purpose of the general reader, apart from the specialist student of politics, it is probably the only book which gives a connected and general view of the aims of the science of politics, together with an accurate and interesting account of the historical development and continuity of the government of each of the leading constitutional countries of the world.

The Pickwick Papers in Phonetic Shorthand. (*Isaac Pitman & Sons.*)—Pitman's phonetic shorthand has an advantage over all other systems in possessing an abundant literature. A good example of this is furnished by two handy volumes containing the full text of the "Pickwick Papers" by Charles Dickens. Each volume contains 384 pages, so that in the two there are 768 pages of reading in shorthand. Each page is divided into two columns, and therefore, although the writing is compact, the eye easily traces each separate line. The whole work has been copied and lithographed by Mr. James Butterworth, of South Shields. The style is moderately advanced, but the book may be read by almost any one making a practical use of the system. One great defect in the study of shorthand in the past has been that too little attention has been paid to reading. It is capital training to get to read carefully written shorthand with facility. Such reading impresses good forms upon the memory; it checks the tendency to looseness in one's own writing; and thus in two ways it facilitates the ready reading of what one has written. There could scarcely be a better exercise than reading this book twice, solving occasional difficulties the first time by referring to an edition in ordinary print. The time is probably not far off when many persons will be compelled to be able to read this system of shorthand, whether they write it or not. There is at least one hour wasted on every column written for a daily newspaper which might be saved if printers could read elementary shorthand, and journalists could write it, as most of them can do. Now that the art of reading shorthand can be acquired by the perusal of popular works, the power to read it will in time be expected of compositors and others, irrespective of their ability to write it. The amount of time needlessly lost in writing longhand for printers alone is stupendous, to say nothing of the private correspondence of the world.

Practical Latin Composition. By W. C. Collar. (*Ginn: Boston, U.S.A., and London.*)—We have here, from an American scholar, a book that ought to make its way into English schools. Its object is to base composition from the very first on translation, by a method which the author owes to Ascham's "Scholemaster," the principle of it being that "all elementary exercise in writing Latin must be based on a portion, however small, of the *ipsissima verba* of a Latin author." The reason for this is admirably drawn out in a Preface which will assure many teachers of truths to which they are already feeling their way. Especially the principle of continuity is insisted upon. "It is as marked a feature of Latin to interlock sentences grammatically and logically, by relative words and by expressive arrangements of order, as it is of modern English to leave such relations unaccentuated, often to suggest them merely through juxtaposition." "How can 'a true choice and placing of wordes (*sic*) and a right ordering of sentences,' the thing that Ascham first names, be either taught or learned by any amount of practice in 'making of latines,' that is, constructing sentences detached and unrelated?" The reading lessons begin with the "Seven Kings of Rome," adapted from Livy and Aurelius Victor, and pass through Nepos and Cæsar to part of Cicero's first oration against Catiline. On every section of the Latin text are based, first, a series of numbered sentences, which form, however, a continuous narrative, for oral composition; and secondly, a more formal piece for written composition. The vocabulary seems full and carefully compiled. A lesson of syntax accompanies each section, and for this the references given are to American grammars; but, as subject-headings are also given, no practical difficulty will arise in adapting them to whatever grammar is in use.

Potential, and its Application to the Explanation of Electrical Phenomena. By Dr. Tumlirz, translated by D. Robertson, M.A., LL.B. (*Rivingtons.*)—Dr. Tumlirz has succeeded in writing a treatise on "Potential" in a popular or elementary form, and Mr. Robertson has given us a very good translation of it. It commences with a preliminary discussion of force, mass, density, and work, and on these the investigation of the meaning and application of Potential is based. Only very elementary mathematics is required for the study. The first to give a popular and simple explanation of potential from the physical side was Sir W. Thomson, and the first to treat the theory of attraction in the same way was Sir George Airy. Balfour Stewart and others followed in the same line. There is nothing in Dr. Tumlirz's book which has not already been put forth by these English writers, but he has arranged a more systematic and complete treatment of the whole subject in one book than has been within the reach of science students hitherto.

OUR LIBRARY TABLE.

The Story of the Nations: Russia. By W. R. Morfill, M.A. (*T. Fisher Unwin.*)—The story of Russia is as interesting as any of the series. It is told in fourteen chapters, dealing in succession with the geography and ethnology of the country; the origin of the Russians; Russia divided; the Appanages; under the Mongols; the autocracy and consolidation troubles; Michael and Alexis; the Czars from Ivan and Peter to Alexander III. Chapters xii. to xiv. are devoted to the literature, social condition before the time of Peter the Great, political and literary landmarks. The author has, at every step, said all he could in favour of Russia. He claims for her the gratitude of the world if only for the protection she has afforded to the oppressed Christians of the East, and in no place can he be charged with exaggerating her misdeeds. To quote his own words, "While I have not intentionally concealed the darker shades of the picture, I have endeavoured to avoid drawing my sketch from an English standpoint only. Still less have I felt inclined to indulge in any of the claptrap abuse with which some Western authors season their books on Russia. All nations have been aggressive in their way, and therefore it is idle to talk overmuch about Russian aggressions; all nations have some blood-stained pages in their annals, and therefore it is something like hypocrisy to be struck with especial horror at Russia's misdeeds."

Mount Vesuvius: A Descriptive, Historical, and Geological Account of the Volcano and its Surroundings. By J. Logan Lobley, F.G.S. (*Roper & Drowley.*)—That this is a very complete account of some of the most interesting cosmical phenomena will be seen from a list of contents. The various chapters give an account of the whole Neapolitan volcanic region, of the surroundings of the mountain, of the mountain itself, of its history in three periods, to 1850, 1851 to 1868, 1869 to 1888, of the geology, the volcanic products, the minerals and flora of Vesuvius, of a theory of volcanic action. The Appendix adds to the interest by translations of the letters of Pliny, and other accounts of various eruptions. The illustrations, twenty in number, give views of the mountain and its surroundings from different sides and at different periods. The accounts of the Phlegrean Fields and the chapter on the geology of the volcano are interesting and well written. The author has his own views on the causes of volcanic action, and to many readers Chapter VIII., which gives this new Physio-Chemical theory, will be most attractive. Many theories of the causes of volcanic action have been promulgated, and our author gives an account of each of those which have been most widely accepted, and shows where they are unsatisfactory. His own theory he "offers for consideration with great deference," but it seems at least as worthy of attention as the others. The book is neatly got up, and is not too crowded with scientific and technical terms to be used by travellers.

A Primer of Phonetics. By Henry Sweet, M.A. (*Clarendon Press.*)—This primer is intended to supply the double want of a new edition to the author's "Handbook of Phonetics" and of a concise introduction to phonetics, with special reference to English, French, German, Latin, and Greek. Mr. Sweet laments that the study of phonetics has made no progress of late years in this country, while on the Continent it has developed extensively. To throw fresh energy into this study, the author has given us a concise, definite, and practical primer, eminently the book for a beginner. It contains an analysis of the organs of speech, throat sounds, vowels, consonants; a synthesis of quantity, force, glides, syllable division, intonation and organic basis, and some account of varieties of English and German pronunciation.

A History of Greece. By C. W. C. Oman, M.A., F.S.A. (*Rivingtons.*)—For a considerable time there has appeared no new school history of Greece brought up to the level of recent discoveries. This fact urges us to give Mr. Oman's work a hearty welcome, containing as it does so much fresh matter. It is admirably adapted for the requirements of the upper forms in schools, and of the final pass examination at the Universities. The period embraced by the book is from the earliest times to the end of Grecian freedom in 338 B.C. It contains about a dozen maps and plans, and is written in a very pleasing style. The chapters are short, seldom extending over more than a dozen pages, and might well be given in the higher forms of schools as single and complete lessons.

The Works of Xenophon. Translated by H. G. Dakyns, M.A. (*Macmillan.*)—This is the first of four companion volumes of the translation of works attributed to Xenophon. The three remaining volumes will be published in succession. The task which the author has set himself is to produce a version which is true to the sense and spirit of the original, and, at the same time, readable as an English book. Mr. Dakyns has cast about to see what English writer possessed the style that fitted best as an exponent of Xenophon's. He seems to have considered Goldsmith principally; but, whatever models he may have placed before himself in the beginning, he has succeeded in rendering Xenophon into a very readable English version. Part I. contains introductory remarks on the life of Xenophon, several excellent maps, a translation of the *Hellenica*, and also of the *Anabasis*.

Livy, Book XXI. By A. H. Allcroft, B.A., and W. F. Masom, B.A. (*W. B. Clive & Co.*)—It is scarcely possible for students working without a tutor to have more assistance than is afforded by this book. The introduction deals with the life and method of Livy, and gives a description of Carthage, and the relations between Carthage and Rome, the Mercenary War, &c.—of every point, in fact, which has a direct bearing on the text. The appearance of the latter suffers considerably from the smallness of the type. The notes are most elaborate, and the interleaved vocabularies very complete. What more could a student desire?

Homer's Iliad, Books I.–III. By Thomas D. Seymour. (*Ginn & Co.*)—An excellent well-bound school classic, compiled by an American professor on the American lines we have so often noticed, and which has generally met with favour. The text is wonderfully clear, the introduction and commentary exhaustive, and the vocabulary complete.

The Public Examination French Class Book, by Marius Deshumbert (*D. Nutt*), is intended for advanced students. It is divided into three parts. The first part contains French pieces of prose to be translated into English. These are almost all taken from the writings of modern authors. The second part contains English pieces to put into French. No assistance whatever is given the student, if we except a few footnotes explaining historical references. The third part is small, and contains questions on another book of the same author, "Dictionary of Difficulties met with in French."

Delecourt's French Instructor. (*Heywood.*)—The first hundred pages of this book contain graduated exercises for reading in French, followed by grammatical notes and the translation of difficulties. The remainder of the book is taken up with commercial correspondence and a vocabulary.

Ten Examination Papers on La Jeune Sibérienne and Le Lépreux de la Cité d'Aoste. By W. H. Kent. (*Simpkin, Marshall & Co.*)—A collection of nearly one hundred and fifty historical, geographical, grammatical, and critical questions on the books set for the next Cambridge Local Examination will doubtless be of value to intending candidates.

Le Verre d'Eau; ou, Les Effets et les Causes. Par E. Stribe. Edited by A. Barrère. (*Whittaker & Co.*)—A cheap little edition of Scribe's well-known comedy. The notes are at the foot of each page, and are few, and, strangely enough, consist entirely of translations, grammar being altogether neglected.

Star-Land. By Sir Robert Stawell Ball, F.R.S. (*Cassell.*)—The Royal Astronomer of Ireland has on two occasions, in 1881 and in 1887, delivered a course of Christmastide lectures to juvenile audiences at the Royal Institution. This volume is founded on the notes and recollections of these lectures. The whole forms a story of surpassing interest, and is another successful attempt to popularise astronomy.

The Century Atlas and Gazetteer of the World. Edited by J. G. Bartholomew, F.R.S. (*Walker & Co.*)—This excellent Atlas contains a series of large, clear, and bold maps, and it is a marvel of cheapness at the price. An intelligent student can learn more in a few hours' study from this accurate work than from many tedious hours' devotion to elaborate text-books in geography. Among its useful features may be noticed the Commercial Map of the World, giving the chief mail and telegraph routes by land and by water, and charts of the North Atlantic, with its ocean routes and telegraph cables. The Map of the Transvaal Republic, which contains both Johannesburg and Barbeton, shows that the book has been brought up to the present time. A Gazetteer of 35,000 names of places, with a short description of each, adds to this useful production, which is indispensable to all students of geography.

Atlas of Commercial Geography. By J. G. Bartholomew. (*Cambrid e Press.*)—A series of maps, partly physical, partly commercial. This collection has been specially prepared, and embodies a mass of information not previously brought together. Among its special features may be noticed maps illustrating the natural animal products of the world, which are indicated in their respective localities by appropriate marks on a series of separate maps; a Postal Map, showing letter postage rates from England to all parts of the world; a Commercial Map of the World, indicating, by means of different shades of colour, the regions open to commercial enterprise, the chief railroads, ocean routes, and other information valuable to men of business; a Railway Map of the British Isles, indicating at a glance the chief lines and their continental connexions; the principal colonial possessions of European countries; and a mass of information relative to the industrial and commercial progress of our own country. Most of its contents have been revised by Dr. Mill, Edinburgh University Extension Lecturer on Geography, and it is intended to be used in connexion with his "Elementary General Geography." The book is accurate and reliable, and its price (3s.) brings it within the reach of all.

"Excelsior" Memory-Map Atlas. (*G. W. Bacon & Co.*)—An Atlas of a useful size, containing fifty-two memory maps and eight memory diagrams. The special features of these maps we have already referred to. They are unique and far superior to those of the ordinary school Atlas, especially for revising.

Bacon's Excelsior Combination Atlas. (*G. W. Bacon & Co.*)—This cheap Atlas is intended for fourth year pupil-teachers and seventh standard children, and consists chiefly of outline or memory maps of America and Australasia.

Sixpenny Atlas. The Modern Series of Cheap Atlases. (*W. & A. K. Johnston.*)—Even at the present time, this Atlas is remarkable for the price at which it is issued. There are about fifty maps, beautifully printed in colours, and strongly bound; and the learner has practically an Atlas of physical, as well as political, geography.

Notes on Shakespeare's Play of Richard II. By T. Duff Barnett, B.A. (*Bell & Sons.*)—We have already noticed several of Mr. Barnett's notes on Shakespeare's plays, and invariably have given them a word of praise. The notes on the play of *Richard II.* are similar in style and matter to those on the *Merchant of Venice* and others. To candidates for local and preliminary examinations they are invaluable.

The Standard Reciter. (*Dublin: Thom & Co.*)—We fail to notice a single feature in this reciter which will place it in the front rank of works of a similar nature. There are nearly two hundred selections, many of them being of the hackneyed type. In some cases only is the author's name appended. The first twenty pages have been bound in a haphazard fashion.

Shakespeare's Much Ado About Nothing. By A. Wilson Verity, M.A. (*Rivingtons.*)—One of the "Falcon" edition. The introduction, although it occupies only ten pages, is scholarly, and brings forth many ideas which are not generally to be found in school editions of Shakespeare. The notes and vocabulary are like those with which we were made familiar in the seven or eight plays which we have already noticed.

The Cambridge Smaller Bible for Schools: I. and II. Samuel, by Rev. A. F. Kirkpatrick. St. Matthew, by Rev. A. Con. (*Cambridge Press.*)—This new series of smaller hankbooks is intended to meet the requirements of junior and elementary schools, just as the Cambridge Bible for Schools and Colleges and the Cambridge Greek Testament supply the needs of senior classes and older students. The books of the Bible are to be edited by the same persons as the corresponding parts in the earlier series. It is hardly necessary for us to say that the notes give evidence of the accurate scholarship conspicuous in the larger volumes; and the condensation and simplification of the commentaries seem, in most instances, to have been skilfully accomplished.

The Sunday School Manual. By John Palmer. (*Church of England Sunday School Institute.*)—In the four parts (published also separately) of this manual, the author deals practically with every department of Sunday School work; and, while primarily intended for teachers connected with the Established Church, the book will be found full of valuable suggestions for *all* interested in the religious training of the young.

Dorothy's Songs. (*J. Curwen & Sons.*)—This is an admirable collection of songs for use in Kindergartens and for young children: the music is by Amalie Falsenthal, and is bright and attractive; the words are eminently suitable for little folks, and are sure to make the songs generally popular. The book can be obtained in both the Old and the Tonic Sol-fa Notations.

The Public School Music Course. By Charles E. Whiting. (*D. C. Heath & Co.*)—This course of music is published in seven graded books. Each book introduces studies in rudiments, and reviews all that precedes. It will, doubtless, be found suitable for the schools of the United States of America, but the fact that some of the songs it contains are copyright in England will prevent it from being adopted in English schools. In the music a wrong chord figures occasionally, and the names of composers are at times spelt in an amusing fashion.

Two Women or One? from the MS. of Dr. Benary. By F. Harland. (*Cassell.*)—A singular and significant story in illustration of the theory that, by means of an operation, complete forgetfulness of the past may be effected.

Synoptical Tables of Inorganic and Organic Chemistry. Compiled by Clement J. Leaper. (*Gill & Sons.*)—These are useful notes of the principal facts required to be known in connexion with common substances. In connexion with each substance we find, in order, the molecular weight and other figures, modes of preparation, equations of preparation, properties, and additional facts. As furnishing a plan for other notes as well as the essence of fact in connexion with each substance, this book will be most useful to all chemical students.

Polytechnic Series Technical Scales. By C. F. Mitchell. (*Cassell.*)—This set of scales, ten in number, is printed on white glazed cardboard. The scales are one foot in length, and contain on one edge divisions for laying out plans on certain fractions of a foot to represent a foot; for example, half-inch to the foot, quarter, eighth, &c., third, sixth, &c., and so on to the tenth of an inch to the foot. There is also a metre and a scale of a fourth size for reducing.

Mnemonic Time Charts of English History. By David Ross. (*Edward Stanford.*)—The object of these charts is to show at a glance, in chronological relation, the Kings of the chief Anglo-Saxon kingdoms, the reigns from 828 to 1890, Parliaments, Ministries, and other matters of interest to the student of history.

Perspective Charts for use in Class-teaching. By Henry A. James, M.A. (*Chapman & Hall.*)—The charts are intended to form the outline of a course of study and practice introductory to perspective drawing, and also to be used afterwards as tables of reference when drawing plane figures or solid objects in perspective. The diagrams are numerous and simple, and the explanation of diagrams clear and concise.

Middle-Class Cookery Book. (*Macmillan.*) — We have been greatly pleased with this little handbook, and desire to commend it very cordially to our readers; we know of nothing likely to be so serviceable to the daughters of middle-class homes, and to the promoters of cookery classes everywhere, and we congratulate the Manchester School of Cookery on the issue of this volume. The recipes throughout are most carefully compiled, and the instruction and advice given are evidently the outcome of experience. Amid so much that is excellent, we can only mention the chapter on Cold Meat Cookery, and Dishes for Invalids, as specially meeting common wants in household cookery.

Mr. Horace Walker has drawn up a *Chart of the Ministries of England.* (*Canterbury: H. J. Goulden.*)—The chart is divided into the following columns:—Date, Prime Minister, Members of Government, Opposition, chief acts, why dismissed, notes. Under these heads, the lists are reasonably complete. Names of Tories are printed in thick type; names of Whigs in ordinary type. This chart, however, is free from political dogmatism of any kind. It begins with the Ministry of Halifax in 1689, and contains an account of every Ministry to that of Lord Salisbury in 1886.

Elementary Manual of Magnetism and Electricity, specially arranged for the use of First-year Science and Art, and other Electrical Students. By Andrew Jamieson, M.Inst. C.E. Part II. Voltaic Electricity Electro-Magnetism and Electro-Kinetics. (*Griffin & Co.*)—Professor Jamieson, whose "Pocket-Book of Tables for Electricians" we have recently noticed, has here prepared a simple elementary text-book on voltaic electricity, which for clearness of exposition can hardly be surpassed. The cuts are original, and are all very instructive.

New Editions.

Geometry for Schools. By A. T. G. Barclay M.A. (*Oliver & Boyd.*)—Symbols and contractions are largely used in this book, the fourth edition of which is now announced. A section on analysis and loci has been added to the first book, and numerous easy exercises have been introduced under the propositions.

The Book of Psalms. (*Cambridge: The University Press.*)—The revised version of the Psalms in good black binding, and printed in convenient type.

UNIVERSITY AND COLLEGE INTELLIGENCE.

Oxford.

Congregation has voted a grant of £50 in aid of the Cyprus Exploration Fund for the prosecution of the excavations on the site of Salamis, under Mr. Munro and Mr. Tubbs, and a grant of £50 in aid of the exploration of Cappadocia by Professor Ramsay and Mr. Hogarth.

The President of the Oxford Union Society, Mr. Peel, has issued a circular to life members of the Society, requesting their aid in raising a sum of £2000 for the repair and decoration of its premises, the library and other parts. It is proposed, if sufficient funds are promised, to commence the works in the Easter Vacation. Among the subscriptions already promised are those of His Royal Highness the Prince of Wales for 25 guineas; the Vice-Chancellor, £5; the Provost of Oriel, Professor Pelham, Dr. Heurtley, the Rev. A. Watson, £10; Canon Liddon, £5 5s.; the Senior Proctor and others, £5 each. Life members are appealed to as having the use of the Society's rooms without subscription.

The Curators of the Taylor Institution intend to nominate a teacher of the Spanish language on that foundation in next Easter or Act term. Their nomination is subject to the approval of Convocation. The emoluments of the teacher will amount to at least £200 a year.

Some 200 volumes from the library of the late Dr. Hatch have been presented to Mansfield College by nineteen senior members of the University, accompanied by the following letter:—"Oxford, March 1st, 1890. Dear Dr. Fairbairn,—This letter accompanies a little collection of books which we whose names are subscribed beg you to accept for the library at Mansfield. Their presence on your shelves will, we hope, serve to remind you of Dr. Hatch, to whom they belonged, and of the goodwill he bore to your college. Some of us who have of late been concerned in commemorating him in another way desire to take this opportunity of expressing our sense of the very cordial co-operation which we have received both from you and from other members of the bodies represented by Mansfield College. In the hope that there may not be wanting among its students men who will work Dr. Hatch's subjects with something of his science, thoroughness, and devotion, we remain yours very sincerely, B. Jowett, J. Percival, T. Fowler, D. B. Monro, W. W. Jackson, H. G. Woods, W. Markly, W. F. Freemantle, A. S. Farrar, T. K. Cheyne, J. S. Burdon Sanderson, H. Nettleship, H. F. Pelham, R. W. Macan, A. Sidgwick, A. Robinson, T. W. Jackson, W. Sanday, W. S. Hatch."

The President of Corpus (Dr. Fowler), whose seat upon the Hebdomadal Council was vacated by his resignation of the Chair of Logic, has been re-elected to that body, without opposition, as a representative of the Heads of Colleges, in the place of the Principal of Jesus, who has retired.

Cambridge.

Dr. Cory, of Pembroke College, has been approved as a teacher of vaccination in the University, at a stipend of £10 for each quarter during which he gives in Cambridge a course of instruction.

An additional University Lecturer in Botany is to be appointed, at an annual stipend of £100.

Mr. Charles Smith, Master of Sidney Sussex College, has been appointed a member of the Non-Collegiate Students' Board.

Dr. Peile, Master of Christ's College, has been appointed a Governor of Repton School, and Mr. J. M. Du Port, M.A., of Gonville and Caius College, a Governor of King Edward VI.'s School, Norwich.

The subject of essays for the Burney Prize, 1890, is "The Attitude of the Christian Church toward Suffering Populations in the Past and To-day." The value of the prize is about £100, and the successful competitor is required to print and publish the essay at his own expense.

There was a very large attendance of members of the Senate at the Congregation held on March 13th, when the report of the Pass Examinations Syndicate was presented for confirmation. There were in all 18 recommendations. The first was that there shall be some general exami-

nation for the ordinary B.A. degree. This was carried by 121 against 44. The second and third proposals, that the general examination should include mathematics and classics as obligatory subjects, were carried by large majorities, the numbers not being taken by the Proctors. The recommendation that candidates for the general examination should be examined in either the Greek or Latin classic, but not in both, was rejected, the votes being—Non placet, 81; placet, 67. The proposal that English history be an obligatory subject in the general examination was rejected by 71 non placet, against 61 placet. It was agreed that all candidates for the general examination should be required to write an English essay, the subject being taken from the prescribed portion of history, that elementary trigonometry be combined with statics, and that in future the general examination be divided into two parts, of which either part, but not both, may be passed in the third term of residence, while one part, or both parts, may be passed in the fourth or later term of residence. With regard to the special examinations for the ordinary B.A. degree it was agreed that the examinations be divided into two parts, of which the first may be taken in the sixth or any later term of residence. The special examinations in botany, zoology, geology, and logic were abolished, candidates in these subjects to be in future examined by means of papers set in the Natural Sciences Tripos and Moral Sciences Tripos, respectively. The recommendation that there be a special examination in mathematics was carried by one vote—67 placet against 66 non placet; but the institution of a special examination in classics was carried by 82 placet against 58 non placet. No part of the scheme is to be operative until formal regulations have been sanctioned by the Senate, and the powers of the Syndicate were continued.

It was resolved to grant £5000 to the Library Syndicate for the purchase of manuscripts from the Middle-hill Library. The University of Oxford and the authorities of the British Museum have consented to act with the University and to contribute in order to secure such parts of the collection as may be desirable.

G. Townsend Warner, of Jesus College, and E. Abbott, of Caius, have been elected to Fellowships at Jesus College. The former, who is the son of the Headmaster of Newton College, was senior in the Historical Tripos of 1887, Lightfoot Scholar in 1888, and Whewell Scholar in 1889. The latter, who is the son of the late Headmaster of the City of London School, was one of the four in Division I. of Class I. of the Classical Tripos of 1889, First Chancellor's Medallist of this year, Bell Scholar in 1887, and Browne Scholar in 1889.

Other Universities, Colleges, and Schools.

Among the new Doctors of Edinburgh University, we are glad to notice Mr. Marshall, the Rector of the Edinburgh High School.

Professor William Ripper, the Principal of the Technical School at Sheffield, has resigned his post, in order to take up a valuable appointment under the Government of New South Wales as organiser of technical instruction in the Colony.

The Hon. and Rev. Edward Lyttelton has been appointed Headmaster of Haileybury, in the place of the Rev. James Robertson. Manly, earnest, a good preacher and teacher, a good scholar, a most distinguished cricketer, with every advantage of family and training, with strong connexions in both Universities and in the scholastic, and also in the ecclesiastical and general world, Mr. Lyttelton brings a great deal to Haileybury, both in fact and in prestige. It is natural to augur for him much success. We cannot wish better for him than that he should be able, as we fully believe he will, to justify the augury and the unanimous opinion of the Governors of Haileybury.

The Girls' Public Day School Company has held its annual meeting. Since the Company first began to establish schools on new models, healthy progress has been made in the movement, and the Charity Commissioners have granted sums from endowments to no fewer than fifteen large girls' schools in London alone. The total number of pupils is 6,653, as compared with 6,618 for last year. The newest schools, those at Dover, Swansea, and a new preparatory school at Newcastle-on-Tyne, show very satisfactory progress. The largest attendances are at Notting Hill, Blackheath, Sheffield, and Dulwich High Schools. Princess Louise is to distribute the prizes at a great gathering of the girls in the London schools on May 23rd, at the Crystal Palace.

The Rev. Townsend Storrs, of Worthing, has been elected Headmaster of Worcester Grammar School, in succession to the Rev. George Smith, resigned.

The Earl of Aberdeen has consented to stand for the rectorial chair of Glasgow University in November next, against Mr. Balfour.

Mr. Coldstream has accepted office as Lecturer on Court Procedure in the University of Edinburgh, Mr. Somerville as Lecturer on Forestry, and Dr. Charles Hunter Stewart as Assistant Registrar. There has been laid before the University Court a copy of a deed of endowment of a lectureship in agriculture, founded by Miss Steven, of Bellahouston, and endowed with the sum of £3000 by her.

The Court of Governors of the University College of South Wales and Monmouthshire confidently hopes to be in a position to start an engineering department in October next. The establishment of a medical school is also regarded as a certainty of the near future.

Mr. A. Platt, of Trinity College, Cambridge, one of Messrs. Gurney and Wren's staff, has been appointed to the Professorship of Classics in the Bedford College, York Place, in succession to Professor Beesly, who has resigned.

The Rev. H. A. Holden, LL.D., formerly Headmaster of the Ipswich School, has been appointed by the Crown to the Fellowship in the University of London, vacant by the resignation of the Dean of Westminster.

The Rev. H. A. Dalton, M.A., Assistant-Master of Winchester College, has been appointed Headmaster of Felsted School.

The Rev. W. C. Perry, M.A., late Headmaster of Queen Elizabeth's School, Dedham, has been appointed Second Master of King Edward's School, Five-Ways, Birmingham.

The vacant post of Headmaster of the Halifax School of Art has been filled by the appointment of Mr. Arthur Whitehead, formerly of the National Art Training School, South Kensington.

COLLEGE OF PRECEPTORS.

PROFESSIONAL PRELIMINARY EXAMINATION—PASS LIST

March, 1890.

The Supplementary Examination by the College of Preceptors, for Certificates recognised by the General Medical Council, the Incorporated Law Society, the Royal College of Veterinary Surgeons, the Pharmaceutical Society of Great Britain, and other bodies, was held on the 4th, 5th, and 6th of March, in London, and at four other local centres, viz., Birmingham, Bristol, Leeds, and Liverpool. The following candidates obtained Certificates:—

First Class.

(*Pass Division.*)

Bokenham, T. B. | Smith, J. W. | Tebay, M. K. | Trewby, H. W.

Second Class.

First Division.

Ellis, F. H.	Hudson, C.	Plumley, A. G. G.
Gibbs, T. H.	James, J.	Robinson, C. H. J.
Goddard, G. H.	Jones, D. L.	Shorland, E. T.
Grove, E. G.	Maurice, W. B.	Trounson, F. R.

Second Division.

Dow, A. M.	Lamplough, C.	Morris, H.
Evans, H. L.	Lee, M. B.	Workman, J.
Harper, F. S.	McAllum, H. G.	

Third Division.

Ashton, J. H. | Forrest, F. V. | Pinchin, A. M. | Roberts, H.

The following qualified for Registration as Medical Students, but did not pass in all the subjects required for a Second Class Certificate:—

Armitage, R.	De Villiers, J. H.	Harwood, E. W.
Blaber, P. L.	Dove, W. B.	Nuthall, A. W.
Cant, A.	Durbridge, H.	Pickering, G. W.
Clayton, E. T.	Gabe, W.	Willis, W. M.
	Godfrey, T.	

The following passed in subjects required to complete their qualification for Registration as Medical Students:—

Anderson, J. S.	Gibson, E. J.	Riddick, C.
Armstrong, W. S.	Gooding, A.	Rispin, W.
Baker, G. W. J.	Greenwood, C. A.	Robinson, H.
Beverley, G. W. B.	Hill, R. W.	Rogers, A. A.
Bracey, W. E.	Howe, A. F. A.	Shields, O.
Brearley, W.	Laslett, F. G. P.	Swalwell, M. F. T.
Crossley, W. H.	Mackley, E. H. A.	Theakston, J.
Dingle, H.	Mathews, J. H.	Wallis, H.
Dobson, A. A. G.	Parkhurst, A. U.	Ward, R. R.
Druitt, A. E.	Phillips, E. H.	Welch, S. J.
Foster, S. C.	Picnot, E.	Wheeldon, W. A.
Gibson, C. W.	Poole, J.	Widger-Bovey, T. W.
	Prior, G. P. U.	

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A meeting of the Council was held on Wednesday, the 19th ult. Present:—Mr. Stewart, Vice-President, in the chair; Rev. R. Alliott, Mr. Baumann, Mr. Bidlake, Mr. Bowen, Mr. Brown, Miss Buss, Mr. Charles, Rev. Dr. Conder, Dr. Dillon, Mr. Eve, Rev. Dr. Hiron, Miss Hughes, Mr. Lee, Mr. Pinches, Mr. Reynolds, Rev. W. J. Savell, Rev. Dr. Scott, Mr. Southee, and Mr. Stièvenard.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the Bill for the Organisation and Registration of Teachers in Secondary Schools had been brought in by Sir Richard Temple and ordered by the House of Commons to be printed on the 10th of March.

He reported that the first Examination conducted by the College for

the London Chamber of Commerce was held on the 10th to 14th of March. The number of candidates examined was 65.

He also reported that a Course of Three Lectures on the Teaching of History would be delivered at the College by the Rev. A. B. Beaven, M.A., on the 9th, 16th, and 23rd of May.

The Diploma of Associate was granted to Mr. A. E. Ikin and Mr. H. Holt, who had passed the required examination.

The Treasurer submitted the report of the Finance Committee, which was adopted.

The report of the Education Committee was submitted.—The report recommended, for publication in the Calendar, regulations respecting academical dress to be worn by holders of the College Diplomas. It also recapitulated the steps that had been taken with regard to the introduction of the Teachers' Organisation and Registration Bill.—The report was adopted.

Mr. J. Vine Milne, M.A., Henley House, Mortimer Road, N.W., was elected a member of the Council.

The following persons were elected members of the College :—

Mr. R. S. Butterfield, High School, Denton, Manchester.
Mr. J. B. W. Foster, A.C.P., 12 Tait Street, Carlisle.
Mlle. M. I. Mathieu, 4 Nevern Road, Earl's Court, S.W.
Mr. G. R. Parkinson, Oakfield, Crouch End, N.
Miss E. E. Singleton, 3 Hanover Park, Peckham, S.E.
Mr. H. G. Wells, L.C.P., 46 Fitzroy Road, N.W.
Mr. R. Ll. Woollcombe, LL.D. Dublin, 14 Waterloo Road, Dublin.

The following books had been presented to the Library since the last meeting of the Council :—

BLACKIE.—Modern Cyclopædia, Vol. IV. ; Elementary Mechanics, Part III. ; Ablett's "How to Teach Drawing in Elementary Schools" ; Ablett's Drawing Copies, No. 11, Part I. and Part II., and No. 14; Abbott's History of King Alfred the Great ; Baker's British Empire, Part I. : The Home Countries ; Bernthsen's Organic Chemistry, translated by M'Gowan ; Sanderson's Outlines of the World's History, Parts I., II., III., IV. ; Vere Foster's Copy-Books, No. 18.

HACHETTE.—Sauvain's First French Reader ; Educational Publications in connection with the Paris Exhibition.

LONGMANS.—Salmon's School Composition.

MACMILLAN.—Cook's Latin Course, Part II. ; Hicks' Elementary Dynamics ; Palmer's Plautus' Amphitruo ; Pantin's First Latin Verse Book ; Wilkins' Roman Literature.

SAXON.—Everybody's Pocket Cyclopædia.

Mr. HIGGINSON.—Spiller's Translation of Lacroix's Elements of Algebra.

THE PHILADELPHIA MANUAL TRAINING SCHOOL.

THE following account, which we take from *The New York School Journal*, will probably interest many of our readers :—

This school was organized in September, 1885, with one hundred and thirty pupils. It now numbers three hundred and thirty, and is kept at that figure for want of room to accommodate more. Every Philadelphia boy thirteen years of age, who has earned his right to enter through a competitive examination, is eligible as a pupil. The applicants are mostly graduates of the grammar schools, although pupils from private schools are allowed the privilege of competing for admission. The average age of the last class admitted was fourteen years and a half.

The combined course of study covers three years, and embraces five parallel lines of study—three of them being purely intellectual, and two both intellectual and manual, as follows :—

1. A course of language and literature, including the structure and use of English, literature, composition, history, social science, civil government, and German.
2. A course of pure mathematics, including algebra, arithmetic, geometry, and plane trigonometry.
3. A course of science, and applied mathematics, including geology, physics, chemistry, economic botany, physiology, mechanics, steam and electrical engineering, and bookkeeping.
4. A course in freehand, mechanical, and architectural drawing, designing, and clay-modelling.
5. A course of tool instruction, including carpentry, wood-turning, wood-carving, pattern-making, forging, soldering, bench and machine work in metals, moulding, and casting.

The length of the school day is six hours, and the time is about equally divided between mental and manual exercises. One hour a day is given to drawing, two hours to shop work, and three to the usual high school studies.

In the distinctive feature of the school—tool instruction—the exercises are valued only as they involve educational processes. Each exercise in wood, or in iron, involves a mechanical principle, and the chief object of the instruction is the development of this principle rather than the finished piece of work. The aim is to teach the pupil to express his thought in a concrete form with the least waste of material, in the most workmanlike manner, and in accordance with the most approved methods. While drawing underlies all industrial work, and is in fact the first step in manual training, it has a wider scope in the school than its application to mechanical construction. It is a common language used in every department to interpret and illustrate principles and things. It brings all the departments of the school into close harmony. In historical, botanical, and topographical maps; in literary charts; in electrical and mechanical diagrams; in geological and anatomical sketches, the pupils are required to express graphically the lessons taught in the class-room. The students are required to visit some manufacturing establishment, make a freehand sketch of some machine, with measurements, and then make an accurate drawing to scale. The same method is pursued in architectural drawing. The pupil makes a freehand sketch (generally of his own residence) of the ground, first and second floor plans, front elevation, perspective view—and follows them up with finished drawings to scale. In designing, a drawing is made from the natural flower or leaf, afterward conventionalized, and then worked out in a design. This design is subsequently applied to clay-modelling, wood-carving, or grill work.

Throughout the entire course, the principles and theories learned by text-books, lectures, and recitations, are supplemented by experimental work, in which the pupil is taught to do by doing. In the chemical laboratory, each student is provided with all the appliances necessary to make his chemical analyses. In the electrical department, the practical applications of electricity, such as measurements of currents and tests of electrical machines, the running of wires, the making of storage batteries, electric lighting, and the running of dynamos, form a part of each student's work. Each pupil in turn is also detailed to run the steam-engine, and to make tests of the same. The putting up of shafting, the adjustment of pulleys, the repairing of machinery, and the construction of various kinds of apparatus, supplement his study of mechanics. The school does not seek to train the hand at the expense of the head. By lengthening the school day, and shortening the number of daily recitations, there is ample time for the development of both the intellectual and manual work. Experience has shown that they are mutually helpful, and that the results intellectually are equal to those obtained in the best high schools.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending March 31st, 1890.

Acworth's (W. M.) The Railways of Scotland, cr. 8vo, 5s. cl.
Allard (E.) : Les Phares, 75fr.
Bartholomew's (J. G.) Pocket Atlas and Gazetteer of Canada, edited by J. W. Harper, 32mo, 2s. 6d. cl.
Bell's (H. G.) Life of Mary, Queen of Scots, 2 vols., 12mo, 6s.
Bjorling's (P. R.) Pumps, Historically, Theoretically, and Practically Considered, cr. 8vo, 7s. 6d. cl.
Blackie's (J. S.) Essays on Subjects of Moral and Social Interest, cr. 8vo, 5s.
Cook (Capt.), by W. Besant, cr. 8vo, 2s. 6d. cl. (English Men of Action.)
Cooper's (J. D.) Prometheus Bound (from the Greek of Æschylus), and Original Poems, cr. 8vo, 5s. cl.
Darmesteter (A.): Reliques Scientifiques, 2 vols. 40fr.
Diels (H.): Sibyllinische Blätter, 2m. 80.
Dowsett's (C. F.) Striking Events in Irish History, 2s. 6d. cl.
Dussouchet (J.) : La Réforme Orthographique, 0fr. 60.
Earl's (A. G.) Elements of Laboratory Work, roy. 16mo, 4s. 6d.
Ferguson's (R. S.) History of Cumberland, 8vo, 7s. 6d.
Foster's (J.) Treatise on the Evaporation of Saccharine, Chemical, and other Liquids, 8vo, 21s. cl.
Garden (The) as Considered in Literature by Certain Polite Writers, with Critical Essay by Howe, 18mo, 2s. 6d.
Gordon's (W.) Catechism on Brigade Drill, 12mo, 2s. cl.
Gourdault (J.) : L'Italie, Part 1, 50c.
Guyau (M.) : La Genèse de l'Idée de Temps, 2fr. 50.
Homeric Birthday Book, Gems from the Iliad and Odyssey of Homer, selected by V. E. G., 32mo, 3s. 6d.
Kingsley's (C.) Literary and General Lectures and Essays, cheap edition, cr. 8vo, 3s. 6d. cl.
Koenig (E.) : Die Entwickelung d. Causalproblems in der Philosophie seit Kant, Part 2, 8m.
Krafft-Bucaille : Causeries sur la Langue Française, 3fr. 50.
Laidlaw's (J.) Miracles of our Lord, Expository and Homiletic, cr. 8vo, 7s. 6d. cl.
Langford's (J. A.) Heroes and Martyrs, and other Poems, 3s. 6d.
Lavisse (E.) : Vue Générale de l'Histoire Politique de l'Europe, 3fr. 50.
Leighton's (W.) Poems, Complete Edition, illustrated by J. Leighton, cr. 8vo, 3s. 6d.
Le Van's (W. B.) The Steam Engine and the Indicator, their Origin and Development, 8vo, 18s. cl.
MacInnes's (Rev. D.) Waifs and Strays of Celtic Tradition, 8vo, 15s. cl. (Argyllshire Series, No. II.)
Mansfield College, Oxford, its Origin and Opening, October 14th-16th, 1889, 8vo, 10s. 6d. cl.
Merriman (M.) and Jawby's (H. S.) Text-Book of Roofs and Bridges, Part 2, 8vo, 10s. 6d. cl.
Milton's Samson Agonistes, with Introduction and Notes by H. M. Percival, 12mo, 2s. 6d.
Molière's Comedies, a new Translation by C. Matthews, cr. 8vo, 2s. cl. (Minerva Library.)

Müntz (E.): Histoire de l'Art pendant la Renaissance, Vol. 2, Part 1, 0fr. 50.
Nasmith's (D.) Outline of Roman History from Romulus to Justinian, 8vo, 25s. cl.
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CORRESPONDENCE.

To the Editor of the Educational Times.

SIR,—Will you kindly assist in making known to the public that, as a memorial to the late Miss Caroline Ashurst Biggs, a Loan Fund has been formed for the purpose of assisting women to continue their professional or technical training, who would otherwise be hampered by want of means? It has been found in many cases that a few pounds, judiciously expended, have given a young woman just the requisite start in life to enable her to rise out of the terribly overstocked ranks of unskilled labour.

All information respecting the Fund will be gladly given by the Hon. Sec., Mrs. Alfred Pollard, 1 The Mansions, Earl's Court, S.W., and further subscriptions gladly received by the Hon. Treasurer, Miss L. Johnson, The Deodaras, Chislehurst.

I remain, Sir, faithfully yours,

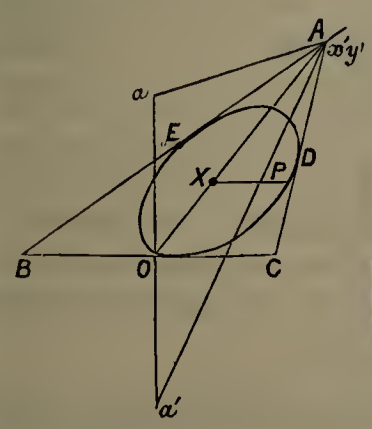
CLARA MORDAN,

Hon. Sec. to the Committee for raising the Fund.

MATHEMATICS.

10411. (Professor WOLSTENHOLME, M.A., Sc.D.)—On a side BC of a given triangle ABC are described two equilateral triangles aBC, a'BC; a, A being on the same side of BC; prove that Aa is three times the difference, Aa' three times the sum of the semi-axes of the maximum ellipse inscribed in the triangle ABC, and that the axes of this ellipse are parallel to the bisectors of the angles between Aa, Aa'.

Solution by Professor ANDERSON, M.A.



Take for axes of coordinates the base BC of the triangle, and the perpendicular through its middle point, and let the length of the base be $2a$, and the coordinates of A, x', y'; then the equation of the ellipse is easily seen to be

$$y'^2x^2 - 2x'y'xy + (3a^2 + x'^2)\,y^2 - 2a^2yy' = 0.$$

The axes are therefore parallel to the lines

$$x'y'\,(y^2 - x^2) - (y'^2 - x'^2 - 3a^2)\,xy = 0.$$

It follows that the axes are parallel to the bisectors of the angles between the lines Aa and Aa'; for their equations are

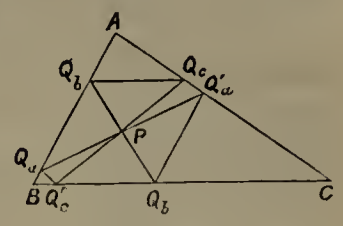
$$(xy' - yx')^2 - 3a^2\,(x - x')^2 = 0,$$

and their bisectors are likewise parallel to the lines $\quad x'y'\,(y^2 - x^2) - (y'^2 - x'^2 - 3a^2)\,xy = 0.$

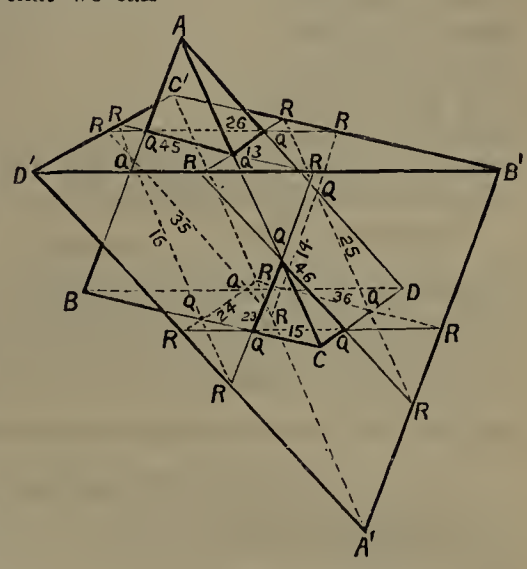
[The rest in Volume.]

10412. (Professor NEUBERG.)—Etant donnés un tétraèdre ABCD et un point P, on mène par P un plan coupant l'angle solide A suivant un triangle T_1, ayant pour centre de gravité P. Soient, de même, T_2, T_3, T_4 des triangles ayant pour centre de gravité P et leurs sommets sur les arêtes des trièdres B, C, D du tétraèdre. Démontrer que les quatre triangles T_1, T_2, T_3, T_4 sont inscrits à une même surface du second ordre.

Solutions by Profs. SCHOUTE and ANDERSON, W. J. C. SHARP; *and others*



1. Prof. SCHOUTE begins with the solution of the analogous problem in plane geometry, supposing the segments Q_a, Q'_a, Q_b, Q'_b limited by the sides of the triangle ABC to have a common mid-point P, and he proves, in several different ways, that the six points Q lie on a conic. From this he goes on at great length—but in an interesting way, for which we regret that we cannot anyhow find room—to discuss the general problem, adding at the end the following further development:—

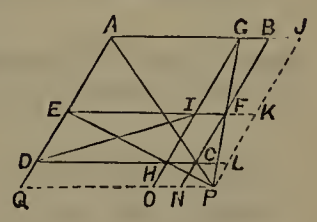


If the homologous faces of the two tetrahedra ABCD and A'B'C'D' meet in four complanar lines, the other twelve lines of intersection lie on a cubic surface. This is *an* extension of PASCAL's theorem on space. Now we learn that these twelve lines of the cubic surface form in two manners four triangles, the vertices of which lie on two quadrics. In the simple case of parallel homologous faces, these two sets of twelve points Q and R are indicated in the diagram.

[The rest in Volume.]

10204. (J. C. ST. CLAIR.)—Through each vertex of a triangle are drawn pairs of lines parallel to two fixed lines OX, OY; prove that (1) the three diagonals of the parallelograms having the sides of the triangle for their other diagonals meet in the same point P; and (2) if the sides of the constant angle XOY vary in direction, find the locus of P.

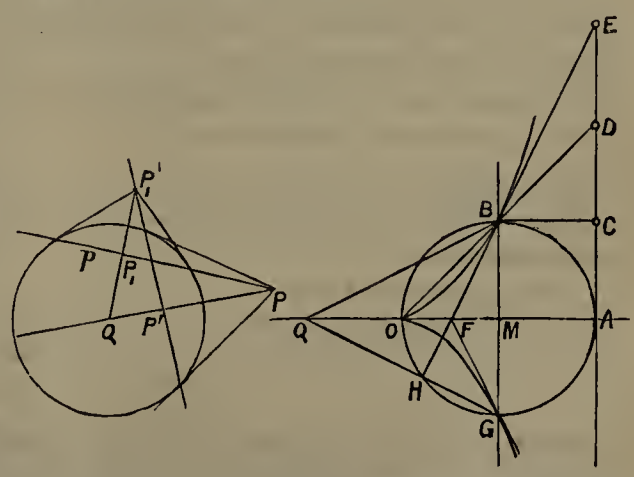
Solution by J. J. BARNIVILLE; Professor DUPAIN; *and others.*



Let DIB be the triangle, and let EH, GF, AC be the other diagonals. Let EH, GF meet in P, and through P draw PQ, PJ parallel to the axes. Then the complement OF = FJ, therefore OFL = CJ (K and L being the intersections of EF, DC with PJ). Also, QH = HK; therefore QC = OFL. Hence QC = CJ, and ACP is the diagonal of the parallelogram AP.

9136. (SARAH MARKS, B.Sc.)—Find (1) a class of curves such that the pedal with regard to a given point is the inverse with regard to that point; and show (2) that the rectangular hyperbola is a particular case.

Solution by Professor SCHOUTE.

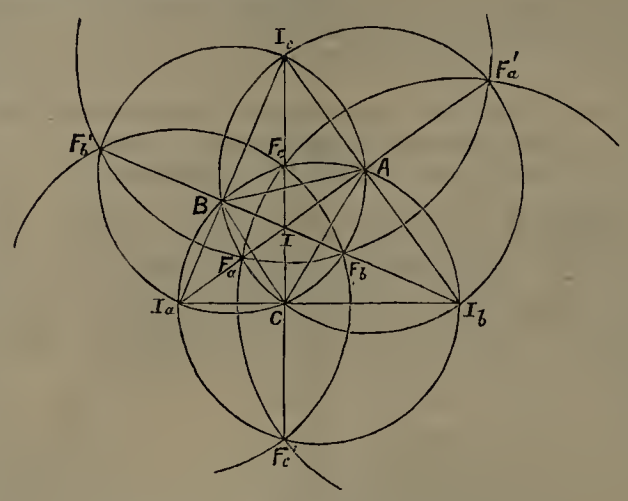


1. When P is a point of the required curve, and Q the given point, the inverse point P' of P with respect to the circle (Q) only can be a point of the pedal of the curve for Q if this curve is touched by the normal in P' on PQ, that is, the polar of P with reference to Q. And if p is a tangent of the curve, the corresponding point P_1 of the pedal for Q only can be a point of the inverse curve for Q if the pole P_1' of p with respect to Q, is a point of the required curve.

[The rest in Volume.]

10453. (Professor GOB.)—Soient F_a, F'_a les foyers d'une hyperbole tangente au côté BC d'un triangle ABC et asymptote aux côtés AB, AC. Soient F_b, F'_b et F_c, F'_c les foyers des deux autres hyperboles analogues. Démontrer que les quadrilatères $BF_a\,CF_a$, $F_b\,F_c\,F'_b\,F'_c$ sont harmoniques.

Solution by Professor SCHOUTE.



In the diagram I, I_a, I_b, I_c are the centres of the circles touching the sides of ABC.

1. The foci F_a, F_a' are the points common to the bisector AI of the angle BAC and the circle BCI_bI_c. For the circles through F_a and F_a' cut AB in an involution BB′ of which A is the centre, and as AB′ = AC they meet the semilines AB, AC in points B, C, for which AB . AC = constant; this proves that BC envelopes the hyperbola with the asymptotes AB, AC and the foci F_a, F_a'.

[The rest in volume.]

2925. (J. J. WALKER, F.R.S.)—Prove that the maximum value of the angle of intersection with an ellipse at D, of the circle passing through three points on the ellipse, the osculating circles at which meet in D, is $\sin^{-1}\dfrac{a^2-b^2}{2(a^2+b^2)}$; and that in this case the centre of the circle lies on the chord common to the ellipse and its osculating circle at D.

Solution by Professor ANDERSON, M.A.

Let δ denote the eccentric angle of the point D. The other three points will be $\frac{1}{3}(2\pi-\delta)$, $\frac{1}{3}(4\pi-\delta)$, $\frac{1}{3}(6\pi-\delta)$, and the circle through these points passes through D since $\delta+\frac{1}{3}(2\pi-\delta)+\frac{1}{3}(4\pi-\delta)+\frac{1}{3}(6\pi-\delta)=4\pi$. The equation of the chord joining δ and $\frac{1}{3}(6\pi-\delta)$ is

$$x/a\cos\tfrac{1}{3}\delta+y/b\sin\tfrac{1}{3}\delta-\cos\tfrac{2}{3}\delta=0,$$

and the equation of chord joining $\frac{1}{3}(2\pi-\delta)$ and $\frac{1}{3}(4\pi-\delta)$ is

$$x/a\cos\tfrac{1}{3}\delta-y/b\sin\tfrac{1}{3}\delta+\tfrac{1}{2}=0.$$

The equation of the circle is therefore

$$x^2/a^2+y^2/b^2-1+k\,(x/a\cos\tfrac{1}{3}\delta+y/b\sin\tfrac{1}{3}\delta-\cos\tfrac{2}{3}\delta)$$
$$(x/a\cos\tfrac{1}{3}\delta-y/b\sin\tfrac{1}{3}\delta+\tfrac{1}{2})=0,$$

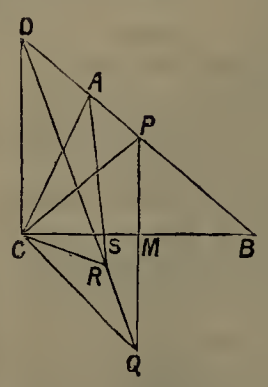
where $k=(a^2-b^2)/(b^2\cos^2\frac{1}{3}\delta+a^2\sin^2\frac{1}{3}\delta)$; and this becomes

$$x^2+y^2-1+\tfrac{1}{2}(a^2-b^2)\left\{-x/a\cos\tfrac{1}{3}\delta\,(2\cos\tfrac{2}{3}\delta-1)\right.$$
$$\left.+y/b\sin\tfrac{1}{3}\delta\,(2\cos\tfrac{2}{3}\delta+1)-\cos\tfrac{2}{3}\delta\right\}=0.$$

[The rest in Volume.]

10336. (MAURICE D'OCAGNE.)—Les perpendiculaires élevées par le sommet C et par le milieu M du côté BC, à ce côté, coupent le côté AB respectivement en D et en P. La perpendiculaire élevée en C à CP coupe PM en Q. Démontrer que la droite DQ et la perpendiculaire élevée en C, à CA, se coupent sur la symédiane issue de A du triangle ABC.

Solution by Revs. T. R. TERRY, M.A., *and* T. GALLIERS, M.A.



Let R be the intersection of DQ and the line through C perpendicular to CA; then equation

to CD is $\beta+\alpha\cos C=0$,

,, PM ,, $\alpha\sin(B-C)+\beta\sin B-\gamma\sin C=0$,

,, CP ,, $\alpha\sin(B-C)+\beta\sin B=0$,

,, CQ ,, $\alpha\cos(B-C)+\beta\cos B=0$,

,, DQ ,, $\alpha\cos C+\beta-\gamma\sin B\sin C=0$,

,, CR ,, $\alpha+\beta\cos C=0$;

therefore equation to AR is

$$\beta\sin C-\gamma\sin B=0.$$

10441. (Prof. ORCHARD, M.A.)—Give (1) an algebraical proof of the following result:—Having put down any sum of money (£. s. d.): (a) Reverse (so that pence come under pounds), and subtract; (b) Reverse this last sum, and add; then the result is constant, and is £12. 18s. 11d., as shown in the annexed example. Also (2) generalise the theorem.

£	s.	d.
10	17	5
5	17	10
4	19	7
7	19	4
12	18	11

Solution by Prof. ANDERSON, M.A.; Rev. H. SEWELL, B.A.; *and others.*

Let x, y, z be the values in decreasing order of three coins, $x=ky$, $y=k'z$; and suppose k, k' both integers and $k>k'$; then any sum of money may be written $ax+by+cz$, where a, b, c are positive integers. When reversed, this becomes $cx+by+az$; and, if this is to express a sum of money in the ordinary way, we must have $a<k'$, and, to make the subtraction possible, we must assume $c<a$. Also b is less than k.

Subtracting, we get $(a-c)(x-z)=(a-c)\left[(k-1)y+(k'-1)z\right]$.

[The rest in Volume.]

10400. (D. BIDDLE.)—Three equal spheres touch each other. Find the probability that the plane which cuts one cuts all.

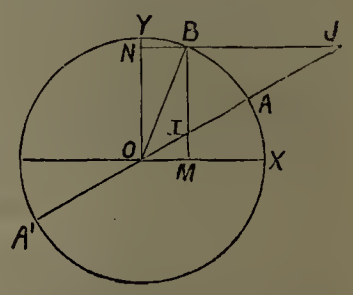
Solution by Professor SYAMADAS MUKHOPÂDHYÂY, M.A.

The chance of a random plane's intersecting a convex surface is represented by $\mu\int pp^{-2}ds$, where ds is an element of surface, ρ the specific curvature at the element, p the length of perpendicular from any origin within the figure to the tangent plane at the element, and μ a constant. The chance, therefore, of a random plane's intersecting a sphere of radius R is $4\mu\pi R$.

[The rest in Volume.]

10414. (Professor DE LONGCHAMPS.)—Soient OX, OY deux rayons rectangulaires dans un cercle Δ. Par O, on trace deux rayons OA, OB, symétriques par rapport à la bissectrice de YOX. Par B, on mène des parallèles aux droites OX, OY; elles rencontrent OA aux points I, J. Démontrer que la polaire de I, relativement à Δ, passe par J.

Solution by R. WHAPHAM, B.A.; D. T. GRIFFITHS, M.A.; *and others.*



$\angle IJB = IOM = BON = OBI$;

therefore $\angle OIB = OBJ$;

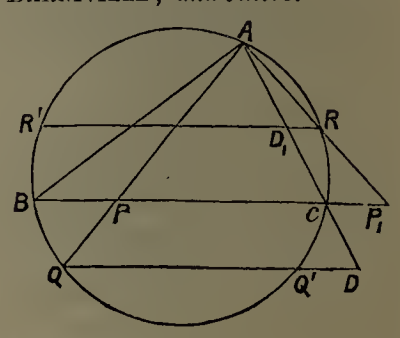
therefore ΔOIB is similar to OBJ;

therefore $OI\,.\,OJ = OB^2 = OA^2$;

therefore I and J are harmonic conjugates with respect to A and A′; therefore the polar of I passes through J.

10456. (The EDITOR.)—In the base BC of a triangle find a point P, such that $AP^2 = m\,.\,BP\,.\,CP$.

Solution by J. C. ST. CLAIR; J. J. BARNIVILLE; *and others.*



On AC take points D, D_1, so that

$CA = m\,.\,CD = m\,.\,CD_1$;

and through D, D_1 draw parallels to BC cutting the circle ABC in QQ′, RR′; then, if these points be joined to A, the joining lines will intersect BC in two internal points P, and two external points P_1, all of which fulfil the required condition. For we have

$AC = m\,.\,CD$, $AP = m\,.\,PQ$;

therefore $AP^2 = m\,.\,AP\,.\,PQ = m\,.\,BP\,.\,CP$.

If $m>1$, D_1 lies within AC, and there will be two external points P_1. With this exception, the parallels to BC through D, D_1 may or may not meet the circle.

10116. (Professor EMMERICH, Ph.D.)—P, Q being the foci of an in-conic of the triangle ABC, D its point of contact with BC, prove the proportion $BD : CD = b\,.\,BP\,.\,BQ : c\,.\,CP\,.\,CQ$.

Solution by Professor NASH, M.A.

The equation of an in-conic having a focus at the point $\alpha\beta\gamma$ may be written $\left[x\alpha\,(\beta^2+\gamma^2+2\beta\gamma\cos A)\right]^{\frac{1}{2}}+\ldots=0$.

If α', β', γ' be the coordinates of the other focus Q, $\alpha'=\dfrac{2\Delta\beta\gamma}{\Sigma\alpha\beta\gamma}$, $\beta'=$ &c.;

$$PA^2\sin^2 A=\beta^2+\gamma^2+2\beta\gamma\cos A,$$

$$PA'^2\sin^2 A=\alpha^2(\beta^2+\gamma^2+2\beta\gamma\cos A)/(\Sigma\alpha\beta\gamma)^2;$$

therefore $PA\,.\,PA'\sin^2 A=\alpha\,(\beta^2+\gamma^2+2\beta\gamma\cos A)/(\Sigma\alpha\beta\gamma)$.

Hence the equation of the conic can be written

$$ax\,(AP\,.\,AQ)^{\frac{1}{2}}+by\,(BP\,.\,BQ)^{\frac{1}{2}}+cz\,(CP\,.\,CQ)^{\frac{1}{2}}=0;$$

therefore, &c.

10467 & 10504. (WALTER STOTT.)—Construct a pentagon when there are given the mid-points of (1) the diagonals or (2) the sides.

Solution by R. F. DAVIS, M.A.; Professor SCHOUTE; *and others.*

(10467.) Let PQRST be a pentagon; p, q, r, s, t the mid-points of the diagonals PR, QS, RT, SP, TQ. Let G be the centroid of five equal masses placed at the angular points of PQRST; then G is the same for

pqrst, and is therefore known. Let o be the mid-point of pq; join oG and produce it to T, so that GT = 4Go. This determines T; whence, &c.

[The rest in Volume.]

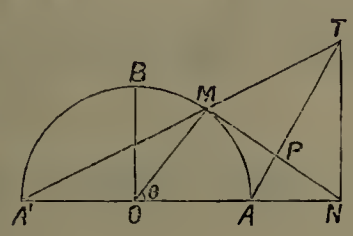
10398. (Capitaine DE ROCQUIGNY.)—En un point quelconque M d'un quadrant de cercle AB, on mène une tangent, rencontrant le rayon OA en N. On élève sur OA la perpendiculaire NT = NM, et l'on joint AT, MT. Démontrer que (1) MT passe par un point fixe; (2) le lieu de T est une hyperbole équilatère (théorème connu); (3) le point d'intersection des droites NM et AT se meut sur une hyperbole.

Solution by Rev. T. GALLIERS, M.A.; R. KNOWLES, B.A.; *and others.*

1. Let OA = a, $\angle$AOM = θ, AOA′ a diameter; then the equation of MT will be

$$y\cos\tfrac{1}{2}\theta-(x+a)\sin\tfrac{1}{2}\theta = 0,$$

and this clearly passes through the point $(-a, 0)$, that is, A′.



2. Since $TN^2 = MN^2 = ON^2 - OM^2$, the equation of the locus of T will be

$$x^2-y^2 = a^2, \text{ an equilateral hyperbola.}$$

[The rest in Volume.]

QUESTIONS FOR SOLUTION.

10513. (Professor SYLVESTER.)—(1) If A be any rational fraction not a perfect square, and a the integer part of $\sqrt{A}$, prove that the continued fraction representing $a+\sqrt{A}$ will be purely periodic (in fact, of precisely the same form as the well-known one for the case of A an integer). [If, *ex. gr.*, $2+\sqrt{\tfrac{11}{2}}$ be expanded in a continued fraction, it will have for its quotients 4, 2, 1, 8, 1, 2, indefinitely repeated.]

(2) The period for $(mn)^{\frac{1}{2}}$ being given, show how to extract the square root of m/n, in the form of a continued fraction, without the use of surds.

—**514.** (Professor GENESE, M.A. Suggested by Question 10497.)—A, B are fixed points of intersection of two conics, X, Y, the points of contact of a common tangent, and XY meets AB at T. Prove that the expression $XY\,(TA\,.\,TB)^{\frac{1}{2}}/(TX\,.\,TY\sin\theta)$, where θ is the angle between XY and AB, is independent of the choice of tangent.

—**515.** (Professor CATALAN.)—Si les diagonales AD, BE, CF d'un hexagone ABCDEF sont égales, et que les côtés soient parallèles, deux à deux, l'hexagone est inscriptible à une circonférence.

—**516.** (Prof. CESÁRO.)—Dans le développement de $(1+\frac{1}{2}x+\frac{1}{3}x^2+\ldots)^m$ le coefficient de x^p est $S_{m+p-1,p}\,/\,\{(m+1)(m+2)\ldots(m+p)\}$.

—**517.** (Professor STEINER.)—Par un point fixe P de l'axe focal d'une ellipse ou d'une hyperbole, on mène une sécante quelconque rencontrant la courbe en M, M′. Démontrer qu'il existe une constante r, telle que le produit $(FM+r)(FM'+r)$ a une valeur constante, F étant l'un des foyers.

—**518.** (Professor SVECHNIKOFF.)—Soient A le sommet d'un tétraèdre, BCD sa base, G le point d'intersection des médianes du triangle BCD. Démontrer que $3AB^2+3AC^2+3AD^2 = BC^2+BD^2+CD^2+9AG^2$.

—**519.** (Professor DÉCAMPS.)—Dans tout quadrilatère circonscriptible, les points de rencontre des hauteurs des quatre triangles formés par deux côtés consécutifs et leur corde de contact avec le cercle sont les sommets d'un parallélogramme.

—**520.** (Professor DE LONGCHAMPS.)—Soit $f(x) = 0$ une équation ayant ses racines réelles et distinctes. Démontrer que

$$f+A_1f'+A_2f''+\ldots+A_pf^{(p)} = 0$$

a toutes ses racines réelles et distinctes, si

$$z^p-A_1z^{p-1}+A_2z^{p-2}\ldots(-1)_pA^p = 0 \text{ a ses racines réelles.}$$

—**521.** (Professor DÉPREZ.)—On considère toutes les coniques qui ont pour centre un point donné O et qui touchent une droite donnée d en un point donné A. Le cercle osculateur à l'une des courbes en A a pour centre ω, et rencontre cette courbe en S; démontrer que (1) le lieu du point de rencontre de la corde AS avec un axe de symétrie de la conique correspondante est une strophoïde; (2) le lieu de la projection de S sur un axe de la conique correspondante est une podaire d'hypocycloïde; (3) le lieu de la projection de O sur la droite Sw est un limaçon de Pascal.

—**522.** (Professor NEUBERG.)—Soient un triangle équilatéral ABC et une circonférence concentrique; tous les triangles dont les sommets sont les projections, sur les côtés de ABC, d'un point mobile sur cette circonférence, ont même angle de Brocard.

—**523.** (Professor ZERR.)—A sphere is pierced perpendicularly to the plane of one of its great circles by four equal right cylinders, so that a cylinder is tangent to two perpendicular diameters and the circumference of the great circle, one in each quadrant. Find (1) the surface of that portion of the sphere not included within the cylinders, (2) that portion of the surface included within the cylinders, (3) that portion of the volume not included within the cylinders, (4) that portion of the volume included within the cylinders.

10524. (Professor SCHOUTE.)—Given, in space, two triangles ABC, A′B′C′, and a plane π; find (1) in π a triangle A″B″C″ that is in perspective with either or both the given triangles, (2) the loci of the centres P and P′ for which A″B″C″ is the projection of ABC and A′B′C′, when α varies.

—**525.** (Professor WOLSTENHOLME, M.A., Sc.D.)—The pedal of the parabola $y^2 = 4ax$ is taken with respect to the point (X, Y): prove that (1) the three inflexions of the pedal lie on the straight line

$$x(3a+X)-yY+X(a-X) = 0;$$

also (2) if from each inflexion P be drawn a straight line Pp touching the pedal in p, a conic can be drawn touching the pedal in the three points p, and this conic will touch the nodal tangents.

—**526.** (Professor MATHEWS.)—Two plane convex quadrilaterals ABCD, A′B′C′D′ are equal in area, and each side of one is equal to the corresponding side of the other (AB = A′B′, &c.): prove that

$$AC\,.\,BD = A'C'\,.\,B'D'.$$

—**527.** (Professor LAMPE, LL.D.)—If we are given the sides a_1, a_2 a_3, ..., a_n of a polygon inscribable in a circle, the radius depends on an equation whose degree is 7 for $n=5$ or 6, 38 for $n=7$ or 8, 187 for $n=9$ or 10, &c. (See Möbius in *Crelle's Journal*, Vol. III., or Works, Vol. I., p. 428). Now, if the sides be given in numbers, find (1) the number of real solutions of the problem; (2) the diameters of the circles; and (3) give examples for the pentagon and hexagon.

—**528.** (Professor NASH. Suggested by Quest. 10153.)—If P be the double focus of one of the circular cubics through the seven points named in Quest. 10153, Q the centroid of either of the triangles ABC, BCD, CDA, DAB, and PQ be produced to R, so that QR = 2PQ, prove that the asymptote of the cubic will be the Simson-line of R with respect to the triangle chosen.

—**529.** (Professor SYAMADAS MUKHOPÂDHYÂY, B.A.)—Find the chance that a line which meets a sphere of radius R also meets another sphere of smaller radius r whose centre is at a given distance d from the centre of the first. Examine the three cases, when the second sphere (1) lies wholly within, (2) lies wholly without, and (3) intersects the first sphere.

—**530.** (Professor EMMERICH.)—If ω be the Brocard-angle, and δ any angle of a triangle, prove that $\cot\omega\sin 2\delta > 2$ in an obtuse-angled triangle, and < 2 in an acute-angled triangle.

—**531.** (Professor MORLEY.)—Through a point on an ellipse two circles are drawn, one cutting the ellipse again at the corners of an equilateral triangle, the other at those of a maximum triangle; prove that the circles touch.

—**532.** (Professor ORCHARD, M.A.)—Find the condition that

$$x^4+27x^3+9x^2+3x+c = 0$$

may be solved as a quadratic.

—**533.** (The EDITOR.)—Find the means distance between all the pairs of points that can be taken in the periphery of (1) a circle, (2) a square, or on the surface of (3) a sphere, (4) a cube.

—**534.** (Rev. H. SEWELL, B.A.)—If $a, b, c, \ldots k$ be positive quantities, n in number, prove that

$$\left(\frac{a+b+c+\ldots+k}{n}\right)^{a+b+c+\ldots+k} < a^ab^bc^c\ldots k^k.$$

—**535.** (D. EDWARDES, B.A.)—A wire hoop, uniform in all respects, and in the form of a circle when unstrained, is placed in a vertical plane with its lowest point fixed. Show (1) that the normal and tangential displacements, due to the action of gravity, are

$$u = A(2\pi\theta-\theta^2)\cos\theta+2A(\pi-\theta)\sin\theta,\quad v = -A(2\pi\theta-\theta^2)\sin\theta-B\sin\theta,$$

where θ is measured from the radius through the lowest point, and the origin is at the point which would be the centre of the wire if unstrained, and A and B are constants involving the flexural rigidity, extensibility, radius and weight of hoop, and (2) find the displacements when the wire is inextensible.

—**536.** (H. MACCOLL, B.A.)—A plane cuts a sphere of given radius in a random direction. Find (1) the average volume of the smaller segment, (2) the average area of its circular base, (3) the average area of its other surface.

—**537.** (W. J. JOHNSTON, M.A.)—A, B, C, D are fixed points on the edges of a deformable solid angle (vertex O) included by four *given* plane angles, also angle AOB = COD and AOD = BOC; prove (1) that between p, p' and the perpendiculars from D on OB and A on OC there exists the relation $\sin\frac{1}{2}[\sin^{-1}(p/OD)]\sin\frac{1}{2}[\sin^{-1}(p'/OA)] = \text{const.}$; and (2) deduce therefrom GAUSS's theorem that the measure of curvature at any point on a surface is unaltered by deformation.

—**538.** (W. J. C. SHARP, M.A.)—A flexible hawser is fastened to a point at the bottom of a stream, in which the force of the current varies as any function of the depth. Find the differential equation to the catenary in which it hangs, and show that, if the axis of y be vertical, m be the weight of the unit of length of the hawser when weighed in water, b an arbitrary constant, and T the tension, $T = (ms-b)\,ds/dy$.

—**539.** (HILDA HUDSON.)—To describe a circle passing through two given points, so that the end of the diameter parallel to the line joining the points may be at a given distance from the nearer point.

10540. (D. Biddle. Suggested by Quest. 10488.)—A says that B and C said that ace was thrown at a single cast of a die. D and E say that F denied the occurrence. What is the probability that ace was thrown, the *à priori* probability being k, and the veracity of A ... F being denoted by $p_1 \dots p_6$, respectively?

—541. (Alpha.)—Suppose Timothy Snooks asserted that St. Paul affirmed Christ's Transfiguration, should we say that it was equally likely that he denied the fact as that he said nothing about it?

—542. (W. J. Greenstreet, M.A.)—Three men A, B, C play a match. They draw lots to see which pair plays first, and the winner of the first game plays the third. A winning the second game wins the match. Show the chance of A and B having played the first game is $\frac{5}{18}$, when the skills of A, B, C are as 4 : 3 : 2. Find the chance A and B did not play together.

—543. (R. Tucker, M.A.)—Eliminate t from the equations

$$(2t^4-t^2+1)\,x+(2t^5-2t^3+t)\,y=4at^4,\quad (t^4-t^2+2)\,x-(t^4-2t^2+2)\,y=4at.$$

—544. (H. W. Segar.)—Given the lengths of four lines that may be drawn from a point to the angular points of a rhombus, describe the rhombus.

—545. (Walter Stott.)—Prove that a solution in definite integrals of the differential equation $\frac{d^2y}{dx^2}=\beta-\frac{\beta y}{(x-x^2)^2}$ is

$$y=\frac{\beta}{m-n}\left\{x^m(1-x)^n\int_0^x x^n(1-x)^m\,dx-x^n(1-x)^m\int_0^x x^m(1-x)^n\,dx\right\},$$

where m and n are roots of the equation $z^2-z+\beta=0$.

—546. (F. R. J. Hervey.)—A conic has its axes parallel to the asymptotes of a rectangular hyperbola, and cuts it in four points. Prove that the mean of the intersections lies midway between the centres of the curves.

—547. (R. Knowles, B.A.)—Two conics intersect in ABCD: prove that the poles, with respect to each conic of (1) AB, CD; (2) AD, BC; (3) AC, BD are collinear.

—548. (Asparagus.) — Prove that the area of the curve whose areal equation is $(x^2+y^2+z^2-2yz-2zx-2xy)^2=128xyz\,(x+y+z)$, (the rational form of the equation $x^{\frac{1}{2}}+y^{\frac{1}{2}}+z^{\frac{1}{2}}=0$) is $\frac{14\pi}{27\sqrt{3}}$ K, where K is the area of the triangle of reference, supposed real and finite.

—549. (J. MacNeill, M.A.)—A borrows from B, on Jan. 1st, £500 at 5 per cent. (interest convertible every moment), and B borrows from C on like terms £500 at 10 per cent. on Feb. 1st; find (1) when A's debt will equal C's debt; and (2), if both bills are discounted on March 1st (at 5 or 10 per cent.), how much B has gained or lost.

10550. (E. M. Langley, M.A.)—Deduce, from Ptolemy's Theorem, the existence of Simson's Line.

—551. (J. J. Barniville.)—Draw a line bisecting two triangles, and a plane bisecting three tetrahedra. Determine under what conditions the six common bisectors of four triangles concur in triads.

—552. (J. O'Byrne Croke, M.A.)—If Δ be the discriminant of the general equation of the second degree,

$$C=d\Delta/dc,\quad 2G=d\Delta/dg,\quad 2F=d\Delta/df,\quad R^2=4h^2+(a-b)^2,$$

and $h\tan^2\theta+(a-b)\tan\theta-h=0$; prove that—the sign of R being chosen so as to render the quantity under the radical sign positive—the coordinates of the real foci of an ellipse are

$$\left.\begin{matrix}x_1\\x_2\end{matrix}\right\}=\frac{G}{C}\pm\frac{(-\Delta R)}{C}\cos\theta,\quad \left.\begin{matrix}y_1\\y_2\end{matrix}\right\}=\frac{F}{C}\pm\frac{(-\Delta R)^{\frac{1}{2}}}{C}\sin\theta.$$

—553. (H. Brocard.)—Étudier la surface lieu des circonférences de contact des cônes circonscrits à des sphères égales, les centres de ces sphères étant sur une droite fixe et les cônes ayant même sommet.

NOTICE TO CORRESPONDENTS.

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THE LONDON MATHEMATICAL SOCIETY.

Thursday, March 13th, 1890.—J. J. Walker, Esq., F.R.S., President, in the Chair. The following communications were made:—"Perfect Numbers," Major P. A. MacMahon, R.A.; "The Relation of Distortion in Prismatic Images to Dispersion," Dr. J. Larmor; "On the Satellite of a Line relatively to a Cubic," The President (Prof. Greenhill, F.R.S., in the Chair); "In Approximate Relation connecting Successive Terms of the Expansion for tan x," G. Heppel, M.A.

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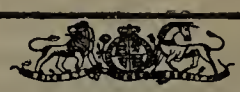
Gold Medals,  Paris, 1878 : 1889.

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16510. Gov. to take entire charge of three children. Ages 13, 11, 9. Eng., Mus., Fr., Draw., Paint., Ndlwork. Res. 20*l.* (about.)
16516. Good Jun. Master. Fr. (conv.), Eng. subj.
16521. Master. Jun. Department, good Disciplinarian. Duties light, Draw., elem. Fr. and Lat. Non-res. 35*l.*
16525. Headmaster required. 120*l.* non-res.
16526. Master. Eng. subj., Fr., Shorthd., Sing., Sports. Non-res. 50*l.*
16528. Jun. Gov. to give lessons in Mus., and to receive lessons in Fr., Ger., Draw. and Mus. or Euclid, in return with board. Mutual terms.
16531. Gov. Dancing, Calisth., and Eng. subj., &c. 20*l.* to 30*l.*
16534. Master. With good Fr. and Ger. About 70*l.* No supervision, plenty of time for reading.
16537. Gov. Fr. and Ger. (conv.), good jun. Mus. 30*l.*
16538. Jun. Master. Good Eng. subj., Writ., elem. Fr., Draw., &c. Sports a recommendation. 20*l.* (from).
16539. Jun. Master. Eng. subj., Piano. Small salary.
16544. Jun. Eng. Gov. Elem. Fr., Lat., Draw. 30*l.*
16546. Eng. Master. Good general subjects. An Abstainer.
16547. (i.) Governess. Eng. subj., Arith., Fr., Mus. 25*l.*
(ii.) Pupil Governess. Eng. and Mus. To receive lessons in Eng., Mus., Draw., or Paint. Mutual terms.
16548. Kindergarten Governess.
16549. Jun. Ger. Gov. Reciprocal terms. Two hours' teaching wanted daily.
16550. Fr. Gov. Diplomée.
16551. Gov. Fr., Ger., and Mus. 30*l.* to 40*l.*
16553. Music Master. Any other subj. to state all particulars and salary required.
16554. Governess Housekeeper. Good knowledge of Fr. and Ger. (gram. and conv.). 50*l.* to 70*l.*
16556. Jun., to train as Kindergarten. Small premium required.
16559. Gov. Good Eng., certd. Arith., Alg., Fr. (conv.), Paint. desirable. Church of Eng. Res. 50*l.* to 60*l.*
16560. Jun. Master. Lat. (elem.), Fr. Eng. Sal. 15*l.*
16561. Master for Math. and Fr., Eng. Comp., &c., for Lond. Matric. For the West Indies. 100*l.* res. Passage paid.
16563. Jun. Master. Lat., Alg., Mech., Fr. 20*l.*
16564. Gov. Arith., Eng. subj. 30*l.*
16567. Gov. Hist., Shakespeare, Gram., Math., Lat. and Fr. (elem.). 42*l.* (about).
16570. Jun. Master. Eng. subj., Lat., Fr., Shorthd. (Pitman's), Mus. 20*l.*
16571. Jun. Master. Fr., Lat. (elem.), Eng., Shorthd., Draw. and Alg. (elem.). 35*l.* to 40*l.*
16572. Eng. Master, to teach French.
16573. Gov. for Kindergarten and German.
16574. Gov. (Daily, Certd.). Eng. (thoro.), Math. Bkkpg., Lat., Mus. 30*l.* non-res.
16576. Pupil Teacher on mutual terms (Master).
16577. Gov. Fr., Eng. subj., Gram. and Comp., Shakespeare, &c. Math. for Jun. and Sen. Camb. 50*l.* res.
16578. Jun. Master. Eng., Lat., Fr., Arith. Help in studies. Small salary.
16581. Gov. (Jun.). Eng. (good), Fr. for children under 12, Mus, Draw., Paint., Lat. (elem.). 20*l.*
16583. Jun. Master. Eng., Lat., &c. 20*l.* res.
16584. Gov., Music. Exp. to prepare for R.A.M. Exams. Higher Eng. subj., good Discipliuarian. Sen. Gov. From 40*l.*
16585. Gov. Music, Piano, elem. Sing., Eng. subj. Good Disciplinarian. Church of England. 21*l.*
16585*a*. Jun. Master. Gen. subj. Time for study.
16586. Gov. (Nursery). Mus., Fr., Eng. 16*l.*
16587. Gov. Pupil, to be prepared for Exams. and accomplishments, and to assist generally. Small premium required.
16588. Master. Good Eng. and elem. Sci. Good discipline. 60*l.*
16589. Jun. Master. Elem. Eng., Lat., Fr., and elem. Piano. 15*l.* Higher salary with Piano. Time for study.
16590. French Gov., one wishing to learn Eng. Mutual terms or small salary.
16591. Eng. Gov. Ger. (conv.), Eng. subj. For one little boy in Paris. 25*l.*

II.—ASSISTANTS.

No. in Register. MASTERS.

21798. Eng. subj., Lat. (jun.), Fr., Com. Corresp., elem. Ger., Math., Sci., Acoust., Mag., Lt., Ht., &c., Mech., Physi., Shorthd., Bkkpg., Draw. Age 32. 40*l.*; non-res. 70*l.* S. and A. Exams., Exhibition S. Wales Univ. Coll.
21799. Eng. subj. (elem.), Arith., Alg., Euc., Mens., Draw., Sing., elem. Latin, elem. Shorthd., Bkkpg. Res. 26*l.*; non-res. 50*l.* Age 20.
21800. Math., Eng., Lat., Fr., Draw. and Paint., Shorthd., Writing, Bkkpg. Dublin Univer. Res. 40*l.*; non-res. 85*l.* Age 25.
21801. Eng. subj., Class., Arith., Alg., Euc., Fr. Res. or non-res. 1st Cl. C.P., Sen. Camb. L. Age 22.
21802. Fr., Ger., and Span. (conv.), Lat. (elem.), Bkkpg., Shorthd. (Pitman's). S. and A. 1st Cl. Cert. Non-res. 250*l.* Age 33.
21803. Fr., Ger., Class., Math., Roman Law, Hist. Res. 50*l.*; non-res. 90*l.* Age 23.
21804. Eng. subj., Lat., Gk., Fr. (elem.), Math., Arith., Alg., Euc. Res. 50*l.*; non-res. from 75*l.* prefd. B.A. Queen's Coll., Oxf. Age 28.
21805. Eng. subj., Arith., Euc., Alg., Mech., Sd., Lgt. and Ht., Chem., Hydro., Draw. (freehd. and perspec.), Lat., Fr., Gk. and Ger. (elem.). Lond. Matric. Res. 40*l.*; non-res. 100*l.* Age 24.

21806. Eng. Hist. and Lit., Lat., Gk., Gk. and Roman Hist., Arith., Alg., Euc. Jun. Oxf., 5th in 2nd Cl. Div. in Greek. Res. from 30*l.* to 60*l.* Age 18.

21807. Eng. subj., Math., Mechs. (elem.), Lat., Bkkpg., Gk. (elem.). Mutual terms. Age 20.

21808. Class. (adv.), Math., Fr., Trig., Eng., Shorthd., Bkkpg. Sen. Oxf., Lond. Matric. Res. 30*l.* about; non-res. if possible. Age 27.

21809. Eng. (thoro.), Fr., Math., Class., Chem., Nat. Phil. Inter. Arts Lond. Non-res. 100*l.*, or res. 60*l.* Age 21.

21810. Class., Fr. (conv.), Ger. and Span. (elem.), Math., Mech., Draw., Bkkpg., Shorthd., Chem. (Inorg.), Map, Eng. subj. (all). Sen. Oxf., S.K. Res. 40*l.* about. Age 31.

21811. Class., Fr., Ger., Math., Eng. subj., Logic, Pol. Econ. R. Univ. Ireland. Non-res. 90*l.*, or res. 60*l.* Age 29.

21812. Fr., Ger., Span., Ital., Com. Correspondence. Non-res. preferred. Passed Teachers' Exam. for Mod. Languages in Germany.

21813. Eng., Arith., Alg., Euc. I.—II., Shorthd., Phys., Chem., Fr., Gk., and Draw. (elem.). S.K. Certs. Res. 30*l.* to 35*l.*

21814. Mod. Lang., Chem., Geol., Phys., Geog., Draw. and Paint. (freehd. and geom.). Non-res. 120*l.* to 150*l.*, or res. Ph.D., Gold and Sil. Med. Botanical Comp. S.K.

21815. Class., Fr. (Paris), Eng. Lang. and Lit., Sci., Chem. (theo. and pract.), Mech., Acoustics, Physiol., Geol., two years Science Master, Math., Trig. and Conics. Gov. Exam., S.K. Grad. in Hon. Lond., Univ. Coll. Wales. Res. 90*l.*; non-res. 120*l.* Age 29.

21816. Piano, Harmonic, Flute, Composition, Ger., Berlin Cons. of Mus. Res. or visiting. 80*l.* to 100*l.*

21817. Eng. subj. (all), Draw. (all styles), Lat. and Fr., Phys., Bot., Swim. Age 36. 60*l.*; non-res. 80*l.* to 100*l.* S. and A. Teacher. Prizeman.

21818. Eng. subj., jun. Lat. and Gk. and Math., Fr. Age 27. 30*l.*; non-res. 75*l.* Matric. Lond.

21819. Eng., Fr., Lat., Gk., Math., Mech., Chem., Mus. (piano and organ), Shorthd. Jun. Camb. Res. 15*l.* to 20*l.* Age 19.

21820. Class., Fr. (thoro.), Ger. and Ital. (elem.), Eng. subj., Math. (high), Mech., Engin., Navig. Trained and Cert. Non-res. or visiting 100*l.* to 200*l.*

21821. Fr. (all), Lat., Span. B.-ès-lettres. Cert. Res. 40*l.* Age 30.

21823. Fr., Draw., B.-ès-lettres, Lycée Bonaparte. 150*l.* non-res.

21824. Eng. subj., Math. (jun.), Lat., Fr., Shorthd. Pitman Cert.), Sci., Acoust., Lt., Ht., Elect., Physiog. Age 22. 30*l.* to 35*l.*

21825. Eng., Lat., Fr., Draw. (freeh. and model), Arith., Euc., Sports. 2nd Cl. C.P. Small salary. Age 17.

21826. Div., Lat., Fr., Math., Eng. subj., Eng. Lit. and Comp., Draw., Sci., Mus., Tenor Voice. Res. 60*l.*; non-res. 100*l.* Age 27.

21827. Eng. subj., Fr., Lat., Math., Shorthd., Mus. (elem.). Res.

21828. Eng. subj., Arith., Fr. and Mus. (elem.), Draw. (jun.). Res. 15*l.* Age 20.

21829. Ger., Fr., Ital., Gen. subj. Res. 40*l.* to 60*l.*; non-res. 100*l.* Age 24.

21830. Math., Nat. Phil., Class. (elem.). B.A. Camb. Wrangler. M.A. Aberdeen. Hon. in Math. and Phys. Non-res. Age 25.

21831. Class., Hebrew, Fr., Sanscrit, Ger., Math., Mech., Draw., Shorthd., Eng. subj., Nat. Phil. Sen. Oxf., Queen's Scholarship 1887. Non-res. 80*l.*; res. 30*l.* Age 21.

21832. Eng. subj., Bkkpg., Shorthd., Fr. and Ger. (gram. and conv.), Math., Draw. (freeh., model, geom., pers., landsc., and mech.). Res. 60*l.*; non-res. 100*l.* Age 26.

21833. Class., Math., Eng. Lit, Anglo-Saxon, Ger., Fr. B.A. Lond. Non-res. 130*l.* Age 22.

21834. Class., Math., Eng., Fr. B.A. Victoria. Res. 30*l.*; non-res. 80*l.* Age 20.

21835. Eng. subj., Math., Fr., Lat., Mus. (Piano and Organ), Draw. (elem.). Res. 15*l.* to 20*l.* Age 20.

21836. Eng. subj., Fr., Lat., Greek (elem.), Alg., Euc. Matric. Lond. Univ. Res. 25*l.* Age 19.

21837. Class., Math., Sci., Eng. subj. and Lit., Logic, Fr. and Ger. (elem.). M.A. Glasgow Univ. Res. 60*l.*; non-res. 80*l.* Age 20.

21838. Class., Math., Fr., Eng., Nat. Phil., Draw., elem. Chem. and Phys. B.A. Non-res. 150*l.* Age 23.

21839. Eng. subj., Lat., Fr., Draw. (geom.), Math. S. and A. Dept. Non-res. 35*l.*; res. 20. Age 19.

21840. Ger. and Fr. (conv. and gram.). Math., Phys., Chem., Hist., Geog., Lat., Draw. Res. 50*l.*; non-res. 80*l.* Age 24.

21841. Lat., Chem (theor. and prac.), Fr., Eng., Math., Elec. and Mag., Sound, Light and Heat, Bot. and Phys., Science (Special). 1st B.Sc. and S. and A. Dept. Non-res. 90*l.* to 120*l.* Age 29.

21842. Eng., Class., Math., Nat. Phil., Stat., Dynam., Hydro., Pneum., Heat, Conic Sections, Sports. Undergrad. Univ., Aberdeen. Res. 40*l.*, or non-res. Age 21.

21844. Eng. subj. and Lit., Math., Lat. (elem.), Mens., Fr. (good). Draw. (freeh. and geom.), Mus. (theory). Queen's Scholarship. Res. 20*l.* to 30*l.*; non-res. 52*l.* to 65*l.* Age 20.

21845. Lat., Greek (elem.), Fr., Eng., Math., Chem. (elem.), Mech., Shorthd., Bkkpg., Sports. Lond. Matric., Camb. Teacher's Dip. Res. 50*l.*; non-res. 90*l.* Age 25.

21846. Eng., Lat. (elem.), Euc., Draw. (freeh., geom., persp., and model). Cert. for Draw. 3rd Grade. Res. 20*l.* to 30*l.* Age 23.

21847. Eng. subj., Math., Mech., Chem., Greek, Fr., Shorthd. (Pitman's). Lond. Matric., 1st Cl. C.P., 2nd Gen. Prize, Camb. Loc. 1st Cl.

21848. Eng. subj., Fr., Lat., Mech, Math., Shorthd., Draw. Non-res. 70*l.* Age 34.

21849. Eng. subj., Math., Class. (elem.), Fr. (gram.), Shorthd. (Pitman's). Res. 50*l.*; non-res. 90*l.* Age 25.

21850. Class., Fr., Eng., Div. Res. 25*l.* Age 21.

21851. Eng. subj., Pol. Econ., Lat., Math., Nat. Phil., Writ., Bk., Draw. (freeh. mod. and geom.), Govt. Lists 1st Cl. Res. 60*l.*; or non-res. Age 49.

21852. Class., Math., Eng. subj., Fr. (gram.), Chem. (elem.). L.C.P. Non-res. or res.

21853. Class. Math., Eng. subj. Res., small salary. Age 22.

21854. Class. Math., Fr. (elem.). B.A. Oxon. Res. 50*l.*; non-res. 100*l.*

21855. Eng. subj., Math., Class., Fr. (conv. and gram.). B.A. Oxon. A.C.P. Head Mastership or V. Principal.

21856. Eng., Fr., Math., Draw., Geol., Physiog. C.P. S.K. for Draw. Res. 15*l.* Age 18.

21857. Eng. subj., Lat., Fr., Math., Trig., Mech., Ger. (elem.). 1st Cl. Lond. Matric., Sen. Camb., S. and A. Dept. Res. 20*l*; non-res. 70*l.* Age 18.

21858. Ger., Fr., Paint. (oil and w.-col.), Math., Draw. (Tech.), Writ., Chem. Member of Zürich and Göttingen Univ. Res. 80*l.*; non-res. 120*l.* Age 24.

21859. Eng. subj., Writ., Draw., Math., Lat., Gk. (elem.), Ger., Fr. 30*l.*—40*l.*; non-res. 60*l.*—80*l.* Age 22.

21860. Math. (pure), Ang.-Saxon, Class., Early Eng. and Lit., Mech. Age 22. B.A. Lond. Res. or non res.

21861. Eng. subj., Lat. and Fr. (juniors), Math., Draw., Violin (elem.), Jun. Camb. Loc., 2nd Cl., S.K. for Draw. Res. 5*l.* per term. Age 22.

21862. Fr., Class., Ger., Ital. (perfect), Shorthd., Draw. Res., or non-res. 70*l.* Prizes and Certs. Age 29.

21863. Eng., Arith., Alg. (jun.), Mens., Fr. (jun.), Draw. (freehd.), Mus. (piano and theo.), Shorthd., Sports. Res. 21*l.*; non-res. 50*l.* Age 23.

21864. Class., Math., Chem., Fr., Ger. (elem.), Phys., Shorthd., Bkkpg., Lond. Matric., 4 Adv. Certs. Non-res. from 80*l.* Age 40.

21865. Eng. (good), Fr., Draw., Bkkp., Arith., Corres. Lat. (jun). Non-res. 80*l.*—100. Res. or visiting. Age 45.

21866. Eng. subj., Class., Fr., Math., Mus., Piano and Harmony (elem.). Res. 25*l.* Age 19.

21867. Eng. subj., Fr., Class., Ger., Math., Chem., Mech. 1st Cl. C.P. 1st Div., King's Coll., Lond., A.A. Oxf. Hon. and Prize. Age 35. Non-res. from 60*l.*

21868. Eng. subj., Fr. (gram. and conv.), Lat., Gk. (elem.), Ger. (elem.), Draw. (freeh., mod., geom.), Shorthd., Phys., Chem, Bot., Zool., Acous., Lt., Ht., Mag., Elect., Music (elem.). 1st Cl. C.P., S. & A. Dept. Res. 60*l.*—70*l.*; non-res. 90*l.*—100*l.* Age 22.

21869. Class., Fr., Math., Eng. subj. (all). B.A. Dublin. Non-res. 120*l.* Age 50.

21870 Ger., Fr., Arith., Eng., Lat. Res. Pupil Teacher. Age 17.

21871. Class., Fr., Ger., Eng., Math., Pol. Econ., Eloc., Div., Theol. M.A. Oxf. in Orders. Non-res. or Visiting. Age 36.

21872. Math. (elem.), Lat., Fr., Draw., Eng. subj., Ger. and Ital. (elem.). Age 21. Sal. 60*l.* Indian Civil Service Exams.

21873. Eng., Shorthd., Bkkp., Math. (jun.), Fr., Class. Sci., Chem., &c. Age 33. Sal. 40*l.*

21874. Mus., Conservatoire Lond., Draw., Sing. Sal 20*l.*

21875. Fr., Ger., Mech., Draw., Writ., &c. Sal. 50*l.*—60*l.* Brévet de Cap. Age 39.

No. in Register. **GOVERNESSES.**

9685. Eng. (all subj.), Fr. Lat., Mus., Sing., Draw., Paint., Physiol., Dancing, Callis. Res. 26*l.* Age 19. 2nd C.P., S.K. Phys.

9686. Piano (theory and har.). Res. 45*l.* R.A.M.L. Exam. Sen. Hons., Har. C.P. and Camb. Age 23.

9687. Eng., Fr., Mus. (elem.), Non-res. from 30*l.* Age 32.

9688. Eng. subj. (good), Arith., Fr. (good), Mus. (fair), Lat., Ger., Alg. (rudiments). Res. 25*l.* Fam. prefd. Age 19. Sen. Oxf.

9690. Eng. subj., Arith., Kindergarten, Mus., Ndlwk. Age 28. Res. 20*l.* to 30*l.* Sch. or Fam. (prefd.). Exp. T.

9695. Eng. (thoro.), Math. (elem.), Biol., Bot., Chem. Phys., Script., Micros., Sci. Non-res. Sci. Teacher. Age 25. Sen. Camb., Lond. Matric., Biol. of Physic of Lond. Inter. Sci., S.K. Hon. in Veg. Morp. and Physiol., adv. Chem. and Animal Phys., S.K.

9700. Math., Class., Eng. subj., Divinity, Math. Sci. Age 28. Res. 150*l.*, non-res. 200*l.* to 250*l.* B.A. Lond., Math. Tripos Camb., 1st Cl. S.K. Sci. and Art, in Phys., Mag., Elec., and Physiog.

9704. Eng. subj., Arith., Draw. (freehd. and mod.), Mus., Piano, Harm. and Sing., Fr. (elem.) acq. abd., Lat. (elem.), Ndlwk. Res. 30*l.* abt., non-res. 80*l.* abt.

9705. Eng., Math., Fr., Ger., Lat., Bot., Mus., Draw. Age 35. Res. or non-res. Sen. Oxf. Loc. Exam.

9706. Piano, Theory of Mus., S. of A. 1st Cl. Non-res.

9707. Ger., Fr., Eng., Ital. (gram.), Mus. Family. Salary res. 100*l.* Gov. Exam. in Berlin.

9708. Eng., Fr., Lat., Ger., Draw. (freeh. and mod.), Paint., Mus. Visiting or Lectures.

9709. Eng., Lat., Fr., Mus. Res. 30*l.* St. Andrews.

9711. Mus., Piano, Sing., Theory. Student R.A.M. Age 32. Salary 50*l.* to 60*l.* non-res. or visiting.

9713. Eng. (thoro.), Math. (adv.). Res. 35*l.* to 40*l.*; non-res. 75*l.* Sen. Camb. S.K. Cert. S. and A. Age 27.

9714. Eng. subj., Mus., Fr., Draw., Ndlwk. Res. 20*l.* to 25*l.* Time for study. 3rd Cl. C.P. Age 22.

9716. Piano, Har., Ctpt., Solo and Class Sing. Non-res. from 100*l.* Met. Exam. R.A., Licent. R.A. Mus. Age 23.

9717. Eng., Fr., Mus. Res. 25*l.* (abt.) Age 29.

9718. Eng. subj., Arith., Mus. (piano), Fr., Ger. and Lat. (elem.). Res. 30*l.*; non-res. 45*l.* Age 37.

9719. Eng. subj., Arith., Fr. (gram. and conv.), Mus. (piano and har.), Draw. (freehd.), Ndlwk. Res. 35*l.* Age 23. 2nd Cl. C.P.

9720. Eng. subj., Arith., Fr., Lat. (elem.), Draw., Piano and Vocal Mus., Phys., Drill, Ndlwk. Res. 40*l.*; non-res. 75*l.* A.C.P. Age 22.

9725. Eng., Arith., Mus. (good), Fr. (elem.), Draw. Res. 20*l.*; Daily 30*l.* Age 24. 1st Cl. C.P.

9727. Mus. (piano, har., class sing.) only, or Math. or both, or Eng. Hist. and Lit. Non-res. 100*l.*; res. 70*l.* B.A. Lond., Cert. R.A.M., Trin. Coll. Mus. Certs., 1st C.P. Sen. Camb. Age 23.

9728. Kindergarten Eng. (thoro.), Fr., Lat., Ger. (elem.), Mus., Math., Draw., Arith. (adv.). 2nd Cl. C.P., S.K. Certs. Res. 25*l.* to 30*l.* Age 19.

9736. Eng., Fr., Ger., Lat. and Math. (elem.), Mus. Non-res. 45*l.* (prefd.). Age 21.

9737. Eng. (all branches), Fr. (thoro.), Mus., Lat. (elem.), Draw., Eloc. (elem.), Ndlwk. Res. 25*l.* to 50*l.*, or non-res. 2nd Cl. C.P. Age 18.

9738. Eng. subj., Arith., Ger. (acquired in Germany), Fr. (acquired in France), jun. Lat., Draw., Mus. (elem.), Ndlwk. (good). Res. 40*l.* to 50*l.* French Capacity Brevet. Age 29.

9739. Mus. (adv. and elem.), Piano, Theory of Mus., Sing. (solo and class), Ger., Eng. subj. Res., non-res., or visiting. Cert. from Berlin. Kdgarten. and Conv. Age 23.

9740. Eng. subj., Arith., Fr., Draw., Paint., Scrip A.C.P. 2nd Gr. S.K. Draw. Res. 30*l.*, fam Age 27.

9742. Eng. subj., Arith., Bot. and Physiol., Fr., (Paris), Draw. (freehd., mod., perspec.), Paint., Ger. (elem.), Math., Mus. (theory), Calisth. Res. In return for board would give few hours' teaching daily. Sen. Oxf. Age 23.

9743. Eng. subjs., Arith., Bot. and Geol., Physiol., Mag. and Elect., Lgt. and Ht., Acous., Fr. (fluent Paris), Ger., Lat. to Virgil, Draw. (freehd., geom., and perspec.). 1st Cl. C.P. 1st Cl. Passes in above subj., 2nd Gr. Draw., Sen. Camb., Dis. in Bot. Res. 40*l.* to 50*l.*; non-res. 80*l.* to 90*l.* Age 31.

9744. Eng. subj., Arith. (good), Fr. (Paris), Draw., Paint., Mus., Math., Lat. Res. in London 40*l.* to 50*l.*; or in France 30*l.* to 35*l.* Higher Camb. Loc., Sen. Oxf. Age 24.

9745. Eng., Fr. (fluent, Paris), Span., Lat. (elem.), Mus., Sing., Paint. and Draw., Ndlwk. Res. 35*l.* to 40*l.* Age 35.

9746. Eng. (good), Mus. (theory), Fr. (jun.), Lat. (elem.). Res. Small salary. Age 20.

9747. Eng. (thoro.), Fr., Ger. (acq. abroad), Mus. (good), Draw. (free., lands. and mod.), Paint. (oil and w.-col.). 1st Cl. C.P., Hon. in Mod. Lang. Res. 70*l.*; non-res. 100*l.* Age 29.

9749. Eng., Arith., Fr., Lat. (elem.), Ndlwk. Res. 20*l.* to 25*l.* 2nd Cl. C.P. Age 20.

9750. Nat. Sci., Chem., Bot., Physiol., Biol., Math (elem.), Lat., Gk., Ger., Arith., Eng. subj. B.A. Camb. Girton. Res. or non-res. or visiting. Age 24. Hon. Nat. Sci.

9751. Piano, Har., Ger. (if required). Non-res., in or near London. 30*l.* R. Acad. Loc. Cert. Age 29.

9752. Eng., Fr. and Ger. (fluent), Ital. (adv.), Draw. and Paint. (oil and w.-col.). 1st Cl. Teachers' Exam. Berlin. Non-res. or res. Age 29.

9753. Eng. subj., Arith., Fr., Ger., Mus. (elem.). Res. in Sch. 20*l.* to 35*l.* Near Liverpool. Jun. Camb. and Glasgow Certs. Age 20.

9754. Eng. subj., Fr., Lat., Mus. (theory), Violin, Piano. Res. 30*l.* 2nd Cl. C.P., Sen. Camb.

9756. Pupil Gov., 2nd Cl. C.P., Trin. Coll. Age 16.

9757. Eng., Arith., Alg., Euc., Lat., Fr., 2½ years exp. Res. in Fam. 45*l.*, or non-res. High Sch., Lond. Matric. Age 24.

9758. Eng. subj. (adv.), Arith., Nat. Sci., Lat., Fr. and Ger. (acq. abroad), Mus. and Solo-sing., Draw. and Paint. Res., non-res., or visiting. Res. 80*l.* to 100*l.*

9759. Eng. Lit. and subj., Arith., Fr., Ger., Mus. Res. 70*l.*, non-res. preferred, 80*l.* 1st Cl. C.P., Higher Camb. Age 29.

9760. Ger., Mus., Fr. (fluent), Kindergarten. 40*l.* Non-res. 80*l.* to 90*l.* Gothic Kindergarten Cert. 1st Cl. Age 25.

9761. Eng., Fr., Arith., Mus., Draw., Ndlwk., Sing. (elem.), Violin, Lat. (elem.). S. and A. Dept. Cert. S. K. Non-res. from 50*l.*, Res. 35*l.* Age 21.

9762. Eng. and Arith. (high class), Euc. (4 books), Fr., Mus., Lat., Ger. (jun.). Non-res. 70*l.* to 100*l.*

9764. Eng., Arith., Fr. (gram.), Lat., Mus., Draw. (mod. and freehd.). Sen. Camb., C.P. and S.K. Res. 20*l.* Age 19.

9767. Eng. subj., Bot., Fr. (fluent, Paris), Ger. (conv.), Lat. (elem.), Mus. (classical), Sing., Draw. (elem.). 1st Cl. C.P., S.K., and Trin. Coll. for Sing. Non-res. 50*l.* to 70*l.*

9768. Eng. subj., Arith., Alg., Geom., Fr. (gram.). Ger., (acquired in Germany), Mus. (elem.), Draw, (elem.). Res. 35*l.* to 50*l.*; non-res. 60*l.* to 90*l.* 1st Cl. C.P. Age 26.

9769. Scrip., Hist., Eng. subj., Arith., Fr., Writ., Draw. (freehd., mod.), Mus. Res. Jun. Teacher, Time for study. 2nd Cl. C.P., S.K. for Draw. Age 19.

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ARTHUR MILMAN, M.A.
April 16th, 1890. *Registrar.*

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2. In his First Winter Session to attend Anatomy Lectures and Dissect; to attend Physiology Lectures and Practical Physiology Classes.

At the end of his First Winter Session to pass the Examination of the Examining Board in Elementary Anatomy and Physiology.

3. In his Second Summer Session to attend Materia Medica Lectures and Practical Pharmacy.

At the end of this Summer Session to pass the Examination of the Examining Board in Materia Medica and Pharmacy.

4. In his Second Winter Session to Dissect and to study Practical Physiology, and to attend the advanced Course of Lectures on Anatomy. He may with advantage also attend a Second Course of Physiology Lectures.

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The SUMMER SESSION begins on Thursday, May 1st, 1890.

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The Educational Times.

COLLEGE OF PRECEPTORS.

EVENING MEETING, APRIL 23RD, 1890.

THE Chair having been taken by ALEXANDER J. ELLIS, Esq., F.R.S., G. L. MÉLIO, Esq., read the following paper on—

THE ADVANTAGES OF LING'S SWEDISH SYSTEM OF GYMNASTICS FOR EDUCATIONAL PURPOSES.

It is generally admitted, by all teachers who have had an opportunity of practically investigating the subject under either of the only duly qualified exponents and authorities in England, viz., Madame Bergman Osterberg, Principal of the Hampstead Physical Training College, and Allan Broman, Esq., Organizing Master of Physical Exercises to the London School Board, that, from an educational standpoint, the system devised by the eminent Swede stands alone, and its adoption by the authorities at Newnham, Girton, Cheltenham, Bath, Clifton, Bedford, Leeds, Birkenhead, and in many of our Board schools and training institutions, gives it special claims on the attention of all who fully realize the true importance and value of rational gymnastic training.

In venturing to lay before you a few of the educational advantages which may be derived from a correct and continuous application of Ling's movements, I assume that all educationalists and teachers are agreed that scientific knowledge cannot be treated as a question of nationality.

Science certainly recognises no limitation of that kind; its one aim is truth.

Having come into contact with several teachers who were under the impression that Ling's system was only really suitable for girls, and consisted merely of an elaborate series of free exercises, marches, &c., in which no appliances were required, I think it desirable, at the outset, to draw your attention to the fact that the system, on the contrary, is in every respect equally beneficial and applicable to both sexes, and that, when the elementary stages have been satisfactorily gone through, specially constructed appliances are brought into requisition daily, and form an essential part of the training. In this connexion I may mention that, in very poor districts, the school furniture, consisting of ordinary desks, chairs, and forms, was formerly used as a substitute, in the most ingenious fashion.

As some considerable time must necessarily be taken up by the practical illustrations, I propose dealing very briefly with the more prominent features which will be found so inseparably connected with the system, though these by no means embrace all that can be advanced in favour of it.

On careful investigation I have found Ling's system to be, in every respect, as represented by its advocates, (1) scientific, (2) safe, (3) sure, (4) simple; and, as a practical teacher of some years' experience, I maintain, from personal observation and experiment, that the whole of these advantages do not present themselves in any other existing system or code.

(1) Ling's Swedish system is based on a thorough knowledge of anatomy, physiology, hygiene, and the Greek art of gymnastics, and consists of a series of "free standing movements," marching, leaping, running, climbing, and carefully graduated exercises on the ribstool, boom, and window-ladder, not one of which was adopted by Ling before its effects, not merely on the muscular, but also on the circulatory, respiratory, and nervous systems, had been thoroughly tested and determined. In this system the end is attained, as a rule, by movements being so grouped as to co-operate in obtaining results in a more perfect and comprehensive manner than single movements would supply. Being based on the anatomy of man, Ling's system possesses an irremovable foundation; and, apart from having stood a test of considerably over half a century, this appears to me to be one of the strongest points that could be advanced in its favour, if not the sole secret of its wonderful growth and adoption in other countries.

In the absence of any appliances, the body may be exercised as follows: (1) movements for the feet and legs; (2) neck and spine; (3) arms; (4) balancing movements; (5) shoulder muscles; (6) abdominal muscles; (7) rotary and side trunk muscles; (8) marching, leaping, or running; (9) respiratory movements.

The foregoing constitutes one of the schemes for a gymnastic lesson based on Ling's principles, the order of which is not materially affected by the introduction of exercises involving the use of apparatus.

(2) With reference to its safety, I may say that, as the sensational and spectacular elements are rigorously excluded from Ling's system, accidents, strains, and other objectionable features are practically unknown. The efforts put forth by each child, or adult, is in precise ratio to the strength and suppleness possessed, such force being permanently increased by a frequent repetition of movements, carefully graduated, from the most simple to the strongest and most complicated. The apparatus used is so constructed and arranged, that a considerable number of pupils are enabled, without incurring any risk, to execute the same movement at one time, thereby greatly contributing to the general discipline, and saving much valuable time.

I may here remark that pupils who are weak, insufficiently nourished, or recovering from an illness, receive a special course of movements.

(3) That the physiological results produced by a correct application of Swedish gymnastics are definitely assured and determined, is constantly being demonstrated by English teachers, who, in a few instances, have only been enabled to pass through an incomplete course. In further proof of the excellent results which may be attained under this particular system, I need only refer you to the splendid physique of the Scandinavian, and to the fact that all who visit Sweden are invariably struck with the erect bearing and smartness, not only of the naval and military men, but also of the civilians.

The thoroughness of the training received at the Royal Institute of Gymnastics, Stockholm, through which all teachers, and military and naval officers, are compelled to pass, during the two years' course, may be gathered from the following daily routine imposed on all the male graduates:—7.30 a.m., practical lesson in gymnastics; 8.30, free exercises; 9.30, fencing lesson; 10.30, theoretical lesson; 11.30, instruction in gymnastics given by the students to children who attend from the poorer schools.

The afternoon is occupied by lessons in the use of the broadsword and bayonet, theoretical and practical gymnastics; whilst in the evening the senior pupils from the poorer schools receive instruction in fencing.

(4) In many respects the acquiring of Ling's free standing movements may be compared to the acquisition of a language. In the primary positions we have an alphabet, a correct knowledge of which is indispensable in the execution of subsequent movements which are entirely compounded from these primitive positions, and resemble so many words or sentences, correctly or incorrectly formed, according to the capacity and intelligence possessed by the student. Each movement is clearly defined and arranged in the simplest possible manner; but, at the time, it must be understood that a thorough knowledge of even the free standing movements is not to be acquired by a mere

study of any of the existing works on the subject. The various manuals on "Swedish Drill" are only useful as a guide and supplement to those who have already received some instruction from a competent teacher.

Again, I think most teachers will admit that, in dealing with so important a subject, it is manifestly unfair to accept any evidence based on mere theory or observation; for how can one possibly arrive at a just estimate respecting any exercises without, in the first instance, having carefully executed the same under the direction of a qualified instructor?

The advocates of Ling's system invite the strictest scrutiny and investigation, and are most anxious that the system should be judged solely by its physiological results; but, in order to practically demonstrate its superiority in these respects, when compared with other systems, it would be absolutely necessary to select a given number of pupils—as far as possible, physically and mentally equal—and, after taking exact measurements, divide them into two classes, each passing through a stipulated course extending over several months, at the end of which the pupils should again be examined, when the true results would be apparent by comparing the later measurements with those taken at the outset.

Having thus briefly drawn your attention to the more prominent features in Ling's system, I cannot do better than allude to a very serious drawback under which we are at present labouring, more especially the male teachers, and one with which I am constantly being confronted, but am, unfortunately, quite unable to deal with. I refer to the entire absence of any training college or centre in which, under the guidance of a skilful and qualified director, all who desire to graduate as teachers might do so, irrespective of nationality, and without any very great expense. I need not enter into any details respecting the comparatively limited cost the carrying out of such a proposition would entail, but I will venture to remark that, educationally, no greater public benefit could possibly be conferred, or one which would be more highly appreciated by the community; and I sincerely hope that amongst our numerous philanthropists there may be found some who, at no distant date, will generously place this particular knowledge practically within the reach of all.

The Lecturer then proceeded to illustrate, with the assistance of a class of students of the Leopold gynasium, the principal features of the Swedish system, commencing with very simple movements, and proceeding to such as would tax the strength of the physically capable and the skill of the practised performer. The movements were executed with the utmost precision and apparent ease, and were heartily applauded by the spectators.

After this series of illustrations had been completed, the Lecturer put the class through a number of exercises on the parallel-bars, in order to show the effects of a different system of gymnastics in the disproportionate development of the muscles of the arms and shoulders.

The Chairman, in inviting discussion of the subject brought before them, observed that there was this obvious advantage, in the system that had been explained and illustrated by the lecturer, that any one could practise the movements in his own room without the aid of apparatus. He remembered being present at a public meeting many years ago when Dr. Roth had brought forward a similar system, of which he had himself very often, after many hours of desk-work, availed himself with the best results.

Mr. Hudson suggested that it would be a great boon to many teachers if a class could be formed during the summer, in some central locality, for special instruction in the principles of Swedish drill.

Mr. Mosley said that, before any one system of gymnastic exercises could be adopted, it would be necessary to compare it with other systems which were at present in use. There were, for instance, the German and the Swiss systems, with which latter he had had the advantage of becoming acquainted through a good teacher. It would also be very advisable that they should have the opinion of competent medical authorities as to the physiological and hygienic effects of the rival systems. All violent exercises were accompanied by a certain amount of risk, and were not conducive to health. Most of the movements that had been exhibited by the class were obviously harmless; but some of them, he was inclined to think, were not quite so harmless as they appeared to be.

Mr. Campbell expressed his pleasure at the practical way in which the question had been presented to them, and at the effective exhibition of the principles of the Swedish system which they had witnessed. He was of opinion that each of the best-known systems of gymnastics practised in this country, on the Continent of Europe, and in North America, had certain special advantages, and that it would be better to select the best points of all, than to adopt any one system to the exclusion of all others. He referred in particular to Dr. Sargeant's system, which was in common use in America, as being well worthy of attention. No doubt, for young pupils, Ling's system was all that was required for healthful physical development; but he thought that it developed the legs more than the arms, and that for the more advanced stages of instruction other systems might be found preferable. He therefore advocated an eclectic or composite system, embracing the best features of all the known systems.

The Lecturer explained that the exhibition he had endeavoured to make of the principal features of Ling's system must not be taken as a complete exposition of it; seeing that he was unable on this occasion to make use of necessary apparatus that would be found in any ordinary gymnasium. He was well acquainted with other methods, including that of Dr. Sargeant, which he considered to be, to a considerable extent, derived from that of Ling; and it was only after a full trial of those other methods that he had decided to adopt the Swedish system as the best for general use. He urged that it was only after a serious comparison of the results of rival methods, extending over some considerable time, and conducted with scientific exactness of measurements and otherwise, that the palm could be awarded to any one system. If such a trial were undertaken under proper conditions, he believed it would be shown that the Swedish system was the best.

A vote of thanks to the lecturer concluded the proceedings.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A meeting of the Council was held on the 16th of April. Present:—Sir Philip Magnus, in the chair; Rev. R. Alliott, Mr. Baumann, Rev. J. O. Bevan, Mr. Bidlake, Dr. Buchheim, Mr. Charles, Dr. Dillon, Rev. Dr. Hiron, Rev. W. T. Jones, Mr. Kimber, Mr. Milne, Mr. Mason, Rev. G. P. Pearce, Mr. Pinches, Mr. Reynolds, Rev. W. J. Savell, Mr. Stièvenard, and Dr. White.

The minutes of the last meeting were read and confirmed.

The Secretary reported the results of the examination for the Commercial Certificates of the London Chamber of Commerce, held on the 10th to 14th March.

The Treasurer submitted the report of the Finance Committee, which was adopted.

The following persons were elected members of the College:—

Miss M. Cobley, Bruntingthorpe, Lutterworth.
Mr. T. J. Dymes, B.A. Oxon., 26 Blenheim Crescent, Notting Hill, W.
Mr. J. Easterbrook, M.A. Lond., Owen's School, Islington.
Mr. W. L. French, West Street, Alford.
Mr. W. H. Ruby, Caterham High School, Surrey.
Mr. J. A. Sutton, The Collegiate School, Cape Town, South Africa.
Miss M. Wright, 3 Countess Street, Whitley, Northumberland.

The following books had been presented to the Library:—

Longmans.—New Arithmetics, Books I. to VI.; Answers to ditto; Abel's School Hygiene; Lang's Fairy Tale Books (Supplementary Readers) for Standards I. to IV.; McWilliam's Handbook of English Literature, Part IV.; Thornton's Advanced Physiography.

Macmillan.—Deighton's Shakespeare's Macbeth; Percival's Milton's Samson Agonistes.

Relfe.—Bayles' Practical Exercises in Commercial French; Rowe's Modern Language Examiner; Spry's Student's Note Book of English History.

Report of Director of Public Instruction, Bombay Presidency, 1888-9.

Calendars of Royal University of Ireland and the Royal College of Veterinary Surgeons.

THE NEW EDUCATION CODE.

The Code of 1890 has been framed with the intention of putting to the test of practice the less debatable recommendations of the Education Commission of which Lord Cross was the Chairman. As set forth in its preamble, it is the desire of the Education Department "to render the distribution of the Parliamentary grant for public education in England and Wales more simple, and more effective for its purpose." No one would be prepared by this modest statement for the many and important changes introduced into the Code to attain the increased simplicity and efficiency aimed at. Educationally and financially, they may be said to constitute a new departure in the administration of our system of elementary education.

The educational changes affect the supply and training of teachers; the accommodation and classification of pupils; the expansion of the school curriculum, and matters of minor importance with which we have not space to deal.

In respect to pupil-teachers it is provided that all candidates for that body must pass an admission examination in the elementary subjects, and two class subjects of Standards VI. or VII., either at the annual school inspection, or, with the Inspector's approval, at the "collective" examinations held half-yearly in April and October; unless the term of apprenticeship is to be for three years or two years only, in which case the candidates must attend the "collective" examination, and pass that prescribed for the end of the first or second year of their term respectively.

Pupil-teachers, in future, must commence their engagements either on the first day of the school year, or on New Year's Day; and the date must be uniform for all pupil-teachers in the same school.

Probationary pupil-teachers, male and female, are more distinctly recognised in this Code than in former ones, and they are informed that they must secure the Inspector's "approval" at his annual visit, and that they may select any two class subjects proper to Standards V. or VI. in which to be examined, and need not, as formerly, take English as one of them.

Pupil-teachers get some relief from overpressure in that they need not receive their "five hours" weekly instruction entirely out of school hours; they, however, must pass yearly examinations up to the end of their third year. After two consecutive failures to pass one of these examinations, the pupil-teacher, unless "illness or other sufficient cause" can be pleaded, will cease to be recognised by the Education Department.

The examination for Queen's Scholarships will, in future, supersede the pupil-teacher's fourth year's examination. Outside candidates may at this examination compete with pupil-teachers, and, being successful, may claim the same privileges as successful pupil-teachers. A class list will be published upon the results of the examination, in which the candidates will be arranged in three classes, according to merit. All candidates so classed become eligible as assistants under certificated head teachers. Candidates placed in the first class may, provisionally, become certificated teachers of schools with an average attendance of not more than 60 scholars; but such teachers, before attaining the age of 25 years, must either gain a certificate by examination, or fall back into the class of uncertificated assistants. It is also provided that first and second class candidates may be admitted to a training college, and the recognised students of such college are called Queen's Scholars. Candidates can only present themselves twice at a Queen's Scholarship Examination, and, failing to pass at the second attempt, no career in a public elementary school is open to them. They cannot even enter as students of the training colleges, or become qualified assistants.

In reference to the training of teachers, the New Code makes no changes of importance in the position of students in the existing residential training colleges. It, however, recognises a new class of training college—the day training college. This institution must be attached to some University, or college of University rank. Further, the authorities of a day training college must be a local committee, who will be held responsible for the discipline and moral supervision of the students, and for their regular attendance at professional or other lectures. "Day" students are also allowed to attend the existing residential colleges. The association of training colleges with the Universities, as also the admission of graduates of British Universities to the ranks of assistant-teachers, may have very important consequences.

In respect to the certificates gained by teachers, they will in future be all of one class, instead of three. The only distinction recognised will be that those teachers who are placed in the first or second divisions at their second year's examination will be certified as qualified to superintend the instruction of pupil-teachers, whilst those who are less successful will not be allowed this privilege. They may, however, obtain it by examination subsequently, and they are permitted to present themselves, at intervals of two years, for such examination until success is attained. Once a full certificate is gained, it will no longer need the Inspector's annual endorsement. Thus the changes introduced in reference to teachers tend towards bringing the standard of qualification up to a higher level than formerly, and giving them relief from the anxiety incident to the annual endorsement and decennial revision of their certificates.

In reference to the school accommodation, the managers are charged with the duty of seeing that their school premises are properly constructed, that there is a sufficient staff, and that maps, books, and other apparatus of elementary instruction are duly provided. They must further see that all school buildings and enlargements conform to the rules appended to the Code as Schedule VII. In every case they are to provide not less than 80 cubic feet of internal space and not less than 8 square feet of internal area for each child. They are permitted to prepare their own schemes of instruction in class and specific subjects, submitting them to the Inspector, at his annual visit, for approval. The managers are charged with other duties, as, for example, seeing that the schools under their supervision are not carried on for private profit. They are responsible also for the payment of teachers and all other expenses of the school.

The changes in the curriculum are perhaps of greater educational importance than any others introduced by the New Code. In the first place, facilities are afforded for the study of additional subjects. Drawing is made compulsory in all schools for older scholars, unless the Inspector certifies that there are no means of teaching it, and it is optional for boys in infant schools. Manual instruction, physical exercises (for both sexes), and laundry work for girls, are added to the military drill, cookery, and elementary science, recognised last year as counting for school attendance. Among the class subjects, recitation is encouraged by being made a condition of receiving the higher of the two principal grants, and in every standard the meaning of the words of the passages chosen must be taught. In Standards V., VI., and VII., the passage may be selected from Shakespeare or Milton. German, navigation, bookkeeping, and shorthand find a place among the specific subjects. The modifications in respect to arithmetic are, that all pupils above Standard III. are required to work a time exercise in addition of money. Questions involving recurring decimals and square measure are no longer to be put to girls, and in Standard VII., a knowledge of Stocks is substituted for that of Compound Proportion. There are few alterations in respect of geography: maps are no longer required, and the British dependencies take the place of the world generally, and in Standard VII. the geography of the United States is substituted for the planetary system and phases of the moon. A great variety of alternative courses is admitted under elementary science,—no less than eight, in fact, including mechanics, animal physiology, botany, chemistry, sound, light and heat, magnetism and electricity, and domestic economy for girls.

On the financial aspect of the Code we have no space to enter; we merely add that the various educational changes to which attention has been drawn entail on the Imperial Exchequer an estimated expenditure of £100,000 in the current year.

The Instructions to Her Majesty's Inspectors are an essential part of the machinery for carrying out the Code. We gather from these the intention of the framers of the Code, where that may stand in need of elucidation. The recently issued "Instructions" disclose the spirit in which those charged with the duty of carrying out the new system are expected to work. As a whole, they show that the Education Department is determined to make a resolute effort to raise the standard of efficiency in our elementary schools. We cannot analyse the Instructions now in detail; it must suffice to quote one passage in which the Inspectors are reminded, in regard to every school, that "the general aim of its teaching and discipline should be to exert a right influence on the manners, the character, and the aims of the children, and to awaken in them such an interest in their own mental improvement as may reasonably be expected to last beyond the period of school life."

THE CHAMBERS OF COMMERCE AND COMMERCIAL EDUCATION.

At the thirtieth annual meeting of the Association of Chambers of Commerce, held on March the 26th, Mr. H. O. Arnold-Forster (London) moved—"That, considering the approval of this Association already given to the Commercial Education Scheme of the London Chamber of Commerce and the Oxford and Cambridge Schools Examinations Board, the Executive Council be requested to urge upon each member of the Association—as the best means of inducing the general adoption of the scheme and the desired improvement of commercial education—the necessity (*a*) of each Chamber of Commerce securing from its members, and other firms in its locality, a promise to give a preference, *cæteris paribus*, to candidates for employment who hold a commercial certificate; (*b*) of instituting Special Scholarships for efficiency in selecting subjects, and prizes or medals for exceptional general knowledge as proved in examinations controlled in part by representatives of Chambers of Commerce." Steps had been taken to carry out the scheme, and, in order to do so, it was necessary to enlist two interests in the idea—one was the commercial men whom they hoped would employ the boys passing an examination under this scheme, and the other was that of the parents, to induce them to send their boys to those schools where the commercial curriculum provided by the scheme was in force. The London Chamber had obtained already the names of a large number of important houses in the City of London who would give preferences to those employed to holders of commercial certificates, and they had received subscriptions amounting to upwards of £250, the greater part of which had been promised for three years, and which had now been allocated for scholarships and prizes. As the scheme progressed they hoped to add largely to that list. Great judgment had been shown by those gentlemen who had seen that their interests in future foreign business would be promoted by instituting scholarships in modern languages. That of course had been an encouragement to

the London Chamber to go forward and set up their examinations. They had taken a step of which they could not over-rate the importance. It was perfectly plain that they would not get any large number of youths to sit at these examinations without some special inducement, and they had therefore promoted a scheme by which they eventually hoped to obtain the co-operation of the whole of the important mercantile and banking houses in the City of London. Application had been made to a large number of business houses in the city of London to know whether, *cæteris paribus*, they would give a preference to those applicants for employment who held commercial certificates. In response to that application they had no less than two hundred houses, representing every branch of industry in the commercial world, who had told the London Chamber, and allowed them to publish the fact, that, by going to them provided with a certificate of merit, a candidate for employment would receive preferential consideration, provided his other qualifications are satisfactory. The London Chamber had already made a practical start. The first examination had been held, and there were sixty-five candidates who came forward to sit for certificates in the Junior Course. The whole matter was put rather suddenly before the public, and they were very gratified to have the response they had had. When he said that some of the most important schools in the City of London, and outside of it, had sent up candidates for examination, it would be recognized that considerable success had already been attained. They did want the thing carried a great deal further; they wished the pecuniary advantages to be made known, and they wanted those who were sending their sons to school to know that, in obtaining this commercial education, they were getting something of definite value. There had been one or two criticisms—in fact a good deal of criticism from both sides alike. For instance, the exclusion of Latin. That was made in deference not to the wishes of commercial men, but in deference to the carefully considered recommendations of the educational authorities upon the Committee. He hoped that the criticism of the scheme in detail would not prevent its being carried out in its main features, for the time had come when we could no longer afford to let our competitors have a monopoly in this question.

Sir Albert K. Rollit, M.P. (Hull) seconded the resolution as a member of the Commercial Education Committee of the London Chamber of Commerce. The position of affairs had, he said, been summarized by Mr. Arnold-Forster, and it showed that the machinery of commercial education was not only ready, but was in action. All that was required to make it thoroughly effective was some of that motive force which could be communicated to it by the Chambers of Commerce throughout the country. Criticism had been applied to the scheme, some of it very good. He had presided a few nights ago at a meeting at the College of Preceptors when, he was bound to say, there was plenty of criticism—more destructive than constructive. One thing rather astonished him at that meeting. It was stated that the requirements of the London Chamber were too high. He should have been prepared for the statement that the commercial aspirations were not high enough, and that their ideas did not approach the ideas of those who had the direction of the education of the country. But, he was bound to say this, that the Commercial Education Committee were compelled to reduce their curriculum in order to meet the existing state of English education. He spoke in the presence of Sir John Lubbock, who, and all of them on the Committee, agreed to the omission of Latin with regret. At the same time there was a counter part to meet an omission like that, in the fact that any subject well taught could be made a means of mental discipline, and, if we could get German thoroughly taught in our schools, even the place of Latin might be supplied. They were compelled to omit one of the two modern languages as an obligatory subject because they were told by the highest authorities that, if they went so far as to require two languages, only about ten candidates would present themselves for examination. He would remind them, however, that in Hamburg—one of our chief competitors—English was taught as a compulsory subject, and he thought it was high time that our boys had the same weapons for commercial warfare as were placed in the hands of others. Their object was undoubtedly good, it was the union of culture and commerce, to give a training for trade, and to raise commerce to the ranks of one of the learned professions. The time ought to come when it should be said, not that they were aiming too high, but when educationists would enable them to aim higher still, and give all those advantages necessary for the conduct of the commerce of these days. Commerce was not what it was. It demanded almost statesmanship in its conduct. Let them aim as high as they possibly could in order to do justice to the people of this country. He need hardly commend to their notice the recommendation in the resolution that they should give a preference, *cæteris paribus*, to highly educated youths for their employment. How could things be equal if one boy had a certificate of proficiency and another had nothing of the sort? Occasionally education itself might miss its mark, we might give every sense but common sense, and education without common sense was nonsense. What was wanted was practical help. The best had been done to obtain for boys possessing certificates special advantages. What was now wanted was the application through the Chambers of Commerce of this great lever for raising the commercial classes, and their help in giving prizes and scholarships. It they could avail themselves of the machinery and use it effectually, they might depend upon it they would be doing that which would be of immense national advantage.

Mr. T. H. Morris (Halifax) was not going to urge the criticism of the scheme being placed too high, but he did consider it did not start low enough, and it would have to touch a slightly lower point if it were to meet with acceptance throughout the country. Naturally, London was anxious that the scheme should be universally adopted, and if they had started at too high a point, it would be found so in working it out. In many places they had not yet reached the stage when they could take up the London Chamber's scheme, such as in the West Riding, where they were in the position of having a large number of small endowed schools. In London, too, boys were able usually to continue their education for a longer period than boys in the provinces who had to leave school generally when they had reached fourteen years of age. At that age a boy was only reaching the stage when he might take up the scheme, and perhaps if he remained at school, he could take it up satisfactorily. If they asked the other Chambers of Commerce in the provinces to take up the scheme as it existed, it would, in his opinion, be almost impracticable to carry it out.

Mr. B. Stiebel (Nottingham) thought no one would regret the part they had taken for several years in this question, but, on the contrary, they must all rejoice that so much had been done, and that they were on the eve of doing so much more. The London Chamber of Commerce, in his opinion, could very well use its influence in one direction, which would be of most material value to this movement, by securing that the Charity Commissioners should put pressure upon the endowed schools to adopt the curriculum which had been sanctioned not only by the Chambers of Commerce, but also by the two Universities. It would be evident to the meeting that, whatever pressure the Chambers of Commerce had and would put upon their local schools, it was the schoolmasters who were absolute and unlimited kings of our endowed schools. The Nottingham Grammar School had adopted the curriculum of the London Chamber, but only after a long discussion, whereas they might have done it before freely and without having a great and unpleasant wrangle. He was not surprised to hear of the criticisms of the schoolmasters, but if we were to do any good it was the school master who would have to be criticised, it was the schoolmaster who would have to be reformed. For his part, he extremely regretted that the London Chamber had not seen fit to couple with this resolution a further paragraph insisting upon a reform of the education of the schoolmasters themselves. There was no doubt they all wished that our commercial education should be improved, but they could not teach the boys themselves. They had to go to the same old rotten system of teaching, one man trying to teach fourteen different things, which might have suited the requirements of forty years ago, but would not do now, when perfunctory smatterings were useless. It was almost useless to approach the masters of the endowed schools, and as long as the Chambers had to stand their snubs they would do no good. Therefore he hoped that men like Sir Albert Rollit, Sir John Lubbock, Mr. Arnold-Forster, and others of influence, would do their very best to secure that the people who had to impart the education which the Chambers of Commerce so much desired to obtain were made competent to give it, and that when boys were sent they might have a chance of being taught. The boys would learn right enough, but they wanted proper people to teach them. His first request was that our teachers should leave off some of their snubbing of business men when they put the question in a business-like manner before them, and his second request, that her Majesty's Government should try to improve the teachers themselves.

Mr. J. Leckie (Walsall) considered they were much indebted to the London Chamber for showing them the way they should move in the country in this matter of commercial education. In Walsall they had a large grammar school, and the curriculum at present taught there was fixed under a scheme of the Charity Commissioners, and they had not fallen in with the proposals of the London Chamber. The question with them now was whether they could influence the Charity Commissioners to put pressure upon the endowed schools throughout the country to adopt commercial education. The standard of education on the part of the teachers generally in endowed schools was, as far as commercial education was concerned, quite inadequate; they did not understand it, and did not want to if they could be left alone. Whilst it was very desirable that the provincial Chambers should invite their local people to follow on the lines of the London scheme, he was afraid it would rest very much with the Charity Commissioners to make such invitations effective by falling into sympathy with the London Chamber and the Oxford and Cambridge Scheme.

Sir John Lubbock, Bart., M.P. (London), who was applauded on rising, said: We are all men of business, and men of business are always very busy men, and I will not occupy your time by going over the same ground in regard to the scheme of commercial education which has been so ably covered already by Sir Albert Rollit and Mr. Arnold-Forster. I would say a word in reply to the criticisms to which we have just listened, but at the same time I would point out to the meeting that they hardly touch the resolution submitted to you, that we should give our support to this scheme by asking those who have places to give away to give them, *cæteris paribus*, to those who have certificates under the scheme, and by the institution of scholarships

and prizes. Neither of these two points exactly have reference to the precise plan of the education which we are to establish. What I would venture to say with reference to that is, that the scheme before you has been very carefully considered, and I should hope it would be given a trial before any alterations are made in it. Mr. Morris spoke of what might be expected from a young man of fourteen. It so happens that I left school at that age, and I have a very vivid recollection of how much—or rather how little—I knew when I left school. Really, the plan which has been suggested by the London Chamber, and adopted by the Chambers generally, I do not consider too high; on the contrary, I think it is a very moderate programme to put forward. I don't at all say that it is perfect. I should have been glad myself to have seen Latin introduced, and there are one or two other details in which it might, perhaps, be amended with advantage. I ask you, however, to give it a fair trial, and experience may show that there are some details in which it may be improved; but let us give it that trial, and although it may not be a perfect working scheme it should effect considerable advantages in our commercial education. Mr. Stiebel hinted at a matter which has often occurred to me in connexion with the examining of pupils, that there might be some advantage if we examined schoolmasters themselves. That is hardly a matter we can deal with here. I hope to see this plan adopted generally throughout the country, for it must work much good. Reference has been made to the Charity Commissioners. I think a recommendation coming from a body of experience such as we see here, would have very great weight with the Charity Commissioners, and would induce them to look favourably upon the plan that has been proposed. I can't help feeling myself that it is a very admirable step in the right direction. I believe on the whole it is a good working scheme, and that being so, I venture to commend it to the favourable consideration of this important meeting.

Mr. T. Bell (Lincoln) stated that in Lincoln they proposed to hold an examination under the scheme of the London Chamber in 1891. If the schoolmasters did not stir themselves and present some pupils on that occasion, the reflection would be upon them, and not on the system that had been proposed. Considerable interest had been taken in this movement by people outside of the Chambers who had children at school, and several times he had been told how pleased the general public were that this question had been brought to the front.

The resolution was carried *nem. con.*

In proposing "Prosperity to Chambers of Commerce," Sir Philip Magnus said that abroad nearly all the educational institutions which were connected with the development of industry were largely subsidised by Chambers of Commerce; and he had no doubt, as time went on, that similar institutions in this country would be subsidised by our Chambers of Commerce to put into force the Technical Instruction Act which had recently been passed mainly through the efforts of the Chambers. It was satisfactory to find that the London Chamber of Commerce had lately identified itself with the subject of education, and he ventured to think that the time had arrived when it was very desirable and necessary that they should do so. In this country we had been subjected to two kinds of foreign competition—we had the competition of foreign goods, and the competition of foreigners who had been sending into this country artisans, clerks, and others, who had been doing the work that might have been quite as well done by our own countrymen if they had been properly educated. Education had too long been in the hands of schoolmasters, and the result of that was that we had an obsolete fossilised system of education which, however well it may have been adapted to those to be employed in other spheres, was not too well adapted to those to be engaged in trade and commerce. The Chambers of Commerce had interfered and brought their business ability to bear on the question of education. The result had been that recently, as they were aware, the London Chamber had very carefully considered the whole question, and, after taking counsel with various people, they had been able to issue a scheme of education which was intended to guide the instruction to be given in secondary schools, and which would be the means of changing the whole system of secondary education in this country.

The President, in responding, said: Our efforts are not altogether devoted to matters connected with the Legislature. We sometimes take up subjects for which we do not ask legislative interference. There is the subject of education. It is true that the Government is responsible for giving some assistance towards it, but the scheme that Sir Philip Magnus has referred to, as drawn up by the London Chamber of Commerce, goes far to commend itself to the public mind all through the country. No doubt we have discovered that our education has not been best suited to the needs of public life. Not only do we desire to train our artisans to meet competition, but we desire to arm those who are to devote themselves to a commercial career with that knowledge necessary to success. One gentleman, in the course of the discussion to-day, suggested a matter which deserves consideration, namely, that it is not sufficient to formulate a scheme of education to be applied to the boys of the country, but there ought to be some scheme of education and examination applied to the teachers. I don't think that because a certain man has a certain amount of knowledge himself that he is therefore the best person to impart it. I should be very glad to see, myself, some sort of guarantee that those who work in education are the best fitted for it.

EDUCATIONAL NOTES AND SUMMARY.

From a return recently presented to Parliament it appears that the grant to elementary schools amounted last year to £3,629,687 10*s.* 5*d.*, an increase of £70,000 on that of the preceding year. The total expenditure of the elementary schools reached the sum of £7,305,531 7*s.* 2*d.* The school rates yielded £1,229,037, and voluntary subscriptions £750,859 14*s.* 10*d.* The Board schools come in slightly above the Catholic schools in percentage of passes. The figures are: Board schools 90·65, Catholic schools 90·07, Wesleyan schools 88·77, Undenominational 88·62, Church schools 87·83. The statistics bearing on night schools again disclose a very unsatisfactory condition of things. There were only 1,043 such schools inspected. The number of scholars attending these amounted to only 44,616. It is very clear that these schools, which should be so valuable to boys between 14 and 19, do not attract them. This is very disappointing, for we fear it must be confessed that, with all our expenditure on elementary education, and all our lively controversies as to whether it should be free or otherwise, we entirely fail to produce on the minds of those brought under its influence any abiding sense of the importance of going beyond the range of the three R's. Certain it is, the night schools are comparatively ignored by the thousands of boys who leave school every year about 14. Whether this is due to the night schools or to the utter failure of the day schools to achieve one of the chief ends of a school education, it is a distinct loss to the lads themselves, and, indeed, to the nation which spends its millions for them in vain.

The members of the "Société Nationale des Professeurs de Français en Angleterre" held their Eighth Annual Congress at Harrow on the 21st of April, Lord Granville in the chair. The members of the Society and others interested in the teaching of modern languages were received by Mr. Welldon and Miss Welldon at the Headmaster's house, and entertained at lunch; and after this, at two o'clock, proceedings were formally opened in the Vaughan Library. Amongst those present were Dr. M. A. Beljame (delegate from the Minister of Instruction in France), Mr. Bué, Mr. Huguenet, Rev. E. d'Auquier, Mr. Julien, Mr. Petilleau, Mr. Duhamel, Mr. Moriarty, Mr. Colbeck, Mr. Storr, Mr. Garrod, Mr. Bowen, &c., and a large number of lady teachers. As no resolutions were put to the meeting, it is impossible to say what conclusions were come to; but there was evidently a strong consensus of opinion in favour of demanding more oral work from the pupils, and less grammatical and book work. The teaching of French conversation in school classes was advocated as a thing highly desirable, but in the main was regarded as hardly practicable, at any rate at present. Lord Granville entertained the meeting with a very genial speech, full of pleasant anecdotes; and Dr. Beljame described, with great point and clearness, what was required of those who proposed to teach English in France. As long as these requirements were satisfied—and they included a good pronunciation of English and French—there was no question asked as to nationality. Mr. Welldon, Mr. Colbeck, and Mr. Moriarty all treated the subject in a thoroughly business-like way from a public school point of view—the last-named speaking in excellent French. They all dwelt strongly on the necessity of being able to manage boys properly; and Mr. Colbeck added an earnest plea in behalf of teachers being trained for their work. If boys could be so taught that a three months' residence in France after leaving school would enable them to speak French well, then schools could not be charged with having done their work badly. Above all, French is a *living* language, and should be taught as such. This last point was also insisted on by the others who addressed the meeting. At five o'clock, after the usual votes of thanks, the Congress adjourned to tea at the Headmaster's house.

The Council of the Maria Grey Training College have devised an excellent plan for the awarding of their scholarships, some thirteen of which are offered to candidates for admission in September. The scholarships, we are told, will be adjudged by the Council on the degrees, certificates, and distinctions gained by candidates in certain examinations (Higher Locals, Senior Locals, London Matriculation, &c.). In no case will the Council examine candidates for scholarships. In cases of nearly equal merit, the circumstances of the candidates will be taken into consideration. All candidates must present themselves before the college authorities. As the college is distinctly one which seeks to give would-be

teachers a sound professional training for their work, and is not a finishing school, it naturally presupposes a sound general education on the part of its students; and it seems to us a very wise plan to emphasize this still more strongly by awarding scholarships on the already proved results of a sound general education. We are glad to hear that the college finds that the demand for efficient teachers of young children on Froebel's principles and methods is steadily increasing, and indeed that the demand on the college for such teachers is greater than the supply. The number of candidates for the certificates of the National Froebel Union has also been of late, and is still, rapidly increasing (128 in 1888, 169 in 1889, and probably about 200 in 1890). But these certificates only aim at being certificates of knowledge and skill, and in no way seek to supersede the necessity for training; and it is gratifying to find that the schools are coming to understand this, and go to the training colleges for their teachers, while the colleges in their turn send up an increasing number of students for the Froebel certificates. It would be a still greater step in advance if School Boards would require these certificates of the teachers in their infant schools, instead of issuing, as many do, certificates of their own, often enough Froebellian only in name, and which other Boards do not recognise. The multiplication of certificates is a great evil, especially to the teacher, and most of all when they have only a local value.

An International Education Congress is to be held in Brussels this summer, at which the creation of an International Education League will be proposed.

The Austrian Minister of Public Instruction has decided to send a number of professors from the secondary public schools to England and France to improve their studies of the English and French languages. Their expenses are to be paid by the State.

Although the Guildhall School of Music on the Victoria Embankment was built little more than three years ago, the number of its students has so largely and rapidly increased, that the present premises are already almost outgrown. The Corporation have therefore, we are informed, agreed to reserve, at any rate for five years, a vacant strip of land at the rear of the present site for the erection of a new wing, on condition that the money necessary for building is provided within that time out of the funds of the school. We trust that the hopes of the school may be fully and speedily realized,

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Headmasters have talked at large on the advantage of training; some of them (says the *St. James's Gazette*) went so far as to subscribe to the ill-starred and short-living Finsbury Training College. Not one, however, has hitherto had the courage of his convictions and refused to appoint an assistant-master without a teacher's diploma. The headmaster of Winchester is, we believe, the first who has shown his faith in training by his works. In a circular (pre-dated May 1) he announces that he is prepared to receive in the October term two graduates of Oxford or Cambridge for the purpose of training them as schoolmasters. These student teachers will be put under the charge of some of the more experienced masters in succession, will be given every facility for seeing the work in different parts of the school, and will be allowed to give lessons themselves under supervision. A small payment will be made to them sufficient to cover all expenses during their stay at Winchester, and a testimonial as to efficiency may be obtained on departure. This is indeed a new departure for a headmaster of one of our great public schools. The writer in the *St. James's*, however, makes no mention of a knowledge of the theory of education being required of these apprentices. Is the new training to be one of practice only, without theory? and how long is it to last? Training means help in the acquirement of a sound knowledge of theory, and guidance and supervision in the application of theory to practice. But what if there is no theory? We have resort to nothing better than blind rule-of-thumb, and the pupil-teacher fallacy comes in again under a slightly varied form. We trust that Dr. Fearon is aware of this danger.

We must keep clear, says *The New York School Journal*, the distinction between trade schools, and manual training schools. They are entirely different things. It is true that the people generally do not see the difference, but there is, nevertheless, a wide gulf between the two kinds of institutions, which educators must always keep clear in their own minds. We fear that some of our London friends are failing to make this discrimination, as we read the other day that "An experiment is being made in the way of laundry work in the London Board Schools. The classes are held at various centres—one in the east, another in the west, and three south of the Thames. At each of these a large, airy room has been converted temporarily into a laundry. Each lesson includes some simple theoretic teaching. Among those that have visited and shown great interest in the class is the Countess of Airlie, who intends to introduce laundry classes in the schools on her Scotch estate." Why introduce laundry work? Why not Algebra, or Latin, or Hebrew? The answer will be, without a doubt, because skill in laundry work will fit those who practise it to become skilful in this art. Ah! Will it? That depends upon how much *thinking* is brought to bear upon laundry work. Yes, it all depends. We hope our London friends will bear this in mind. If they open laundry schools for the purpose of making laundry servants, then they had better close these schools, and patrons like the Countess of Airlie would do well to bestow their charities upon worthier establishments. The object of a school is soul-development; and the object of educational philosophy is to find out how this soul-culture can be accomplished. We err when we make a boy a good wood-carver, *and nothing more*. This conception of the end of an education has gone by, and will never return. All the great thinkers for the past three hundred years have fulminated against it, and it is absolute heresy to attempt to galvanize life into its corpse.

The Chairman of the Bradford School Board is anxious to awaken and foster among young teachers an interest in the study of the scientific principles which underlie education as a science, and teaching as an art. As a means of encouraging such studies, he has offered six prizes for success in an examination in Psychology in its Relations to Education. The first examination will be held about the close of the present year. The examination will be a written one. The competition will be open to the two following classes of teachers:—(1) Junior teachers at the end of their fourth year; (2) Assistants in the first year of their assistantship after the end of apprenticeship. The examination will be in Professor Sully's "Teacher's Handbook of Psychology."

The Toynbee travellers, about sixty in number, have returned from the third successful expedition to Northern Italy. Their destination this year was Siena and Perugia, but the tour included a day or two at Lucerne, Genoa, Pisa, Florence, and Como. The cost to each member of the party for the three weeks' trip was a little over £10. To travel on the Continent, staying at first-class hotels, for about ten shillings a-day all told, is a wonderful accomplishment, and it says much for the careful organization of the promoters of the excursions that such satisfactory arrangements are made. A party of the Manchester Teachers' Guild, which started about the same time on a similar tour, has been a complete success.

The Select Committee of the House of Lords, presided over by Lord Morley, has passed, without opposition, the South London Polytechnic Institutes Bill, which authorises the purchase of a site in the Borough Road, Southwark, for the purposes of a Polytechnic Institute for that district. The freehold of this site is at present owned by the Corporation of London, who have leased it for an unexpired term of twenty-six years to the British and Foreign School Society. The Bill sanctions an agreement with that Society for the purchase of the lease, with all existing buildings, for the sum of £20,000.

The Carpenters' Company, who have taken a very prominent position in educational matters connected with the building trade, have just concluded a course of seven lectures, given free, in their hall in London Wall. This is the fifth course which has been held, all the lectures being given by men eminent in the subjects upon which they speak. The total number of persons attending the lectures has been 3,700, an average of over 500 for each lecture. The Company will hold in June their annual examination in Carpentry and Joinery, both practical and theoretical, and in connexion with the same they have a free library, containing all the best books on these subjects.

The spectacle, says *The Daily News*, of an Indian Princess

addressing the pupils of a school for native girls in eloquent terms on the subject of the advantages of education to her sex may be counted among noteworthy signs of the progress of ideas in Hindustan. The scene was the schoolroom of the Monghiba School for Girls in the ancient and highly conservative town of Goudal, in the Bombay Presidency; the speaker, her highness the Rani Nankooverba, who had undertaken to distribute the prizes to the successful students. It was a gala day, for Ladlubai, one of the ex-students, a child of parents steeped in poverty, having come out first in the final examination at the Rajkote Female College, had just received the well-paid appointment of headmistress at the Porbandar Girls' School, and to this and like matters of congratulation the lady orator feelingly referred. There was perhaps a touch of old-fashioned standards in the Rani's exhortation to "my sisters" to let the knowledge and experienced gained in the school teach them "how to win the husband's heart, how to be always agreeable to his wishes, how to pay respects to the father-in-law and mother-in-law as well as to the father and mother, how to behave towards juniors, elders, and equals, how to keep the house clean, how to acquire proficiency in cookery, how to spend their leisure in reading, sewing, or needlework." But the Rani is evidently not the less a friend of the higher education for women. Premising that it is the duty of all parents to give a good training to their daughters, she reminded her hearers that many women had made their names famous on the earth "for knowledge and learning, and for various virtues." "Some" (she continued) "are celebrated for their scholarship; some for their purity of conduct; some for courage, fortitude, or enterprise; some, again, for modesty or presence of mind; some for devotion to their husbands; while some have been remarkable for their piety; and others for their excellence in household management." To bring the minds of the young in touch with the lives and characters of such women ought, in the Rani's opinion, to be the first object of those who are entrusted with the education of native girls.

CORRESPONDENCE.

COMMERCIAL EDUCATION.

To the Editor of the Educational Times.

SIR,—The discussion on Commercial Education at the College of Preceptors lasted so long that at the end I could not reply fully to Dr. Wace's statements, having time only to refer to the personal matter which had been introduced, but which had nothing whatever to do with the subject under discussion. Although deprived for the moment of the privilege, I do not wish to forego it altogether, and shall be obliged if you can insert a few words on the points he raised.

1. Two-thirds of my lecture was devoted to what I conceived to be the views of the subject which schoolmasters should take, and it was intended to excite a greater interest in the movement of the Chamber of Commerce. One-third was a criticism of the merchants' new code.

Dr. Wace had not one word to say on the two-thirds, neither did he give expression to a single word of sympathy with either teachers or taught. His contribution to the discussion was that of a clerical controversialist rather than of a schoolmaster.

2. He "deprecated the impression that this was a merchants' code." Then whose code is it? I confess if I were to discover that it is Dr. Wace's code, I should think the time I have spent in criticism entirely wasted. With simple professional loyalty, I included Dr. Wace in such references as the following: "Dr. Baker, Mr. Eve, Dr. Percival, and all experienced schoolmasters agree on the necessity for something more than mere information." But I saw no internal evidence that the code was Dr. Wace's.

3. He "deprecated the quotations from the schedule of subjects," and said he could "make a similar play." He tried, and failed. I had read from the Commercial Code the year's physics for thirteen-year-olds, as follows:—"Applications of Electricity, Electromagnets, Coils, Dynamos, Electric Motors and Transformers, Secondary Batteries, Telephone, Microphone the Electrical Telegraph, Electrical Testing."

Dr. Wace read his similar course from the programme of the Lycées as follows:—Physics, "Different conditions of matter; liquids in equilibrium; the principle of Archimedes; atmospheric pressure, barometers, Mariotte's law, manometers, pneumatic machines, pumps and hydraulic presses and syphons; expansion of objects by heat."

The two plays were seen by all but Dr. Wace to be widely different, for his list is simple enough for a series of scientific object lessons in a Board school. It sketches the very beginnings of physics.

It would be too much to expect Dr. Wace to be able to gauge the science, but he ought to have seen that the history programme he read was equally definite and simple. Its equivalent in English would be as follows: William I. and the feudal system; Henry II., the struggle between John and his barons, the Spanish Armada, &c.

4. I had pointed out that, on the Continent, Examination waits on Teaching. When a special commercial education has to be provided there they first build a home for the institution, then they stock it with teachers and give it a curriculum, and, when the fruit has had time to ripen, they hold an examination. The English often begin with the examination, and get no further. I had also pointed out that the French and German programmes were teaching-programmes, and that students were not required to take all the subjects. Dr. Wace asked how I knew, and what was my authority for these statements. For twenty years I have closely followed the development of many of the continental schools. It does not matter, however, in the least how I came to know. I do know, and it is so.

5. He said: "He was at a loss to suppose how any one could imagine that a body of merchants or teachers should be so stupid as to suppose that all boys between given ages could be made to learn certain things." Just so; then let the years and hours be erased, and the whole aspect of the code will be changed.

6. He commended the wisdom of the Chamber in engaging the College of Preceptors to conduct the examination. I am glad to be able thoroughly to agree with him on one point. But the College of Preceptors has not followed the impossible parts of the syllabus. Will it always conduct the examination on the same lines, and may we always ignore the years and hours and such-like absurd requirements as that the thirteen-year-olds shall, with one hour a week for a year, master "anatomy and physiology—human and comparative"? If so, well and good; but let us clearly understand what is to be expected. In conclusion, I repeat what I have said many times, from the beginning of their movement I have sought to assist the Chamber of Commerce in its laudable endeavours to improve commercial education. In this my latest lecture I have not departed by the breadth of a hair from my previous teaching.

I am, Sir, your obedient servant,

THE LECTURER ON COMMERCIAL EDUCATION.

To the Editor of the Educational Times.

SIR,—Dr. Wormell's recent vigorous and able onslaught on the educational scheme of the London Chamber of Commerce will no doubt give rise to a good deal of discussion, and not a few who are well entitled to be heard will have much to say about it. Meanwhile, it is of great importance to have the data on which the discussion must be based in as clear and complete a form as possible, and the criticisms made by the Rev. Dr. Wace indicate that there is considerable misunderstanding, on one side or the other, with respect to a matter which must enter largely into the consideration of the whole question. We greatly need more exact knowledge of what is actually achieved in those continental schools that have been referred to. Is it, or is it not, the fact that the bulk of the pupils in those schools are taken through all the subjects set down in their curricula, and required to pursue them up to "examination point"? What kind of examination are the pupils presumed to be able, on the average, to pass through with success? Is it possible to get specimens of such papers as are actually set in ordinary cases, with some indications of the success with which the pupils attack them?

In determining what ought to be attempted with average English boys, it is something to know what is achieved with average French and German boys, though it would be to the last degree unwise to settle the question mainly on this basis. In the matter of languages especially it must always be borne in mind that an English boy is very heavily handicapped in competition with a German boy. The latter, from his babyhood, grows up into the habit of noting the use of cases, of attending to the concord of adjectives and nouns, and of discriminating between indicative and subjunctive moods. Contrast with this the time, the labour,

the patience, or impatience, and too often the stripes and tears, which are expended before the commonplace English schoolboy can be worked into the habit of making a Latin or German adjective agree properly with its noun. The fact that Englishmen long ago threw off the bulk of these inflexional shackles indicates that the bent of the national mind is in that direction, and this bent has to be reckoned with. Our French and German teachers would often be more successful if they took more account of it. It costs an English boy at least four or five times as much effort to master German and French as it costs a German boy to master French and English.

In arithmetic, again, our cumbrous system of weights and measures imposes on the English boy an enormous amount of labour from which those who have only to master the handy decimal system are for the most part exempt.

There is another point that must not be lost sight of. Any one who watches a company of French or German boys pottering over what they regard as games, and thinks of the scene presented by the football and cricket fields of English schools, will be aware that the youthful proclivities to be dealt with are not quite the same in the two cases. The athletic business is, no doubt, greatly overdone in many cases, but athletic games are a distinctive and wholesome feature in English schools, and it will be anything but an unmixed good if they are largely sacrificed in the attempt to cram boys with a superficial knowledge of such an enormous range of subjects as are included in the course of physics and natural history set forth in the new scheme.

Still, there can be little doubt that, after all due allowance has been made, far too many of our schools—even including several of no small repute—are sadly below the mark, both in their aims and in their methods. The wretched little cram-books that are so much in vogue must be discarded, and teachers, if they are to grapple successfully with the inexorable demands of the age, must gird themselves to the task of giving their pupils a firm grip on the essential principles and groundwork of the subjects of study, and learn how slow the progress is which is made with *hasty* teaching. Yours obediently,

C. P. Mason.

[Ed.—In our next number we hope to give some details on the subjects referred to by our correspondent.

PICTURESQUE SCIENCE.

To the Editor of the Educational Times.

Sir,—May I be allowed space to enter a protest against a mode of representing physical phenomena, which, however interesting and picturesque from an imaginative point of view, is seriously misleading, as regards scientific accuracy?

As an example of what I mean, I will refer to a passage in that most charming book, "Starland," by Sir Robert S. Ball, F.R.S. After speaking of the influence of the sun's light and heat on vegetation and the formation of coal, he proceeds:—

"That ancient forest grew because sunbeams abounded in those early times and nourished a luxuriant vegetation. The heat and the light then expended so liberally by the sun *were seized by the leaves of flourishing plants, and were stored away in their stems and foliage.* Thus it is that the ancient sunbeams have been preserved in our coal-beds for uncounted thousands of years. When we put a lump of coal on our fire, and when it sends forth a grateful warmth and cheerful light, it but *reproduces for our benefit some of that store of preserved sunbeams* of which our earth holds so large a treasure. Thus the sun . . . has provided the fire to keep us warm."

Now, to say that the heat which radiates from a mass of burning coal once came in the form of hot sunbeams, and was, as it were, bottled up in the coal until it was let out again, is sheer nonsense. The heat in question is the sensible manifestation of the vibratory action set up by the chemical combination of the carbon of the coal with the oxygen of the atmosphere. The sunbeams were doubtless one of the conditioning forces concerned in the aggregation of the atoms of carbon, but they did not create the carbon or the oxygen, or give rise to the chemical affinity which brought about the union of the two elements and the heat which was developed thereby.

This, however, is the only adverse criticism which I have to make on one of the most delightful books which have appeared for a long time on any scientific subject. Let teachers of all kinds make acquaintance with it, and get their pupils to do the same.—Yours obediently, M.

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THE EDUCATIONAL TIMES.

LONDON, MAY 1, 1890.

THE N.U.T. is to be heartily congratulated, not only on the success of its Twenty-first Annual Conference, but also on many of the features which distinguish this from all previous conferences. It seemed as if the Union had really passed out of its 'teens and attained its majority. The deliberations were characterised by public spirit, breadth of view, and mature reasonableness and self-restraint, as well as by wisdom, vigour, and decision. The Vice-President of the Council had promised to attend, but, unfortunately, illness prevented him; he, however, sent his blessing. One of the ablest and most experienced of public schoolmasters gave an address full of wise counsel, and the founder of Sloyd expounded his system. It can no longer be charged to the N.U.T. that it exists for the narrow aim of guarding the pecuniary interests of elementary teachers, or that it ignores the higher objects of raising the quality of public instruction, and of adapting it to the needs of the community. There was no hesitation in grappling with the questions of the hour; but the worst enemy of the Union, if it has an enemy, cannot say that it is deficient in zeal for the highest and best functions of education.

The issue of the New Code, the publication of the new Instructions to Inspectors, and the Conference of the National Union are three events of the month occurring in such natural sequence that they are best considered together. The best summary of the changes introduced by the New Code is perhaps that given by Sir W. Hart-Dyke to his constituents:—

"It proposes vast changes in the system of elementary education, many of them long demanded, and others rendered imperative by the strong competition of foreign countries in matters of trade and manufacture. It has struck a deathblow at payment by results—a system which cramped and restricted the energies of managers and teachers alike, and which treated the scholars as mere money-making machines at so much per head. It substitutes for that system a new grant, payable on the general efficiency of the school as a whole, as regards moral training, the skill and practice of the teachers, the quickness and knowledge evinced by the scholars; all of which will be tested by an examination quite as searching, but more general in its character, than heretofore; and regard will also be had to the discipline and organization of the school. It will increase the efficiency of teachers by a stricter test as regards examination and training, and to prevent the overcrowding and overburdening of the profession by a mass of teachers of indifferent capacity. It is hoped that the New Code will fill up a gap which has been occasioned by the omission from the scope of the Technical Instruction Act of children in elementary schools. Drawing is to be made compulsory, by a gradual process, capable of rapid development. Manual instruction is added to drawing, the two to be worked together for the full development of the powers of eye and hand in the scholars at an early age. The curriculum is largely extended for what are called class or extra subjects, especially dealing with agriculture."

Copies of "Inspectors' Instructions" were distributed in ample time for teachers to study the two documents together. More than half of the instructions are entirely new, being rendered necessary by the very sweeping and extensive changes that have been effected in the Code. The changes in this year's Code are to be traced to the special recommendations of Lord Cross's Commission. For instance, "my Lords," while informing the Inspectors that increased confidence was about to be placed in them, reminded them that "an important share in the administration of the New Code is entrusted to those officers, in the full assurance that by their aid the changes which have now been made will serve to

give due effect to the recommendations of the Royal Commission, and to increase the public usefulness of the Education Department."

As the Union in many ways has expressed its approval of those recommendations, it might be expected to extend to the New Code more grace and cordiality than was shown to the last.

The Conference adopted a resolution to the following effect:—

"That this Conference hereby offers its heartiest congratulations and thanks to the President and Vice-President of the Council for the attempt they have made to diminish the evils of payment by results, and to give to the country a more rational system of education; but the Conference instructs the Executive of the Union to draw the immediate attention of their Lordships and Members of Parliament to the restrictive and prejudicial effects of Articles 89, 98*b*, 99*c*, 101 *a*6, 101 *b*1, 101 *e*7, 101 *f*7, and paragraphs 13, 14, 23, and the 'Instructions' to Her Majesty's Inspectors, and any others, which, upon further examination, the Executive may consider necessary."

The word "statesmanlike" before "attempt" was struck out, on the motion of Mr. Pope, and an addition was accepted expressing regret that no provision was made in the Code for the pension of teachers in old age. The claims of the teachers for a reasonable and adequate provision for superannuation deserve all the more attention from the fact that the Union itself has strained every effort, by means of its Benevolent Fund and its Orphanages, to relieve those who are worn out—often prematurely worn out—and to provide for the fatherless.

The address of Dr. Abbott on Civic and Moral Training, and that of Herr Salomons on Manual Training, were enthusiastically received by the Conference, and at the same time they were in harmony with the Code and the Instructions, for both give official recognition to the kinds of training advocated in the addresses. The Code gives a place to manual instruction and offers a grant for discipline and organization, and the Instructions stipulate that this grant "should not be recommended unless you are satisfied that the school is a place for the formation of right habits, as well as a place of instruction."

The issue of the New Code reminds one that, in respect of the subjects of Manual Training and Shorthand the State-aided schools are not so free as others. All that the Code does for manual training is to say that the time that is given to it shall be reckoned in making up the attendances. As it is not only time that has to be spared, but money that has to be expended in tools, &c., managers will naturally think whether they cannot do better by earning the 1*s*. or 2*s*. per head offered for class subjects, or the 4*s*. per head for each pass in a specific subject. Thus manual training is placed at a direct disadvantage as compared with subjects which may earn grants on individual and on class examination. Shorthand ranks with the specific subjects, of which two may be taken by scholars in Standards V., VI., VII. The limitation of specific subjects to two will cause many parents and scholars to hesitate before they sacrifice for shorthand any of the other subjects—Algebra, Euclid, mechanics, Latin, French, physics, &c. The scientific subjects are divided into three stages, and one stage of any two subjects is to be taken along with the three higher standards. A table gives three stages or courses for thirteen subjects or divisions of them, and a footnote intimates that the same principle is to be applied to German, bookkeeping by double entry, shorthand, and navigation. Managers may submit schemes of instruction, and these are to "provide a properly graduated course for three years in succession." Shorthand is not mentioned in the Scotch Code; but it states that "any other subject approved by the Department may be taken" if a graduated scheme is submitted and approved. It is believed there will be some differences of opinion as to whether shorthand, properly taught, need be, or ought to be, spread over three years of school life, and need come into direct competition with languages and sciences. The question, as it is presented by the Code, is practically a new one for many experts. It will not be settled by individual assertion and experience. There are few persons who have acquired the art under conditions corresponding with those laid down by the Code for specific subjects. The general impression of shorthand writers will be that, as proficiency is so much a matter of reading and of practice, the mastery of rudiments and principles cannot judiciously be spread over so long a period as three years. It is therefore probable that the conditions of the Code will have to be modified before shorthand is taken up in State-aided elementary schools.

It must have been very evident to even the most casual observer at the Third Annual Conference of the Teachers' Guild, held lately at Cheltenham, that a very marked change is gradually but surely taking place in the attitude of teachers with regard to their work. Teachers in elementary schools have long ago, in the conferences of their National Union, set us the example of meeting at least once a year to take counsel about their work as it exists, and to devise new improvements for the future. But as a whole, till quite lately, teachers in schools other than elementary have fought shy of one another, and have seemed to look upon conferences as nothing better than a weariness to the flesh. At Cheltenham all this seemed changed, or at any rate changing. There was an earnestness, a business-like air about the meetings, which must have been extremely gratifying to those who had toiled hard to make the Conference a success; and, in spite of a very interesting educational exhibition in an adjoining hall of Cheltenham College, the discussions generally attracted an audience of four hundred, and sometimes the number of those present must have been nearly five hundred. But what was specially noticeable was, not so much the largeness of the numbers, as the very evident desire to take counsel together for mutual improvement and support. Nor was this restricted to the formal meetings of the three days. Before, between, and after the sittings, there was a constant formation of little groups of busy talkers, evidently glad to make one another's acquaintance, and anxious to gain and to give information about the work which they had most at heart. The meeting could hardly have been a greater success.

It is impossible here to enter into details of the discussions which took place; while to describe the hospitality of Cheltenham—especially that of Mr. James, Dr. Flecker, Miss Beale, and many others—would take a long article to itself. All we can do here is to mention a few of those topics which evidently excited most interest. Amongst these, the most prominent was undoubtedly the Registration of Teachers,

and next to this the Passage from the Elementary to Higher Grade Schools, the general question of Written and Oral Work in Schools, and the Teaching of Modern Foreign Languages. To these we must restrict our remarks—noting, by the way, that the headmasters of some six of our big schools were present, and that private schools and elementary schools were also well represented. The debate on Registration was opened by the Rev. H. A. James (Principal of Cheltenham College) and Mr. F. Storr, and continued by Dr. Wormell, Mr. J. D. Fitzgerald (Glasgow), Mr. E. B. Lethbridge (Brighton), Mr. C. Hayward (Cheltenham), Miss Cocks (Bristol), the Hon. Lyulph Stanley, and others. The points most insisted on were, that there should be a Council for conducting the work of registration, and that this Council should be distinctly an *educational* body, and representative of all grades of education; that after a certain date the test should be solely one of professional fitness, requiring evidence of both professional knowledge and professional skill, and, as soon as may be, of proper professional training; that registration should be a matter of *personal* fitness, and have nothing to do with the *grade* of school in which the candidate was working, or proposed to work; and, lastly, that the questions of the registration of teachers and the organization of schools should be kept separate. The debate was maintained with much spirit, and it was intimated that the National Union of Teachers, and probably also the Educational Institute of Scotland, would give a vigorous support to a Bill draughted on these lines.

The discussion on the Passage from the Elementary to Higher Grade Schools was opened by Dr. Wormell and Principal Barnett, and continued by the Rev. Dr. Flecker (Dean Close School, Cheltenham), Mr. Thornton (Manchester), Mr. Richardson (Oxford), Mr. Newbold (Manchester), and others. The views expressed were too various for a brief synopsis, but in the main it was held that, until some thoroughly national system should be established for schools above the elementary (and there was great need for such a system), teachers in the higher standards of elementary schools, and those in schools above them, should *both* recognise the absolute need of some passage from the one to the other, and, by taking measures at the right age, should strive to render the transition less abrupt and wasteful of time. Elementary and middle schools should to some extent overlap one another, and it should not be left to the last moment to decide whether a pupil's education should be prolonged for a year or two. If free education was to come, it might at first be applied as an inducement to parents to continue their children's education beyond the irreducible minimum; but in any case it would be highly unwise to endeavour to force all children up through every stage. Let the steps be clearly cut, plainly visible, not too steep, and the climbing not too costly. The object of a national system of education was not to drain away from the lower ranks of society all the intelligence and all the character, but to cultivate character and intelligence in every rank, and to remove all unnecessary impediments to a proper change of position.

Miss Beale (Cheltenham), Miss Cooper (Birmingham), and Miss Burstall (North London Collegiate School), introduced the subject of Written and Oral Work in Schools, and the discussion was continued by the Rev. H. A. James (Cheltenham), Rev. J. E. C. Welldon (Harrow), the Rev. T. Kingsmill-Moore (Dublin), Miss Ward (Maria Grey Training College), and Mdlle. Soult (Lycée Fénélon, Paris, delegate for Secondary Instruction). On the whole, it was thought, that oral work for the pupils should largely predominate over written work in the lower forms, while in the higher forms great attention should be paid to the written work. Great care should be taken that teachers should not be overburdened with the correction of written work; and Miss Cooper strongly insisted on the correcting being done with as little delay as possible, while the interest was still fresh, and before the mistakes had lain for any time in the children's minds. Opinions on the value of note-taking by children were somewhat divided, according as the speaker set most store by the acquirement of knowledge or the training of faculty. Note-taking is of great value for the former object, but is liable to be detrimental to the latter; for not many children (or even adults) can take satisfactory notes and at the same time appreciate the full force and connexion of what is being said to them. Nevertheless, as Mr. Welldon pointed out, a pupil's note-book would often serve to enlighten a teacher considerably as to his own unskilfulness and lack of lucidity.

The number of speakers on the Teaching of Modern Foreign Languages was so great that we can only mention a small portion of them. Among these were Mr. H. W. Eve, Rev. A. R. Vardy (Birmingham), Professor Paul Passy (Paris), Professor Vietor (Marburg), Miss Beale, Mr. Widgery, Miss Soames (Brighton), Professor Sonnenschein (Birmingham), Mr. Moriarty (Harrow), Mr. MacGowan (Cheltenham), Mr. Gould (Scarborough), Professor Kuno Meyer (Liverpool), &c., &c. During most of the time the Conference room was densely crowded, and the interest shown was considerable. The following motions were put and carried, either unanimously or by decided majorities:—that uniformity in the treatment of the grammar of the five school languages is desirable (*unanimously*); that Phonetics should form the basis of the teaching of modern languages (*i.e.*, that the teacher should understand phonetics thoroughly, and should thus be able to guide and train the child in proper oral practice—*carried by a small but weighty majority*); that the Reader should be the centre of instruction in teaching a foreign language (*i.e.*, that grammar should be learnt from language, and not language from grammar—*carried unanimously*); that the value of grammar, and the place it should occupy in the future teaching of modern languages, calls for immediate revision (*this followed as a matter of course*); and, lastly, that a proper supply of teachers can be best obtained by establishing at our Universities an Honours degree in Modern Languages, which shall adequately test a knowledge of the *living* language (*carried*).

The Conference closed with expeditions to various places of interest in the neighbourhood. The place of meeting for 1891 will probably be Manchester, which possesses a local Branch of the Guild of some 400 members.

REVIEWS, NOTICES, &c.

A Memory of Edward Thring. By John Huntley Skrine, (Macmillan & Co.)

The great schoolmaster who died in October, 1887, cannot be adequately described from one standpoint only, and there is yet room for more memoirs such as the one before us. The whole profession knew him to be a man of pronounced character—daring, emphatic, full of resource, aggressive, and masterful. Some knew him as a man of deep sympathies and ardent Christianity,

but there are few who will not know him better after reading this account of him by one who was first his pupil, and then his colleague. Such a work cannot be criticised, we can only convey an impression of what it tells. The first chapter is headed, "My Big School," and describes the tremendous artillery of vocables with which Mr. Thring stormed at the evil-doers, such as the bullies, the rebels, &c. He was most himself when it was a case of dishonesty in work. Some one has been caught using a "crib," or copying his neighbour's verses. Then the sequel would be this:—

"A very disgraceful thing has been brought to my notice. Two of you have been cheating in work. I mean the school to know what I think of this kind of thing. I hold that to cheat a master is expressibly base. You may call it what you please: I call it sheer, unmitigated, contemptible lying. You who do it are liars and cheats. Oh! yes, I know the mean things you say to yourselves, some of you, in your mean hearts, about its being natural for boys, and 'they all do it at other schools,' and the rest of the pitiful talk.

"But we are not 'other schools.' There have been times, and I knew them well enough, when schools were like prisons, and there was some wretched kind of excuse for cheating your gaolers. But you don't live in a prison here. We make your life free and pleasant, we trust you, we make your temptations few, we make it easy to live a true life—and then you turn traitors to truth. Now, which you will? The prison, if you prefer; bars and bolts (I could make a prison if I chose); or the free life of a true society. But you shan't have both. You shall not be traitors and have the privilege of true men.

"Now I am not going to waste words upon A and B.

"I hold that the whole school is responsible for these wrong-doings. The form, in which the cheats are, will be excluded from the cricket-field for a week, and will take their exercise, walking two and two, on the Leicester Road, attended by R——."

This and similar sketches of his methods lead us to remark that many of Mr. Thring's methods, although they did admirably in his hands, would have been flat failures in other hands.

The same chapter shows his buoyant spirit and his relish for games. It thus describes a scene in the fives-court:—

"Three of the best players of the school and a stranger were at work with the ball. The first stroke I saw showed me the stranger knew the game, but his queer playing-gear—black trousers and braces, the one dismounted to free the nimble right arm—puzzled me. 'Who's that?' I asked. 'Who's what?' replied the youth addressed. 'Why with the braces there.' 'Teddy, you little fool.' My eyes were opened and I saw. Yes, it was Teddy, just Teddy with his coat off."

He was the prince of fives players.

The next chapter is headed "The Ruler," and describes his instrument of discipline and his manner of administering punishment.

"He smiled at the graceful writers on education, who assumed that 'all schoolmasters have eyes of forty-angel-power,' and can shame an offender into reformation by one 'gentle but piercing glance'; and, on the other hand, he thought the cane, compared with 'lines' and detention and starving, saved time and health, and was no insupportable outrage on the personal dignity of an idle urchin. Yet at Uppingham, where they whipped the boys so, it was only a miserable percentage of them who had a first-hand experience of the beneficent whip. Its exercise was guarded too by strict limitations. First, to protect it from abuse by temper or partiality, he retained the power of the stick in his own hands, with one or two exceptions afterwards retracted. Next, that the purity of justice might not even be breathed upon, he admitted the public."

The author shows how he attacked the "abomination" of a set fight in his terse eloquence, and clinched his demonstration with the following threat:—"Now, the next fight that takes place, I will flog both the fighters, all the seconds, and every one who was looking on."

Then we have a series of terse pictures of Thring "the Teacher." Here again he did what no other man could do, without calling upon himself the reminder that there is a science and theory of teaching, the laws of which must be obeyed. One of these laws is that anything in a question may be sacrificed before clearness. Thring's questions were anything but clear, as the following story shows:—

"We opened our books, and we read a chapter, or part of one, from the Old or New Testament. He stopped the reading, paused, and naming some one, oftenest the head-boy, asked: 'What great principle of life-power does this passage show us?' or 'What law of the spirit world is revealed here?' It will be believed that such a query might give pause to even a head boy. There is want of light and leading in a question so framed. But at any rate it is a question. Sometimes, however, our wits had not even a question at all to work upon. A story goes—mythical, of course, but genuinely illustrative—that he began one morning with Abraham—Smith—Jones—next—next? and so passed it, with long pauses, down all the form unanswered. No wonder. For the problem was not only to find an answer, but first to find the question: we had to make known both the dream and the interpretation thereof; a task for prophets, not for schoolboys."

The author, however, fairly sums up the chapter by answering the question, "Was Thring a great teacher?"

"A great teacher? Have it as you will. He taught great things, and he taught them greatly. They were sometimes obscurely said. Still oftener they lay in the mind barren, to ripen later with experience. He believed himself a sower of seeds, and so he was. He also thought himself a skilled wielder of dialetic, and here I think he on the whole erred."

The first chapter in Part II. is headed "Fighting the Ship," and deals with the Charity Commissioners' frolic with Uppingham. This seems to have been a hard time with Thring.

"Worn down with work, plagued with a delicacy of health, which, though it never tamed his nervous energy, was a constant misery, he had to face an external danger which threatened to invade and overthrow his twenty years' work, and to face it almost alone, or with men who, if they followed, followed him trembling.

"Shade of the Endowed Schools Commission! listen in your tranquil metempsychosis, with unwounded ear, to what we thought of you when this was your name among men, and you took in hand to amend Uppingham."

Although the author declares himself to be conscious that Royal Commissions and draft schemes impart to a narrative a dry official taste, which may disguise the emotions of the time, he nevertheless both reveals emotion in himself, and excites it in the reader, not only on account of Thring, but for all who are similarly Commission-hunted.

One incident of the meeting between the Commissioners and Thring suggests reflections.

"Thring was arguing the injustice of the State's seizing on his work, in a manner so absolute and arbitrary, merely on the strength of its claim upon the small fraction of the funds which had descended from the founder. 'Ah!' said a commissioner, laughing, 'couldn't we buy up the foundation?' That heroic solution served only for a few moments' cheerfulness. But, now, one asks whether a great opportunity was not lost when the inspired suggestion was let die. It was feasible, and if done in a generous spirit, by men who meant to be founders, not shareholders (though it must be owned, the times did not encourage founders), might have been the liberation of a worker whom fate had unequally yoked with government and governing bodies."

Then follow the stories of Borth, and of other incidents in the growth of Uppingham, in all of which Thring's characteristics showed themselves. His antagonism to scientific theories, and to Darwinism in particular, is dwelt on frankly; and his eulogist admits that he was characteristically a man of intuitions, for it is a fact in the light of which half his idiosyncrasies are interpreted. With it he connects his mysticism, his depreciation of the intellectual side of life, the imperativeness of his conclusions, and their impenetrability to counter-views, and, in matter of style, his love of trope, and his gift for aphorism.

We have said and quoted sufficient to show that this is a memoir for the shelf of all schoolmasters.

The Theory of Determinants in the Historical Order of its Development. Part I.: Determinants in General. Leibnitz (1693) to Cayley (1841). By Thomas Muir, M.A., L.L.D., F.R.S.E. (Macmillan & Co.)

The author's Theory of Determinants recently noticed by us gave the most complete and systematic treatment of determinants of special form yet published. It suggested that the author had traversed the whole field of investigation and exposition in this part of pure mathematics, and it is highly satisfactory to find that the fuller benefit of this wide course of reading is to be given to us in a complete history of Determinants. The extent of this reading may be gathered from the first chapter. In October, 1881, Mr. Muir published in the *Quarterly Journal of Mathematics* (xviii., pp. 110-149) a "List of Writings on Determinants," which contained the titles of all the books, pamphlets, memoirs, magazine articles, &c., which were then known to him to exist on the subject of the Theory of Determinants. The list consisted of 489 entries arranged in chronological order, the first date being 1693 and the last 1880. During the three years which have elapsed since it was published, he has been steadily making additions to it, not merely in the way of continuation for the purpose of keeping it up to date, but also by the intercalation of omitted titles unearthed in the course of his own researches or brought to his notice by correspondence.

These researches seemed to show that injustice had been done by the attribution of isolated theorems and demonstrations to

authors other than the first discoverers; but the labours of the great founders of the theory had been disproportionately represented, and a considerable amount of valuable work had actually been lost sight of altogether.

With these facts before him, the author resolved to set about collecting the whole literature of the subject, in order that, as a first step on the way to a history, a bibliography might be compiled. To those who know how lamentably ill provided mathematicians are with guides to their literature, it will readily occur that this initiatory step entailed a vast amount of labour. But some of the results of that labour appear in the volume before us.

The author's object has been two-fold. First, to provide a work of reference which should contain all that had been written on the subject, and which should be indexed that anyone engaged in research might easily ascertain exactly what had been done on any particular topic, how it had been done, and what possible developments it foreshadowed. Secondly, to show clearly to whom every step in advance had been due, doing this in such a way also that the reader might see the actual data on which any conclusion was based. The value of the historical method as a means of teaching any branch of science suggests a third result. Some who have never studied Determinants at all may thus readily, and in an interesting manner, acquire a knowledge of what, on all hands, is conceded to be a singularly beautiful department of analysis. The various contributors are given in two periods—the first from Leibnitz to Cauchy, 1693 to 1812, the second from 1812 to 1841. The two periods are markedly unequal in length, the period of pioneering, as we may term it, extending to 120 years, and the next to only about 30.

The evidence put together by the author shows that, as time went on, there was considerable increase of interest in the subject, and a more widely-spread knowledge of it; for, whereas to the longer period there belong 20 papers by 13 writers, for the shorter period the corresponding numbers are 35 and 18. Among the 18 writers, too, are represented nationalities which had previously not put in an appearance, viz., English, Italian, and Polish.

In the second place, we have proof that the early period was by far the more fruitful in original results. The pioneers had mapped out most of the prominent features of the new country; their successors had, consequently, to concern themselves in a considerable degree with filling in the details. During the second period one finds the fundamental propositions of the first period reproduced in new varieties of form; also, there appear new proofs, extensions, and specialisations of old theorems, but of absolutely fresh departures there are comparatively few. In the second period important work was done on *special forms* of Determinants. A review of the first period shows the subject of Determinants was almost entirely a creation of French intellect, but in the second period preeminence belongs to Germany.

A New German Dictionary. Deutches Wörterbuch. Von Moriz Heyne. Erster Halbband.—A-Ehe. (Leipzig: S. Hirzel; London, Siegle.)—The Germans have at all times distinguished themselves in the field of lexicography, and this for evident reasons. The qualities which are indispensable for the composition of a good dictionary are patience and thoroughness, and these two qualities the Germans possess in an eminent degree. If, however, German scholars have, in the first instance, directed their energies to the production of dictionaries of the ancient languages, it was chiefly owing to the fact that Latin and Greek were not only the languages of scholarship *par excellence*, but also complete in themselves, as far as their literary remains are concerned; whilst modern High German was, and partly still is, a growing language. Its growth began with Luther, and the first period of its luxuriant expansion ended with Goethe, whilst the second period began with Heine. From the second half of the sixteenth to the first half of the eighteenth century, several attempts were made at compiling a German dictionary; but it was only in the year 1773 that the first noteworthy *Deutsches Wörterbuch* was issued by the distinguished Teutonist, J. C. Adelung. Of the dictionaries published during the first half of the present century by Campe, Heinsius and Heyse, the one by the last-named philologist is the most meritorious, and may still be consulted with advantage. The monumental work of the brothers Grimm (begun in 1854) needs no further characterization, nor is it necessary to dilate on the merits of the well-known *Deutsches Wörterbuch* of Daniel Sanders, begun in 1860 and completed with the supplement in 1885. Among the smaller German dictionaries, that of Dr. Karl Weigand, published in 1873, deserves special mention, more particularly on account of the abundant etymological information it conveys. This work formed, in fact, more than the mere basis of an *Etymologisches Wörterbuch*, which was published a few years ago, and obtained great popularity in the book market. Professor Moriz Heyne's *Deutsches Wörterbuch*, of which the first instalment lies before us, greatly differs from all its predecessors, combining as it does in a most concise form both the etymological and literary elements. The origin of every word is briefly stated, and its use, in all the successive stages, is fully illustrated by examples from the best authors, past and present. That the scientific part of the book is perfectly reliable need hardly be pointed out if we remember that Professor Heyne is one of the distinguished Germanists to whom the continuation of Grimm's *Wörterbuch* has been confided. His definitions in the present dictionary are clear and intelligible without being common-place, and, in order to make the book popular, in the good sense of the word, Greek words are transliterated by Roman characters. Roman type is also used for the quotations, and the text is, as a whole—although closely printed—arranged in so artistic a manner that the reading through of several columns at a stretch does not in the least strain the eye. In one word, Heyne's *Wörterbuch*—if the subsequent parts shall be fully equal to first instalment—is sure to become the most popular and most useful dictionary of the kind. Grimm and Sanders will always remain indispensable for the professed philologist, the literary man who wants to be quite sure as to the right use of words, and even for the studious reader of German classical works; but for general use we can most cordially recommend Heyne's *Deutsches Wörterbuch*, which will have the additional advantage of being, considering the large amount of materials it will contain, remarkably cheap. The work, issued in six parts, will be completed in six volumes.

International Education Series. Practical Hints for the Teachers of Public Schools. By George Howland, Superintendent of the Chicago Schools. (Wm. Allen & Co.)—This is the latest volume of the well-known series of American educational books, edited by Dr. W. T. Harris. Mr. Howland's book consists of a collection of papers which he has from time to time read to teachers in Chicago. They are practical in aim, very vivid in expression, and very enthusiastic. Anecdote is freely introduced. We are told of the rough, hulking fellow down in Cape Cod, who, "in answer to a mild reproof from his teacher (a nice, lady-like girl), said, 'I'd punch yer head for ye if ye war'n't a woman.'" Mr. Howland very wisely suggests that the proper mode of teaching this young man with pugilistic tendencies would certainly not be to do the "self-same act from which he had been withheld by respect for another." Mr. Howland gives the sort of speech he should deliver, in the course of which he says, "That is not the way to speak to a lady. She isn't a fish-woman." Would not Mr. Howland's method of dealing with the pugilistic young man leave upon his mind the impression, that to at any rate threaten to "punch the head" of a fish-woman, if you differ with her, is not only allowable but the natural course of things. Mr. Howland's introduction of quotation is sometimes very apt. In reply to the complaint that we teach so much that is not needed in the counting-house, he says: "There are, to my mind, few sadder pictures than that of a thinking reasoning being shut in, from youth to hoary age, to the requirements of the counting-room"; he adds, with originality of application:

> ". . . . from the cheerful ways of men
> Cut off, and for the book of knowledge fair
> Presented with a universal blank
> Of nature's works, to him expunged and rased."

The freshness, the vigour, the enthusiasm Mr. Howland throws into his pages must be of service to any teacher reading the book. At the same time, there are points spoken of with certainty—which are, to say the least, *questiones vexatae*—*e.g.*, Mr. Howland speaks of the study of language and grammar as teaching children to speak and write correctly. Moreover, the subjects, in spite of Dr. Harris's attempt to supply connecting links, do not give the impression of unity to the book. But, though the subjects spoken of are wide in range, and are treated somewhat discursively, yet the following list of contents shows that they are interesting and important topics:—(1) Moral Training in City Schools; (2) The Character of the Teacher; (3) The Place of Memory in School Instruction; (4) The Elements of Growth in School-Life; (5) The Scholarship aimed at in the School; (6) The Teacher in the Schoolroom; (7) How the School develops Character; (8) The Class Recitation; (9) The School Principal.

OUR LIBRARY TABLE.

Birds' Nests. Eggs and Egg Collecting. By R. Kearton. (*Cassell & Co.*)—This is a little book of seventy pages, with sixteen coloured plates, each representing nine eggs. The text describes briefly the nest and eggs of each bird. The noting of the difference of nidification and of connecting different birds and their habits with the position, forms, and material of their nests, and the colours, number, size, and shape of their eggs, is often the beginning of researches in natural history. However unimportant this branch of the science may be in itself, the beautiful and varied objects which compose it are amongst the first to excite the imagination and call forth in boyhood the love of Nature which is inherent in us all. The cares or pleasures of after-life may, to a great extent, erase the earlier feelings; but pleasant emotions result from the recollection and recall the happy times when, at the first breaking loose from school, the wood and the hedgerow have been visited in search of the nest and eggs. The plates are more highly coloured than those of Hewitson's "Eggs of British Birds," but the latter are on white ground, while those of the present book are filled in with colour, and the coloured background takes off the strong colouring of the eggs, so that the effect is much the same as in Hewitson's book.

Modern Gymnastic Exercises. Part II. (*Advanced.*) *By A. Alexander, F.R.G.S.* (*G. Philip & Son.*)—This volume completes Mr. Alexander's series of works on gymnastics, and supplies a mass of information and instruction for the more advanced exercises. Mr. Alexander gives us the results of his experience as Director of the Liverpool Gymnasium, and has produced a book which approaches to the nature of a standard work on the subject. The Earl of Meath, in a commendatory Preface, urges the supreme importance of providing better facilities for the physical development of the great mass of the people; and the exercises appropriately commence with those which can be carried out without difficulty in an ordinary room. Appropriate musical accompaniments are given for the dumb-bell and other mass exercises, and a number of comparatively novel movements in connexion with "ball practice," "figure marching," "the table," "the English Board," and "La Comédie Gymnastique" are fully explained. Difficult exercises with parallel and horizontal bars are also supplied; and these, as well as other movements, are illustrated by specially drawn figures. We have much pleasure in commending this manual to all interested in physical training.

Handbook of English Literature, Part IV. By R. McWilliam, B.A. (*Longmans, Green, & Co.*)—We have already shown the tone, style, and appearance of this handbook in noticing the three former parts. Part IV. treats of the eighteenth century, ranging from Swift to Cowper. There are chapters on Steele and Addison, Pope, Bishop Berkeley; the two letter-writers, Lady M. W. Montague and Horace Walpole; Bishop Butler, Gray; the novelists of the century, Defoe, Richardson, Fielding, Smollett and Sterne; Johnson and Boswell, Goldsmith and Gibbon. Mr. McWilliam has successfully shown the great characteristics of this period, and traced the progress of poetry from an artificial to a simple and natural style. As in the preceding parts, there is a brief summary.

Shakespeare's Macbeth. By K. Deighton. (*Macmillan & Co.*)—The volumes of "the Series of Selections from the works of the Great English Classics" are appearing with increasing rapidity. "Macbeth" is arranged on similar lines to those which have preceded it. The Introduction occupies forty pages, and discusses the source of the plot and historical basis, the date of the play, the supposed interpolations by or from Middleton, the coincidences of expression between Macbeth and the Witch, the parts of the play not in Shakespeare's manner, Fleay's theory as to the Witches, and Spalding's examination of it, ending with the characters of Macbeth and Lady Macbeth. The notes are clear, and for the most part brief and concise. They consist mainly of etymological references and paraphrases of the text. Mr. Deighton has given us many excellent school editions of Shakespeare, and his "Macbeth" is a valuable addition to the series.

A Class-Book of English History. Part I. 55 B.C.–1485 A.D. *By H. H. Curtis.* (*Simpkin, Marshall, & Co.*) — This careful summary of English history is intended for pupils in the middle forms of public and private schools; it is well adapted for this purpose, though it might be made rather more full with advantage, especially in the discussion of constitutional questions.

The Ambulance Leaflets, issued by Messrs. Crosby Lockwood & Son, furnish concise and accurate information likely to prove invaluable to schoolmasters, heads of families, police constables, and others called upon to act promptly in cases of emergency. The first four deal with the precautions necessary for the management of epidemic and contagious diseases, the symptoms of the principal fevers, and the diagnosis of the chief forms of insensibility. The Leaflets are sold at a nominal price, and ought to be widely distributed.

A Handbook of Scientific and Literary Bible Difficulties. Parts I. & II. By the Rev. Robert Tuck, B.A. (*Elliot Stock.*)—This work, which is being issued in monthly parts, is the continuation and completion of the author's earlier "Handbook of Biblical Difficulties," and is intended to deal with matters relating to history, science, ancient religions, language and doctrine, just as the earlier volume dealt with moral questions, Eastern sentiments, and miracles. The parts issued are entirely occupied with difficulties relating to ancient history; the questions considered seem to be treated satisfactorily, and the latest results of research are brought under the reader's notice. This handbook ought to be specially useful to Sunday-school teachers and senior scholars.

Reform in Education, showing the improvements possible in the present methods. By the Rev. Peter Prescott. (*T. Fisher Unwin.*)—We can find nothing in this pamphlet to justify its publication, and especially at the comparatively high price at which it is sold; the second part consists mainly of a number of extracts from reviews in praise of another work of the author's.

The Oxford and Cambridge Church Catechism. With Notes and Illustrations. By the Rev. F. Marshall, M.A. (*Gill & Sons.*)—This handbook is intended for pupils of fifteen or sixteen years of age preparing for the Local Examinations. The explanations are better than in most books of the kind; the small errors which occur (as, *e.g.*, the definition of "vanity" on p. 18) can easily be corrected in a subsequent edition, when we hope the present absurd title will be altered.

Moffatt's Edition of the Gospel according to St. Matthew. (*Moffatt & Paige.*)—The notes in this school edition are carefully written, and a large amount of useful information is compressed into the Appendix; the explanations given are just what schoolboys need.

The Gospel according to St. Matthew. With Introduction and Notes. By the Rev. Arthur Sloman, M.A., Headmaster of Birkenhead School. (*Macmillan & Co.*)—The Greek text adopted is Westcott and Hort's, and the typographical arrangements are the same as in the admirable edition bearing their name. The notes are uniformly good, and are eminently adapted to the needs of boys in upper forms of schools. Mr. Sloman is evidently well acquainted with the practical work of tuition in Scripture knowledge, and we are glad to feel that in this volume exact criticism is united with a reverent handling of sacred themes. The Introduction deals with Jewish sects and such subjects as the "Brethren of the Lord" and the chief MSS. and versions of the Gospels.

Notes of Lessons for Infants. By Mrs. Mortimer. (*Joseph Hughes.*)—The writer is a lecturer on the Kindergarten at the Home and Colonial Training College in London, and hence writes from personal experience of the needs of mistresses in infants' departments. Admirable outline lessons are given on common objects, phenomena of nature, scenes of common life, and common employments; these are arranged, to some extent, in three divisions, viz., for babies' classes, for children under six, and for elder children. The New Code will, we hope, lead to increased stress being laid on the kind of instruction sketched in this volume.

Handbook to the Book of Exodus. By the Rev. H. M. Clifford, M.A. (*Henry Frowde.*)—This is a new edition, considerably improved, of a useful handbook. Short notes are placed side by side with the text, and a large amount of miscellaneous information is supplied in the appendices.

Geographical Pictures for School and Home: Switzerland. (*Bern: W. Kaiser.*)—The first two sheets of this pictorial series are successful works of art, and will form a beautiful ornament for the walls of class-rooms, and will render invaluable service in the lessons on geography. They are The Staubbach, with the Valley of Lauterbrunnen, and The Eiger, Mönch, and Jungfrau. The remaining four sheets of the series have not yet appeared, but we are promised some views as equally beautiful as the two before us.

Les Précieuses Ridicules, par J. B. P. Molière. With Introduction and Notes. By E. G. W. Braunholtz, M.A., Ph.D. (*Cambridge University Press.*)—A useful school edition of "the comedy of manners," containing a complete life of Molière and an account of his works, and notes which illustrate the many points of grammatical, literary, and historical interest occurring in the play.

A First Latin Verse Book. By W. E. P. Pantin, M.A. (*Macmillan & Co.*)—A small book of eighty pages, in two parts. After the first three exercises come six exercises containing half-lines; in the three following exercises the same half-lines are put together in whole lines. Part I. ends with a series of couplets. Part II. consists of twenty-eight pages, each containing continuous passages of ten or twenty lines. Mr. Pantin has made a successful attempt to introduce the pupil gradually into the subject by placing before him a sufficient number of quite easy exercises.

Demosthenes, Vol. II. On the Peace, Philippic II., On the Chersonese, Philippic III. By Evelyn Abbott, M.A., LL.D., and P. E. Matheson, M.A.—The first volume of the Orations against Philip, by Messrs. Abbott and Matheson, contained the *Philippic I.* and the *Olynthiacs I.–III.* Volume II. contains *Philippics II. and III.* and the orations *On the Peace*, and *On the Chersonese*, and well deserves a place in the Clarendon Press Series of Greek Classics for Schools. The Introduction of forty pages gives a lucid outline of the history of the times. The text is well printed in thick type, and has small notes at the side by way of a paraphrase of the text. The notes are explanatory rather than grammatical.

An Introduction to Ancient History. By Lionel W. Lyde, M.A. (*Rivingtons.*)—This is a sketch of the history of Egypt, Mesopotamia, Greece, and Rome, and contains, in addition, a chapter on the development of the Roman Empire into the Powers of modern Europe. At the end of the book are tables of dates under the following headings:—Egyptian, Assyrian, Persian, Greek, Roman, Mediæval and Modern, and Contemporary, and three maps of Asia and Africa, Greece and Italy, and Europe.

The Amphitruo of Plautus. By Arthur Palmer, M.A. (*Macmillan & Co.*)—This edition is constructed on the same lines as Professor Tyrrell's edition of the *Miles Gloriosus*. Bentley's system of accentuation is not

adopted throughout; it is only used at the beginning of scenes, at the beginning of a new metre; in the rarer metres, and where the scansion is likely to cause the reader to pause. In the Introduction the plot of *The Amphitruo* is briefly described, the different manuscripts commented on, and the difficult subject of the Plautine metres discussed. At the foot of each page of the text there are remarks, and, where necessary, emendations. The notes, although somewhat lengthy in some places, are generally to the point, and throw light upon many difficulties. An excellent work is brought to an end by two appendices, one containing Sprengel's arrangement of the Cantica in *The Amphitruo*, the other a selection of emendations in the text.

(1) *Livy, Book IV. By H. M. Stephenson, M.A.* (*Cambridge University Press.* (2) *The Odyssey of Homer, Book XXI. By G. M. Edwards, M.A.* (*Cambridge University Press.*)—Two excellent school editions, with useful short notes. The latter contains an outline of the story of the Odyssey, a useful outline of the Homeric forms, and in four appendices the more important points of Homeric grammar.

(1) *La Métromanie, by Piron, annotated by L. Delbos.* (2) *Jeanne d'Arc, by Lamartine, annotated by Barrère.* (*Heath & Co.*)—These two well-known works are beautifully printed on good paper. They are carefully annotated, the notes being printed at the foot of the page. The latter work contains, in addition to the notes, a copious vocabulary. Altogether a very useful edition.

Kindergarten Games without Music, for the Baby Classes. By Wilhelmina L. Rooper. (*Griffith, Farran, & Co.*)—Forty-two games so devised that the physical movements emphasize the mental conceptions which accompany them, and increase the natural pleasure of acquiring simple information by the action of mind and body upon each other. The ball game (cherries) presents nothing novel, and seems to us to be a well-known game under a new title. This remark, however, does not apply to the others, which have evidently been carefully arranged.

Hymns for Elementary Schools. Arranged by Wilhelmina L. Rooper; the Music edited by Duncan Hume. (*Griffith, Farran & Co.*)—The seventy-five hymns in this book are divided into morning hymns, evening hymns, general hymns, graces, and hymns for special occasions. The music is plainly printed, and the tunes are bright.

Alphabetical French-English List of Technical Military Terms for Military Students. By Marius Deshumbert. (*D. Nutt.*)—The contents of this little book are sufficiently explained by the title it bears. We think, however, that, as the book is intended for English military students, it would have been a distinct improvement if the English equivalents, instead of the French, had been arranged in alphabetical order. In its present state French students will find it a boon. The alteration required is slight, and we recommend it to the author for adoption in a new edition.

The Young Collector Series: (1) *Coins and Tokens of the English Colonies, by Daniel F. Howorth, F.S.A.*; (2) *British Fossils, by Joseph W. Williams.* (*Swan Sonnenschein & Co.*)—Two volumes of an interesting series, which should be placed in the hands of all young collectors. They furnish not only a guide for arranging collections, but give pithy explanations which will tend to make our boys still more eager in their useful hobby. *Colonial Coins and Tokens* has an introductory chapter by Samuel Smith, a member of the Numismatic Society of London, on the historical aspect of the subject. This is followed by short chapters on each of the Colonies in turn, beginning with a historical note on the Colony, and then giving a list, description, and illustration of the various coins that have existed in the currency. *British Fossils* is a short treatise on geology, with special reference to the fossil remains to be found in the various geological formations.

Writing Card Series. By J. B. Dashwood. (*F. Hodgson.*)—Four cards of well-formed letters printed on the old type. No. 1, the Elements, text-hand; No. 2, letters, related by form, text-hand; No. 3, letters, classified by sound, half-text; No. 4, small hand, capitals, and figures.

The Temperance Reader. By the Rev. J. Dennis Hird, M.A. (*Cassell & Co.*)—One of the "Modern School" Series. For a frontispiece it has the well-known illustration of "The Child: what will he become?" and the two rows of faces tracing the course to "Honoured Age" and "Beggary." The book is in four parts. Part I., The Enemy of our Country in the Past, deals with drunkenness from the time of the Early Britons to the Hanoverian period; Part II., The Enemy of our Country in the Present; Part III., The General Fight against the Enemy; Part IV.; The Personal Fight against the Enemy. The Reader is profusely illustrated throughout.

(1) *Malachi, by the Ven. T. T. Perowne, B.D.* (*Cambridge University Press.*) (2) *The Gospel according to St. Luke, by F. W. Farrar, D.D.* (*Cassell & Co.*)—The former of these is a volume of the *Cambridge Bible for Schools and Colleges*; the latter, one of the *Smaller Cambridge Bible for Schools.* Archdeacon Perowne has given us an Introduction treating of the prophet and his office, the prophet's times, the style and contents of the book, and an analysis of contents. The notes at the foot of each page are full and thoroughly reliable. Archdeacon Farrar's work is intended for school study, and maintains the same high standard of criticism which is met with in the corresponding part of the *Cambridge Bible for Schools and Colleges.* It contains about a third of the matter furnished in the larger edition.

Christ Blessing Little Children, from a picture by Sir Charles Eastlake, F.R.A.; engraved by James H. Watt. (*Bacon.*)—A good engraving of a good picture.

Useful Birds of Europe. (*Bacon.*)—A sheet mounted on rollers of forty-seven of the commonest birds. They are so well drawn and coloured that there can be no difficulty of identification. The house sparrow is perhaps the least certain of recognition, at least by a London boy.

Standard Diagrams. (*Bacon.*)—We have received three sheets of diagrams adapted to the work of Standard VII. They are—(1) The Solar System, with the comparative sizes of the Planets and their Satellites, and an enlarged view of the Interior Planets. (2) The Phases of the Moon. (3) The Tides. The diagrams are well executed in striking colours.

We have also received:—

Macmillan's Magazine, The English Illustrated, Lippincott's (complete story, "A Cast for Fortune"), *St. Nicholas*; Messrs. Cassell & Co.'s *Technical Educator* (Nos. 25 and 26), *Science for All* (No. 3), *Old Testament Commentary* (Nos. 66 and 67); *The Boys' and Girls' Own Papers, Leisure Hour*, and *Sunday at Home.*

New Editions.

Parallel Translations of Lines and Surfaces. By David Maver. (*Aberdeen: Brown & Co.*)—In this, the third edition, each of the chapters has been considerably enlarged, and two new chapters, on the areas of triangles and the equality of certain angles, have been added.

Electricity and its Uses. By J. Munro. (*The Religious Tract Society.*)—The third edition, revised and enlarged so as to include the most important of the many improvements in the practical applications of electricity.

The English Language: Its Sources, Growth, History, and Literature. By Thomas Page. (*Moffatt & Paige.*)—This little volume, which contains a mass of useful and interesting matter, has reached its seventeenth edition.

The Fields of Great Britain. By Hugh Clements. (*Crosby Lockwood & Son.*)—Many additions have been made in the second edition of this text-book of Agriculture. In its present state it is not merely a book for students, but contains many subjects of interest and utility to agriculturists and farmers.

Civil Service Calendar, 1890 (*W. H. Allen & Co.*), contains the official regulations and instructions for candidates, with handwriting specimens, specimen essays, and sets of examination papers. In an Appendix is given a copy of the recent Treasury Minute.

Guide to the Scholarship Examination. By Benson Clough. (*George Gill & Sons.*)—A third edition of this work, which is a companion and supplement to the "Preparation for the Scholarship Examination," appearing weekly in the *Teachers' Aid*, is now published. Two appendices bring the samples of questions up to date.

Everybody's Pocket Cyclopædia. (*Saxon & Co.*)—The sixth edition of this small work has been revised and re-arranged. Some information on the subject of "economic progress" is among the new matter which has been added.

A Biographical Dictionary, containing concise notices of eminent persons of all ages and countries, and more particularly of distinguished nations of Great Britain and Ireland. By G. Thompson Cooper. (*George Bell & Sons.*)—This useful and concise biographical dictionary is now formed with a supplement bringing it down to the present. The whole is included in two volumes, the original taking up 1,200 pp., and the supplement 218.

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

On the 8th of March, Mr. W. J. Reynolds, the candidate for the Doctorship in Music, conducted a public performance of the "exercise," or original composition, lodged by him as part of his qualification for the degree. This was a "Te Deum," arranged for choruses, double choruses, solos, and unaccompanied quartet. The orchestration was rendered by Mr. G. H. Betjemann's band, and the choruses were sung by the choir of St. John's Church, Waterloo Road. The performance gave great satisfaction, and the degree was conferred on Mr. Reynolds at the meeting of the Senate immediately following.

During April the reports on the Colonial Examinations for the January Matriculation have been published. The whole list of passes is a scanty one; at Mauritius, three candidates have got through, but only one candidate has passed at each of the following centres: Bombay, Calcutta, Colombo, and Jamaica; and none are in the Honours division.

The University Calendar, which is announced to be published early in April, did not appear this year until close on the end of the month. On glancing through it, we note that the number of candidates at the examinations of 1889 was just over 5000, of whom very nearly 2,800 passed; of which numbers 726 and 408, respectively, were women. Candidates in Science and for the Preliminary Examination in Medicine are reminded that practical examinations in physics will, in the present year for the first time, be attached to the Pass Examinations. It is also announced that the Calendar, which has long been a fine sample of dumpiness, is to be remodelled, and to be published in two volumes—one containing regulations, lists, &c., and the other the examination-papers of the preceding academical year.

The annual election of examiners takes place on April 30th—too late to allow of the result being noticed in the present number of this Journal. From the advertisement inviting applications it would seem that there were thirteen vacancies to be filled up.

Cambridge.

Archdeacon Farrar has been appointed Lady Margaret preacher for the ensuing year.

Professor J. W. Hales will, as Clerk Lecturer in English Literature, deliver a course of six lectures during the present term on Shakespeare's Tragedies.

Mr. A. C. Seward, M.A., of St. John's, has been appointed University Lecturer in Botany for a period of three years.

Mr. H. Courthope-Bowen, M.A., of Corpus Christi College, has been appointed University Lecturer in the Theory of Education for this year.

The Ellerton Theological Essay Prize has been awarded to A. S. Peake, B.A., of St. John's.

The Powis Medal is adjudged to T. A. Bertram, scholar of Gonville and Caius College. Honourably mentioned, H. St. J. Thackeray, scholar of King's College.

The Porson Prize is adjudged to R. A. Nicholson, scholar of Trinity College. The Examiners were of opinion that the merits of F. J. Kittermaster, scholar of King's College, were nearly equal to those of the successful candidate.

Sir William Browne's Medals are adjudged as follows:—For Greek Elegiacs, F. J. Kittermaster, scholar of King's College; for Latin Alcaics, none adjudged; for Greek Epigram, T. R. Glover, scholar of St. John's College; for Latin Epigram, H. J. Edwards, scholar of Trinity College.

Oxford.

There is no Oxford news of importance to record this month, beyond the fact that the list of successful candidates in Classical Moderations has proved to be an unusually large one, and that two lady-students of Lady Margaret Hall have gained first classes.

Other Universities, Colleges, and Schools.

In consequence of the required number of students not having applied, the University of St. Andrews has been obliged to abandon its proposed summer session for women.

The Rev. Dr. Carson, Senior Fellow of Trinity College, Dublin, was on Tuesday last elected Vice-Provost of Trinity College, in the room of the late Sir Andrew Searle Hart.

During the past session the total number of matriculated students at the University of Edinburgh has been 3,602, as against 3,532 in 1888, 2,923 in 1879, and 1,698 in 1869. Of this total, 981 were enrolled in the Faculty of Arts, 124 in the Faculty of Divinity, 472 in the Faculty of Law, and 2,025 in the Faculty of Medicine. Of the students of medicine, 852 (or fully 42 per cent.) belonged to Scotland, 735 (or over 36 per cent.) were from England and Wales, 50 from Ireland, 82 from India, 259 (or nearly 13 per cent.) from various British colonies, and 47 from foreign countries. The Schoolmasters' Diploma was presented to two candidates; the certificate of Literate of Arts (L.A.) was granted to three candidates; and certificates in Arts for Women were gained by eleven candidates who had studied in the classes of the Edinburgh Association for the University Education of Women.

Mr. Pitt Corbett, M.A., D.C.L., of Gray's Inn, has been appointed by the Senate of the University of Sydney the first Challis Professor of Law in the University.

Mr. Banister Fletcher has been appointed Professor of Building Construction and Architecture at King's College, London.

The governing body of Kensington School have appointed the Rev. F. Hedley Joscelyne, M.A., of Balliol College, Oxford, to the headmastership of the school.

Mr. D. E. Norton, of Keble College, Oxford, and assistant-master at Brighton College, has been appointed to the headmastership of the King's School, Bruton.

Cornell University has recently received a gift of £60,000 to form an endowment for its library. The donor is Mr. Henry W. Sage, of Ithaca, New York, whose total benefactions to Cornell now amount to about £200,000.

At St. Andrew's, Professor Edward Caird has been appointed Gifford Lecturer on Natural Religion, in succession to Mr. Andrew Lang; and at Glasgow Professor Max Müller has been re-elected for a second term of two years.

The Barlow Lectures on Dante at University College, London, will be delivered by Professor A. Farinelli, on Tuesdays and Fridays in May and June, at 3 p.m. The lectures will be delivered in Italian, and are free to the public. They commence on May 2nd.

The Council of Owens College, Manchester, invite applications for the post of Cobden Lecturer in Political Economy. The stipend will be £150, together with a share of the fees.

Mr. Hugh Walker, M.A., of Balliol College, has been appointed to the English Chair at St. David's, Lampeter, vacated by Mr. Tout, who in his turn has been appointed to the Professorship of English History at Owens College, Manchester.

Mr. W. J. Ford, M.A., Principal of the Nelson College, New Zealand, has been elected Headmaster of Leamington College. Mr. Ford was formerly an assistant-master at Marlborough.

Mr. E. F. Gilbard, sub-master of Norwich Grammar School for the last fifteen years, has been elected Headmaster in succession to the Rev. O. W. Tancock.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending April 30th, 1890.

Allcroft (A. H.) and Mason's (W. F.) History of Sicily, 491–289 B.C., cr. 8vo, 3s. 6d.
Bianconi (F.): Cartes Commerciales, Series 1, 24fr.
Bigg's (H.) A New Review of National Education, 12mo, 2s.
Bousfield's (E. H.) The Conversion of England, cr. 8vo, 2s. 6d.
Butler's (E.) Consideration of Gentle Ways, and other Essays, 12mo, 3s. 6d. cl.
Carpenter's (E.) The First Three Gospels, their Origin and Relations, cr. 8vo, 3s. 6d.
Carstensen's (A. R.) Two Summers in Greenland, 8vo, 14s.
Chadwick's (Very Rev. G. A.) The Book of Exodus, cr. 8vo, 7s. 6d. (Expositor's Bible.)
Chambers's (G. F.) Handbook of Descriptive and Practical Astronomy: II. Instruments and Practical Astronomy, 21s.
Compayré (G.): Organisation Pédagogique, 3fr. 50.
Curtin's (J.) Myths and Folk-Lore of Ireland, cr. 8vo, 9s.
Cyon (E. de): La France et la Russie, 1fr. 50.
Dante and his Early Biographers, by E. Moore, cr. 8vo, 4s. 6d.
Dawson's (J.) The Makers of Modern English, Handbook to the Greater Poets of the Century, cr. 8vo, 5s. cl.
De Quincey (T.), Uncollected Writings of, Preface and Annotations by J. Hogg, 2 vols., cr. 8vo., 12s.
Dixon's (C.) Annals of Bird Life, a Year-Book of British Ornithology, illustrated, cr. 8vo, 7s. 6d. cl.
Glasson (E.): Les Communaux et le Domaine Rural à l'Époque Franque, 4fr.
Green's (W. S.) Among the Selkirk Glaciers, cr. 8vo, 7s. 6d. cl.
Heilprin's (A.) The Bermuda Islands, a Contribution to Physical History, &c. of the Somers Archipelago, 18s.
Hoffman's (J. W.) Cyclopædia of Foods, Condiments, and Beverages, cr. 8vo, 2s. 6d. cl.
Houghton (A.): Les Origines de la Restauration des Bourbons en Espagne, 7fr. 50.
Iliad and Odyssey of Homer, translated by A. Pope, Notes and Introduction by Rev. T. A. Buckley, cr. 8vo, 6s. cl.
Johnston's (A.) The United States, its History and Constitution, cr. 8vo, 4s. 6d. cl.
Johnston's (D. L.) The Paradise of the North, cr. 8vo, 6s. cl.
Körting (G.): Lateinisch-Romanisches Wörterbuch, Part 1, 2m.
Lane's (E. W.) An Account of the Manners and Customs of the Modern Egyptians, 12mo, 2s. cl.
Lang's (A.) Old Friends, Essays in Epistolary Parody, 6s. 6d. cl.
Lawson's (W. R.) Spain of To-day, with a Full Account of the Rio Tinto Mines, cr. 8vo, 3s. 6d.
Littlehale's (H.) Pages in Facsimile from a Layman's Prayer Book in English, about 1400 A.D., 4to, 3s. 6d.
Lucian, the Dialogues and Somnium, translated by R. Mongan and J. A. Prout, 12mo, 2s. 6d. swd.
Martin's (E.) Glimpses into Nature's Secrets and Strolls on Beach and Down, cr. 8vo, 3s. 6d. cl.
McCarthy's (J.) A Short History of Our Own Times, cheap edition, 12mo, 2s. 6d. cl.
Millar's (A. H.) The Historical Castles and Mansions of Scotland: Perthshire and Forfarshire, 8vo, 15s.
Morris (L.) The Works of, cr. 8vo, 6s.
Motti's (P.) Method Gaspey-Otto-Sauer: Russian Conversation Grammar, cr. 8vo, 5s. cl. Key to ditto, cr. 8vo, 2s.
Nettleship's (J. T.) Robert Browning, Essays and Thoughts, cr. 8vo, 7s. 6d. cl.
Nevill's (J. H.) The Biology of Daily Life, 8vo, 3s. 6d.
Philip's (A.) The Function of Labour in the Production of Wealth, cr. 8vo, 3s. 6d. cl.
Picard (E.) and Fremantle's (S.) Nautical Terms and Phrases in French and English, cr. 8vo, 3s. 6d. bds.
Pindar, the Olympian and Pythian Odes, with Introductory Essay, &c., by B. Gildersleeve, cr. 8vo, 7s. 6d. cl.
Radical Cure for Ireland, a Letter to the People of England and Scotland, demy 8vo, 7s. 6d. cl.
Ritchie's (J. E.) An Australian Ramble, or a Summer in Australia, cr. 8vo, 5s.
Rosenberger (F.): Die Geschichte der Physik, Div. 3, Part 2, 10m. 40.
Ross's (A. H.) The Lord's Prayer and other Sermons for Children, cr. 8vo, 3s. 6d. cl.
Shakespeare, New Variorum Edition, edited by H. H. Furness: Vol. 7, "As You Like It," roy. 8vo, 18s. cl.
Shelley (Mrs.), by L. Rossetti, cr. 8vo, 3s. 6d. (Eminent Women Series.)
Stow's (J.) London under Elizabeth, cr. 8vo, 2s. 6d. cl. (Carisbrooke Library.)
Taylor's (W.) Progressive Object Lessons for Infant Schools, cr. 8vo, 2s. 6d. cl.
Ward's (J.) Elementary Principles of Ornament, 8vo, 5s. cl.
Wolfendale's (Rev. J.) The Preacher's Homiletical Commentary on the Book of Chronicles, 8vo, 5s. cl.
Wood (Rev. J. G.), his Life and Work, by Rev. T. Wood, 10s. 6d.
Young Folks' Song-Book, written and composed by H. B. Score, 4to, 2s. 6d. cl.

Educational Statistics.—A correspondent draws our attention to an arithmetical error in our article last month on Educational Statistics. The error was entirely our own, and was in no way due to Mr. Rowland Hamilton's paper to which we were referring. The real problem before us was as follows: Twenty per cent. increase on $1\frac{1}{4}$ millions in Board schools, and forty-six per cent. increase on $2\frac{1}{3}$ millions in Voluntary schools, is what percentage on the whole? Our guess of 66 per cent. was an easy solution of the complicated problem, but it had one defect, namely, that it was clearly and altogether wrong. Our correspondent's solution, namely, $20+46$ divided by 2, is also simple and also wrong.

MATHEMATICS.

10476. (Professor Sylvester.)—Prove (1) that it is always possible to transform $ax\xi + bx\eta + cx\zeta + a'y\xi + b'y\eta + c'y\zeta + a''z\xi + b''z\eta + c''z\zeta$, where all the coefficients are real, into the form $Ax\xi + By\eta + Cz\zeta$, by means of two *real* orthogonal linear substitutions imposed on x, y, z and ξ, η, ζ respectively; and show (2) how to construct the equation for determining A, B, C.

Solution by W. J. Johnston, M.A.

The application of the contravariant operator $\left(\frac{d}{dx}\right)^2 + \left(\frac{d}{dy}\right)^2 + \left(\frac{d}{dz}\right)^2$ to the square of the function gives

$$(a\xi + b\eta + c\zeta)^2 + \ldots + \ldots = A^2\xi'^2 + B^2\eta'^2 + C^2\zeta'^2 \ (\equiv u).$$

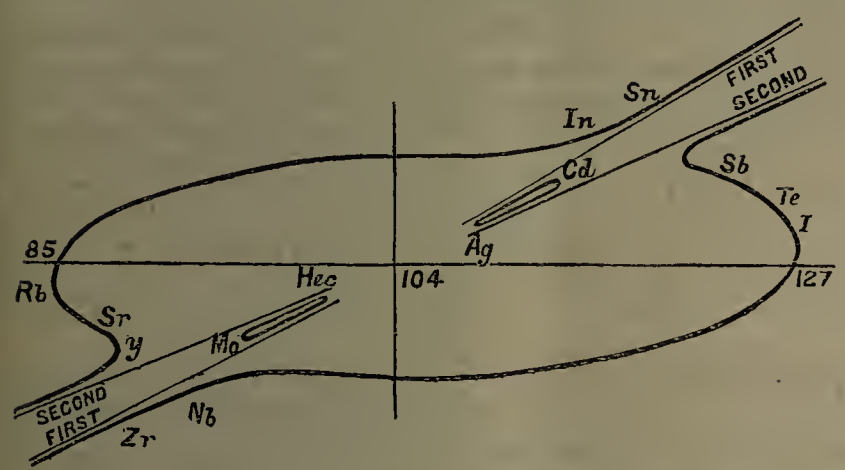
By the law of inertia A^2, B^2, C^2 are positive, and ξ, η, ζ real functions of ξ', η', ζ'. [The rest in Volume.]

10440. (Professor Haughton, F.R.S.) — Describe the quartic curve passing through the following points, whose Cartesian coordinates (with $x = 104$ as origin) are (1) Rubidium (85, −1); (2) Strontium (87, −2); (3) Yttrium (89, −3); (4) Zirconium (90, −4); (5) Niobium (94, −3); (6) Molybdenum (96, −2); (7) Hecaton (100, −1); (8) Silver (108, 1); (9) Cadmium (112, 2); (10) Indium (113, 3); (11) Tin (118, 4); (12) Antimony (121, 3); (13) Tellurium (125, 2); (14) Iodine (127, 1).

Solution by George Goldthorpe Storr, M.A.

Let the equation of the quartic curve be

$$A_1y^4 + A_2y^3x + A_3y^2x^2 + A_4yx^3 + x^4 + B_1y^3 + B_2y^2x + B_3yx^2 + B_4x^3 + C_1y^2 + C_2yx + D_1y + D_2x + E_1 = 0 \ \ldots\ldots\ldots (1).$$



Since molybdenum, hecaton, silver, and cadmium are on the straight line $x = 4y$, we have

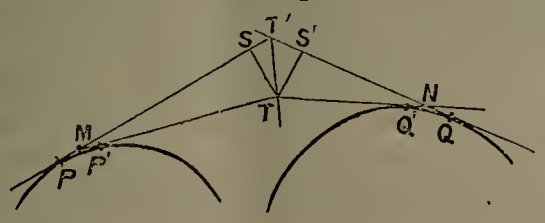
$$B_1 + 4B_2 + 16B_3 + 64B_4 = 0, \quad D_1 + 4D_2 = 0,$$
$$C_1 + 4C_2 + 16C_3 + 4\phi = 0, \quad E_1 - 4\phi = 0,$$

where $\phi = A_1 + 4A_2 + 16A_3 + 64A_4 + 256$. [The rest in Volume.]

10448. (Professor Neuberg.)—Deux droites d, d' roulent sur deux courbes données Δ, Δ' avec des vitesses angulaires, qui sont constamment égales et de sens contraire. Trouver la tangente à la courbe décrite par le point d'intersection de ces droites.

Solution by Professors Anderson *and* Schoute.

Let PT, QT be the tangents to the curves, their point of intersection being T. Draw the tangents P′T, Q′T, making small equal angles θ with these, and intersecting in T′. Let these intersect the other pair in the points M, N; and draw T′S, T′S′ perpendicular to PT and QT; then



$$T'T \sin \angle T'TS = T'S = MT'.\theta, \quad T'T \sin T'TS' = T'S' = NT'.\theta.$$

[The rest in Volume.]

10378. (Professor Wolstenholme, M.A., Sc.D.)—From a point O are drawn straight lines OP, OP′ touching a given parabola in P, P′; find (1) the locus of O when the ratio OP : OP′ is given; also prove that (2) this locus cuts the directrix at right angles in two points; (3) if from either of these points O the tangents OP, OP′ meet the latus rectum in L, L′, and LQ, L′Q′ be also tangents in Q, Q′ to the parabola,

$$OP : OP' = LP : LQ = L'Q' : L'P';$$

and (4) the focal distance of any point on the locus will be the least possible when the point lies on the tangent at the vertex of the parabola (being the point of contact of a common tangent to the locus and to the parabola), and this minimum distance bears to the distance between focus and vertex the given ratio of the tangents.

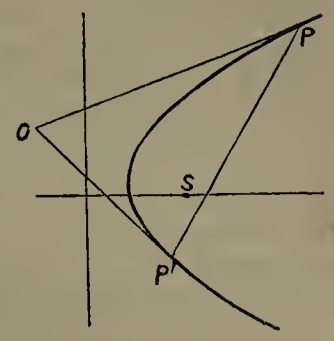
Solution by R. Knowles, B.A.; Rev. J. L. Kitchin; *and others.*

(1) Let $y^2 = 4ax$ be the equation to the parabola, (xy) the point O; we have then

$$OP = (y^2 - 4ax)^{\frac{1}{2}} \left[\left\{(y^2 - 4ax)^{\frac{1}{2}} + y\right\}^2 + 4a^2\right]^{\frac{1}{2}} / 2a;$$
$$OP' = (y^2 - 4ax)^{\frac{1}{2}} \left[\left\{(y^2 - 4ax)^{\frac{1}{2}} - y\right\}^2 + 4a^2\right]^{\frac{1}{2}} / 2a;$$

and if OP : OP′ = 1 : m, the locus is

$$a^2(1-m^2)^2\left\{y^2 + (x-a)^2\right\} - m^2y^2(y^2 - 4ax) = 0.$$



(2) This meets the directrix in two points

$$-a, \quad \pm a(1-m^2)/m;$$

$$dy/dx = \left\{2a^2(1-m^2)^2(x-a) + 4am^2y^2\right\} / \left\{2a^2(1-m^2)^2 y - 4m^2y^3 + 8am^2xy\right\} = 0,$$

when x, y are the points on the directrix.

(3) When O is one of these points, the coordinates of P, L, Q are, respectively,

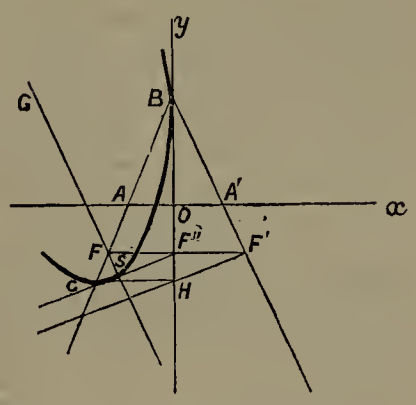
$$a/m^2, \ 2a/m; \ a, \ a(1+m^2)/m; \ am^2, \ 2am;$$

therefore LP : LQ = 1 : m = OP : OP′; similarly for L′P′ and L′Q′. [The rest in Volume.]

8859. (N'Importe.)—On donne dans un plan deux axes de coordonnées rectangulaires Ox, Oy, et une droite AB définie par son coefficient angulaire m et son ordonnée à l'origine b, et l'on demande: (1) De trouver la direction des diamètres des paraboles tangentes à l'axe des y au point B où il est coupé par la droite AB et ayant leurs foyers sur cette dernière droite; (2) D'écrire l'équation générale de ces courbes; (3) De construire le lieu de leurs sommets; (4) De construire le lieu des points où leurs tangentes sont parallèles à l'axe des x; (5) De construire le lieu des pôles de l'axe des x relativement aux paraboles considérés.

Solution by Professor Schoute.

1. Let F on AB be the focus of one of the parabolas. As the tangent OB bisects the angle between radius vector BF through B and the diameter through B, the line BA′ (for which OA′ = AO) is the diameter through B. This proves that the parabolas have parallel axes. They form at the same time an ordinary and a tangential pencil.



2. When we consider the pencil as an ordinary pencil, it may be determined by the line BA′ counted twice and by the line OB combined to the line at infinity. Therefore the equation of the pencil is

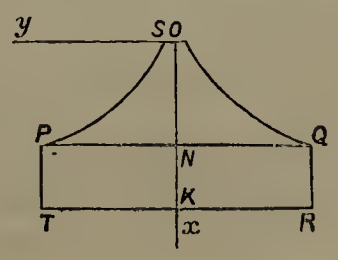
$$(y - b + mx)^2 + \mu x = 0,$$

μ representing the parameter of the pencil. [The rest in Volume.]

3395. (Professor Hudson, M.A.)—An indefinitely small piece of ice, the shape of which may be taken to be that of a right circular cylinder, is floating with its axis vertical in water. The part immersed receives deposits of ice in such a manner as to continue cylindrical, the radius and axis receiving equal increments in equal times. Find the ultimate shape of the part not immersed. If the specific gravity of ice be ·96, prove that the surface is formed by the revolution of $y^2(9x - y)^{25} = a^{27}$.

Solution by Professor Anderson, M.A.

Take the highest point of the piece of ice as origin of coordinates, the axis of y being horizontal, and that of x vertical. Let the coordinates of P be x, y. Suppose PN increased by δy, and consequently NK by the same amount, the volume of PQRT will be increased by



$$\pi y^2\delta y + 2\pi y\delta y(y - x) = \pi(3y^2 - 2xy)\delta y.$$

The mass of the ice is thus increased by

$$\pi\rho(3y^2 - 2xy)\delta y,$$

ρ being the specific gravity. [The rest in Volume.]

10488. (Professor Hendricks.)—The *à priori* probability that *ace* will be thrown at a single cast with a die is $\frac{1}{6}$, $= k$ say. A, whose veracity is p_1, says that B, whose veracity is p_2, said that *ace* was thrown at a single cast; find the probability that *ace* was thrown. [This Question was proposed in our columns many years ago, but Prof. Hendricks thinks that none of the solutions then published are satisfactory.]

Solution by D. Biddle.

A's assertion is twofold: he asserts that B made a statement regarding the event in question, and he further asserts that the statement was affir-

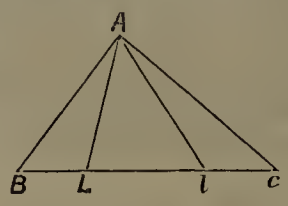
mative. Assuming, however, that B made a definite statement, affirming or denying the event from personal observation, the relative probabilities, as to his being true or untrue in *affirming* it, would be $kp_2 : (1-k)(1-p_2)$, and in *denying* it, $(1-k)p_2 : k(1-p_2)$. If, therefore, we disregard the intervention of A, and suppose B to make his statement (whatever it may have been) direct to ourselves, we have the following probabilities.

[The rest in Volume.]

10374. (R. Tucker, M.A.)—The "N.P." circle of a triangle is the auxiliary circle of the in-ellipse $(a^2\cos A\alpha)^{\frac{1}{2}} + (b^2\cos B\beta)^{\frac{1}{2}} + (c^2\cos C\gamma)^{\frac{1}{2}} = 0$, of which the foci are the circum- and ortho-centres. If L, M, N are the points of contact with the sides, prove that AL, BM, CN meet in the Isotomic of the circumcentre.

Solution by Rev. T. Galliers, M.A.

Let P, O be the ortho- and circum-centres; then the coordinates of P, O and the mid-point of OP are $2R\cos B\cos C$, &c., $R\cos A$, &c., $\frac{1}{2}R\cos(B-C)$, &c. ..... (1).



Now, since the product of the perpendiculars from P, O on *any* side of the triangle

$$= 2R^2\cos A\cos B\cos C,$$

an in-ellipse can be described with P, O as foci; let its equation be $(L\alpha)^{\frac{1}{2}} + (M\beta)^{\frac{1}{2}} + (N\gamma)^{\frac{1}{2}} = 0$;

then its centre (α, β, γ) is given by

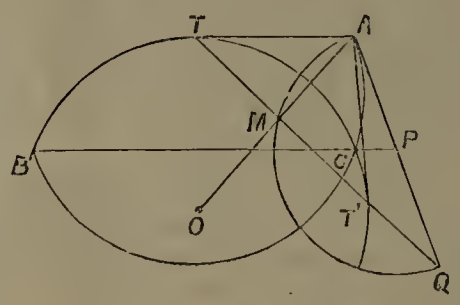
$$\alpha : \beta : \gamma = Nb + Mc : Lc + Na : Ma + Lb \text{ ..... (3).}$$

[The rest in Volume.]

10474. (J. Moreau.)—De l'un des sommets d'un triangle, on mène des tangentes à un cercle quelconque passant par les deux autres sommets. Trouver le lieu du point où la corde de contact rencontre le diamètre qui passe par le premier sommet.

Solution by J. C. St. Clair; R. F. Davis, M.A.; *and others.*

Let ABC be the given triangle. Draw AP tangent to the circumcircle ABC, meeting BC in P; and, with P as centre and radius PA, describe a circle cutting AP again in Q. Then this circle cuts any circle through B, C orthogonally, and consequently A and Q are conjugate points with respect to every circle of the co-axal system. Therefore all the chords of contact TT′ (being polars of A) pass through Q; and, since AMQ is a right angle, the locus of M is the circle upon AQ.



10475. (Professor Poulain.)—Dans un triangle, démontrer que la distance d du centre de gravité au point de Lemoine vérifie l'égalité

$$9d^2(\Sigma a^2)^2 = -\Sigma a^6 + 3\Sigma a^4b^2 - 15a^2b^2c^2.$$

Solution by R. Knowles, B.A.; Prof. Anderson, M.A.; *and others.*

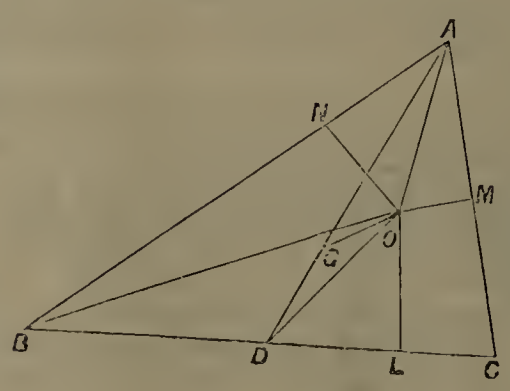
Let O be the Lemoine-point, G the centroid, and D the mid-point of BC. Then the co-ordinates of the centroid G and the Lemoine-point O are, respectively, $\Delta/3a$, &c.;

$$2a\Delta/(a^2+b^2+c^2), \text{ \&c.},$$

and we obtain

$$\begin{aligned} &9d^2(a^2+b^2+c^2)^2 \\ &= a^2(a^2+c^2-2b^2)(a^2+b^2-2c^2) \\ &\quad + b^2(a^2+b^2-2c^2)(b^2+c^2-2a^2) \\ &\quad + c^2(b^2+c^2-2a^2)(a^2+c^2-2b^2); \end{aligned}$$

hence, multiplying, we get the result stated.



10499. (W. J. C. Sharp, M.A.)—A circle is just immersed in a fluid the density of which is known to vary as some function of the depth. It is found that the centre of pressure divides the vertical diameter into two parts, which are as 7 : 3; find the law of density.

Solution by D. Edwardes, B.A.; Prof. Anderson, M.A.; *and others.*

Let the pressure at depth z be $z\phi(z)$; then

$$\int_0^d z^2\phi(z)(dz-z^2)^{\frac{1}{2}}\,dz \Big/ \int_0^d z\phi(z)\,(dz-z^2)^{\frac{1}{2}}\,dz = 7d/10,$$

d being the length of the diameter.

Differentiating with respect to d, and integrating by parts,

$$\int_0^d z^{\frac{3}{2}}(d-z)^{\frac{1}{2}}\left\{z\phi'(z) - \phi(z)\right\}dz = 0.$$

[The rest in volume.]

10486. (Professor de Longchamps.) — On considère deux cercles Δ, Δ', dont les centres sont les points O, O′. La droite OO′ rencontre Δ, Δ', respectivement, aux points A, B; A′, B′. Soient M, M′ les extrémités de deux rayons mobiles, parallèles, et de même direction. Cela posé, AM, B′M′ se rencontrent en P; BM, A′M′ en Q. Démontrer que PQ passe constamment par un point fixe.

Solution by D. T. Griffiths; Rev. T. R. Terry, M.A.; *and others.*

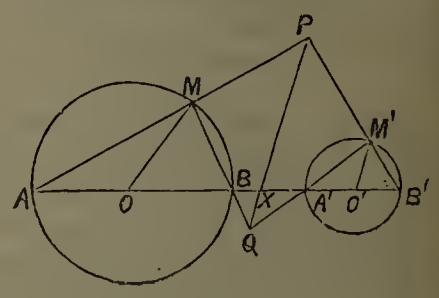
Let PQ meet OO′ at X; then the triangles BXQ, B′XP are similar; therefore BX : QX = B′X : PX.

The triangles QA′X, PAX are also similar; therefore

$$QX : A'X = PX : AX;$$

whence $BX \,.\, AX = B'X \,.\, A'X$.

Therefore X is a point on the radical axis of the two circles; that is to say, PQ passes through the point of intersection of the radical axis and the line joining centres.



10451. (Professor Buenger.)—Démontrer qu'il existe deux points dont les distances aux sommets d'un tétraèdre donné ABCD soient proportionnelles à des nombres donnés α, β, γ, δ. Ces points divisent harmoniquement un diamètre de la sphère circonscrite au tétraèdre ABCD.

Solution by W. J. C. Sharp, M.A.; Prof. Anderson, M.A.; *and others.*

This proposition, which is true in space of any dimensions, may be proved as follows, using the notation of the solution of Questions 9093 and 9170 (Vol. xlviii., p. 179). If $(\lambda, \mu, \nu \ldots)$ be the point, we have

$$\left(-S + V\frac{dS}{d\lambda}\right)\Big/\alpha^2 = \left(-S + V\frac{dS}{d\mu}\right)\Big/\beta^2 = \left(-S + V\frac{dS}{d\nu}\right)\Big/\gamma^2, = \text{\&c.},$$

$$\therefore \quad \left(\frac{dS}{d\lambda} - \frac{dS}{d\mu}\right)\Big/(\alpha^2-\beta^2) = \left(\frac{dS}{d\lambda} - \frac{dS}{d\nu}\right)\Big/(\alpha^2-\gamma^2) = \text{\&c. ..... (1).}$$

[The rest in Volume.]

9336. (Professor Morley, M.A.)—In Salmon's *Curves*, § 216, we are told that in an acnodal cubic the acnode is the pole of the line through the three real inflexions with regard to the triangle formed by the three tangents. Here are meant the tangents at the inflexions. Prove that the proposition is also true if we take the tangents from the inflexions.

Solution by Professor A. M. Nash, M.A.

The equation of the cubic being $(x+y+z)^3 = 27xyz$, the acnode is the point $x = y = z$. The tangents from the inflexions are

$$x+4y+4z = 0, \quad 4x+y+4z = 0, \quad 4x+4y+z = 0.$$

[The rest in Volume.]

10435. (Maurice d'Ocagne.)—Soient F le point où la symédiane issue de A du triangle ABC coupe le cercle circonscrit à ce triangle, Fβ et Fγ les perpendiculaires abaissées de ce point sur AB et sur AC. Si par les sommets B et C on mène deux antiparallèles quelconques BB′ et CC′ relativement à l'angle BAC, et que ces droites coupent respectivement Fβ et Fγ en B_1 et en C_1, la parallèle à AB menée par B_1 et la parallèle à AC menée par C_1 se coupent sur la tangente en A du cercle ABC.

Solution by Professors Anderson, Nilkantha Sarkar, *and others.*

Since F is on the symmedian $c.F\gamma = b.F\beta$;

therefore, since $\angle FC\gamma = \angle ABF$, $c.C\gamma = b.B\beta$.

But CC′ and BB′ are antiparallels, so that $\angle\gamma CC' = \angle\beta BB'$. Hence $c.C'\gamma = b.B'\beta$; and this is plainly the condition that parallels through B′ and C′ to the sides BA and CA should meet on the tangent at A.

QUESTIONS FOR SOLUTION.

10554. (Professor Sylvester.) — There are $\frac{1}{2}n(n-1)$ unknown quantities expressed by the binary combinations of n *umbrae* 1, 2, 3, ... n. Let us understand that $r \,.\, r = 0$, and write down the n equations

$$r.1 + r.2 + r.3 + \ldots + r.n = C_r \quad (r = 1, 2, 3, \ldots n).$$

Prove that, when all the C's are positive, the sufficient and necessary condition in order that these equations may be soluble in positive quantities is that no one of the n quantities C shall be greater than the sum of all the others; and, furthermore, if this condition is satisfied, and all the C's are positive integers, one or more solutions of the equation-system can always be found in positive integers.

10555. (Professor HAUGHTON, F.R.S.)—If chemical atoms obey the Newtonian Law of Gravitation, of the inverse square, and have special coefficients of their own: show that a molecule formed of three atoms α, β, γ, with attraction coefficients $(\beta, \gamma \ldots \lambda)$, $(\gamma, \alpha \ldots \mu)$, $(\alpha, \beta \ldots \nu)$, may be represented by the steady motion of a triangle, with α, β, γ placed at its angles, revolving round the common centre of gravity of α, β, γ. Find (1) the rotation, and show (2) that the sides of the triangle are proportional to $\sqrt[3]{\lambda}$, $\sqrt[3]{\mu}$, $\sqrt[3]{\nu}$.

—556. (Professor NEUBERG.)—Quatre forces parallèles, dont les points d'application sont situés dans un même plan, se font équilibre. On applique chacune d'elles au centre du cercle passant par les points d'application des trois autres. La direction des quatre forces restant la même, démontrer que l'équilibre existe également dans la nouvelle position.

—557. (Professor NILKANTA SARKAR.)—An electric cable is laid between two ports, and it is found that the gross annual receipts amount to 20 per cent. on the original outlay: the annual cost of repairs is 2 per cent. on the original cost, and the expense of working is found to be £600 a year in addition to 20 per cent. on the net receipts. After a year, a second cable is laid down, and it is found that the gross receipts and the expense of working are doubled, while the cost of repairs for the new cable is only 1 per cent., and that the *net* receipts now amount to £14500. Find the cost of a cable and the net receipts for the first year.

—558. (Professor EMMERICH.)—If A_1 be the projection of the orthocentre of a triangle on the median drawn from A_1, and A_2 the projection of the circumcentre on the symmedian from A; prove that A_1, A_2 are the foci of an inscribed ellipse touching the Brocard-ellipse on BC.

—559. (Professor LAMPE, LL.D.)—Let A be the upper end, F the foot, of a vertical staff $AF = l$, standing on the horizontal plane at F under the latitude ϕ; then, if the declination of the sun is supposed to be constant during a day, the shadow of A is known to describe in our latitudes one branch of an hyperbola the declination being $+\delta$, the other branch if the declination is $-\delta$. The asymptotes of all these hyperbolas for different days envelope a parabola tangent at its vertex to the straight line described by the shadow of A on the days of equinox, and having the latus rectum $4l\,tg\phi$. The locus of the extremities of the conjugate axes of all hyperbolas is again a parabola with the latus rectum $l\,tg\phi$. [These theorems hold, similarly, for the sections of a series of coaxial and concentric cones of revolution by an arbitrary plane.]

—560. (Professor GENESE, M.A.)—If $\{a_1 b_2 c_3 \ldots\}$ be a determinant, and $a_\alpha b_\beta c_\gamma \ldots$ a term, prove the following rule for the sign of a term:—Let p be the number of suffixes after α and *less than* α; q, r, &c. the corresponding numbers for β, γ, &c.; then the sign of the term is $(-1)^{p+q+r\ldots}$.

—561. (Professor ZERR.)—If F = (force) = $\mu r^{-5}(5r^2+8c^2)$, and a particle be projected from an apse at a distance c with the velocity from infinity, find the equation of the orbit.

—562. (Professor MORLEY.)—Let there be three parallel rectilinear vortices in an infinite mass of fluid. Let a cross section meet the vortices at ABC. Prove that (1) the motion of any vortex A is at right angles to AK, where K is the symmedian point; and (2) the particles at foci of the maximum ellipse inscribed in ABC are instantaneously at rest.

—563. (Professor CATALAN.)—Résoudre, complètement, l'équation

$$(x^3-3qx+p^3-3pq)^2-4(px+q)^3 = 0.$$

—564. (Professor SYAMADAS MUKHOPÂDHYÂY, B.A.)—Find the chance that a plane which intersects a sphere of radius R also intersects another sphere of smaller radius r, examining the three cases when the second sphere (1) lies wholly within, (2) lies wholly without, and (3) intersects the first sphere.

—565. (Professor BERNÈS.)—On considère un triangle quelconque ABC, le centre I du cercle inscrit et le point M symétrique de A, relativement au milieu de BC. Par M, on trace MD perpendiculaire à BC et ME, MF faisant, avec BC, deux angles égaux à l'angle A, l'un de même sens que l'angle de AB avec AC, l'autre de même sens que l'angle de AC avec AB. Ces trois droites rencontrent respectivement IA, IB, IC en A′, B′, C′. Démontrer que $MA' = a \tan \frac{1}{2}A$, $MB' = b$, $MC' = c$. On fera voir aussi que, si E′, F′ sont les rencontres de ME et MF avec IA, on a la relation $1/ME' + 1/MF' = 1/R \cot \frac{1}{2}A$; où R est le rayon du cercle circonscrit à ABC, et où ME′ et MF′ doivent être affectés de signes selon le sens de AI où tombent E′ and F′.

—566. (Professor SCHOUTE.)—In a plane on a given conic C and a given line l are marked two homographic divisions. If any point P of the plane is joined by the lines p_1 and p_2 to the two points of l, which correspond to the points common to C, and to the polar of P with reference to C, examine, when P varies, (1) the relation between the point P and the couple of lines (p_1, p_2), (2) the relation between the two lines p_1, p_2 of a couple.

—567. (Professor WOLSTENHOLME, M.A., Sc.D.)—At the point P $(am^2, 2am)$ of the parabola $y^2 = 4ax$ is drawn the circle of curvature to the parabola, and the remaining common tangent to the circle of curvature and parabola touches them respectively in P′, P″; prove that (1)

$$P'P'' = 16am^3(1+m^2)^{\frac{3}{2}}, \quad PP' = 8am(1+m^2)^{\frac{3}{2}}/(1+4m^2)^{\frac{1}{2}};$$

(2) $$PP'' = 8am(1+m^2)^{\frac{3}{2}}(1+4m^4)^{\frac{1}{2}};$$

(3) if Q be the remaining common point of the circle and parabola, the tangent to the circle at Q will make with the directrix an angle three times that which the tangent at P does, and the chord of the parabola along this tangent $= 2P'P''/(1-3m^2)$; and (4) if R, T be the points of intersection of P′P″ with PQ, and the tangent at P, respectively,

$$TP : TP'' = P'R : RP'' = 1 : 1+4m^2.$$

10568. (Professor DE LONGCHAMPS.)—Soient A, B, C trois points en ligne droite. Par A, on fait passer une droite mobile Δ, et des points B, C on abaisse, sur Δ, des perpendiculaires BB′, CC′. Trouver le lieu décrit par le point de concours des diagonales du trapèze ainsi formé.

—569. (Professor TARRY.)—Le rapport anharmonique de quatre points A, B, C, D d'une conique est égal à la racine carrée du rapport anharmonique du faisceau P (ABCD) qui a pour centre le pôle P de la droite AB.

—570. (Professor MORIZE.)—Construire un triangle sachant que les côtés passent par trois points donnés en ligne droite;—que deux des sommets se trouvent sur deux parallèles données, et qu'enfin la médiane issue du troisième sommet a une longueur connue.

—571. (The EDITOR.)—Solve the equations

$$x^2(y-1) = x+z, \quad x(y-x^2) = 1-z, \quad yz(y+1) = 3(1+2z).$$

—572. (R. TUCKER, M.A.)—Tangents to a parabola at the points P, Q, R, form a tangent-triangle pqr, whose sides make angles θ_1, θ_2, θ_3 with the axis of the curve. Show that (1) the rectangular coordinates of the "S"-point of pqr are given by

$$X = \frac{2a}{D}\left\{\sin(\theta_1+\theta_2+\theta_3) + \Sigma\sin(\theta_1+\theta_2-\theta_3) - \frac{\Sigma\sin(\theta_1+\theta_2-\theta_3)+\Sigma\sin(\theta_1+\theta_2-3\theta_3)}{2D'}\right\},$$

$$Y = \frac{a}{D}\left\{\frac{\Sigma\cos(\theta_1+\theta_2-\theta_3)-\Sigma\cos(\theta_1+\theta_2-3\theta_3)}{D'} - 4\cos(\theta_1+\theta_2+\theta_3)\right\},$$

where $D \equiv 8\sin\theta_1\sin\theta_2\sin\theta_3$, $D' \equiv 1-\cos(\theta_1-\theta_2)\cos(\theta_2-\theta_3)\cos(\theta_3-\theta_1)$; (2) if two of the tangents are drawn at the extremities of the L.R., then the locus of the "S"-points is

$$Y^2(2X+3a)+(2X+a)(X+a)^2 = 0;$$

and (3) if the angles made by the tangents are θ, $\frac{1}{2}\pi+\theta$, and $\frac{1}{2}\pi-2\theta$, then the locus is $4\lambda(4-\lambda)y^2 = a^2[\lambda^2-\lambda+4]^2$, where $2X+3a = a\lambda$.

—573. (H. W. SEGAR.)—If $z = f_1(y+a_1x)+f_2(y+a_2x)$, prove that the equation $f(c).r+e.s+t = 0$ cannot have a tac-locus.

—574. (H. FORTEY.)—Show that, when the cards are dealt out at whist, the probability that every hand contains one or more cards of each suit is ·8161049..., or the odds are about 9 to 2 in favour of the event.

—575. (W. J. C. SHARP, M.A.)—Prove that the twelve centres of similitude of the four circles which touch the three sides of a triangle are the angular points, each taken twice, and the feet of the external and internal bisectors of the angles.

—576. (D. EDWARDES, B.A.)—The boundaries of a membrane are two confocal ellipses, and are fixed in space. The density at any point varies inversely as the product of the distances of the point from the foci. Show that there are modes of vibration in which the nodal lines are ellipses confocal with the boundaries, the periods being given by

$$P = \frac{1}{i\pi}\left(\frac{2\pi M}{T}\log\frac{a+b}{a'+b'}\right)^{\frac{1}{2}},$$

where i is an integer, M the mass of the membrane, T the tension, a, b and a', b' are the semi-axes of the outer and inner boundaries.

—577. (H. J. WOODALL.)—A certain complex quantity has the operation $(\ldots)^2$ repeated on it a number of times (producing the series, say, k, k^2, k^4, $k^8 \ldots k^{2n}$, &c.). If the values recur, in a period of q, required an investigation of the form of the complex.

—578. (W. J. GREENSTREET, M.A.)—A circle passes through a fixed point on an ellipse, and has its centre on the same curve; prove that (1) the circle envelopes a quartic; (2) the quartic has a cusp at the fixed point; and (3) the tangent at the cusp is a normal to the ellipse.

—579. (MORGAN BRIERLEY.)—A variable circle touches another given in magnitude and position, and also a line given in position; determine the magnitude and position of the variable circle when the line joining the centres makes a given angle with the line given in position.

—580. (D. BIDDLE.)—The centroids of an equilateral triangle and of a square in the same plane coincide, and the relative sizes of the two figures are such that the incircle of one does not exceed the circumcircle of the other. Find the mean coincident areas, (1) for particular relative sizes, (2) for all relative sizes, within the given limits.

—581. (WALTER STOTT.)—Three lines are given in a plane; find the point where they all appear equal.

10582. (R. Knowles, B.A.)—The equation to a conic referred to a tangent and normal as axes, being $ax^2+bxy+cy^2+gy=0$; prove that, e being the eccentricity, the equation to its transverse axis is

$$\{4a(a+c)-(2-e^2)(b^2-4ac)\}x+2b(a+c)y+bg(2-e^2)=0.$$

—583. (J. MacNeill, M.A.)—Find the content, in gallons, of a circular-section basin, 6 feet in perpendicular height, the diameters being:—at base, 1 foot; at 1 foot perpendicular height, 2 feet; at 2 feet perpendicular height, 4 feet; and so on, the diameter being doubled for every foot of perpendicular height.

—584. (E. M. Langley, M.A.)—O is any point in the plane of a triangle ABC. If AO, BO, CO cut the circumcircle again in A′, B′, C′, and D, E, F are the projections of O on BC, CA, AB, show that triangles A′B′C′, DEF are directly similar, and that O in A′B′C′ corresponds with the isogonally inverse point of O in DEF; also, use the theorem to demonstrate the existence of cosymmedian triangles having the sides of each proportional to the medians of the other.

—585. (J. J. Barniville.)—The asymptotes of three equal hyperbolas coincide in pairs so as to form an equilateral triangle; the trilinear equation of the curve being $\alpha\beta\gamma\pm d^3=0$, find the intercepted area.

—586. (J. O'Byrne Croke, M.A.)—If the general equation of the second degree $ax^2+2hxy+by^2+2gx+2fy+c=0$ represent a parabola, prove that, if Δ be the discriminant, and

$$\frac{d\Delta}{da}=\mathrm{A},\quad \frac{d\Delta}{db}=\mathrm{B},\quad \frac{d\Delta}{dg}=2\mathrm{G},\quad \frac{d\Delta}{df}=2\mathrm{F},$$

the vertex is

$$x=\{(a+b)^2\mathrm{A}-a\Delta\}/\{2(a+b)^2\mathrm{G}\},$$
$$y=\{(a+b)^2\mathrm{B}-b\Delta\}/\{2(a+b)^2\mathrm{F}\}.$$

NOTICE TO CORRESPONDENTS.

Correspondents should be careful (*a*) to write each Question and each Solution on a *separate* paper (otherwise, when used for printing, the Editor has the labour of entirely *re-writing* such articles); (*b*) to make their Solutions as short as possible; (*c*) to send all Questions *early in the month*, but not to send Solutions till their Questions have been published; (*d*) to write their names at the *top* of *each* paper; (*e*) to *prepay* the postage in *full*; and (*f*) to send all communications to

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THE LONDON MATHEMATICAL SOCIETY.

Thursday, April 3rd, 1890.—J. J. Walker, Esq., F.R.S., President, in the Chair. Mr. E. J. Brooksmith, M.A., Instructor in Mathematics, Royal Military Academy, Woolwich, was elected a Member.

The following communications were made:—"On the Properties of some Circles connected with a Triangle formed by Circular Arcs," R. Lachlan, M.A.; "Some Properties of Numbers," R. W. D. Christie; "The Modular Equations for $n=17, 29$," R. Russell, M.A. (communicated by Prof. Greenhill, F.R.S.). A question as to the novelty of the following problem was put by the Secretary on Mr. Russell's behalf:—"*A, B, C, D* are any four points: show by elementary geometry that they subtend equianharmonic pencils at the four orthocentres of *ABC, BCD, CDA, DAB*, and that the values of the six common anharmonic ratios are

$$\frac{\nu^2-\lambda^2}{\lambda^2-\mu^2},\quad \frac{\lambda^2-\mu^2}{\mu^2-\nu^2},\quad \frac{\mu^2-\nu^2}{\nu^2-\lambda^2},$$

and their reciprocals, where λ, μ, ν are the lengths of the lines joining the mid-points of (*AB, CD*), (*BC, AD*), (*CA, BD*)."

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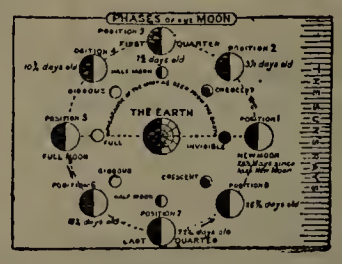

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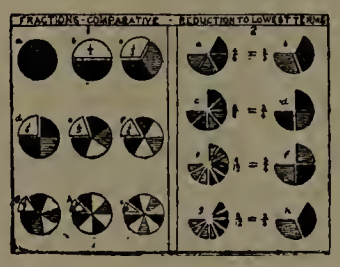

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16603. (i.) Eng. Gov. for Math., Lat., and Gen. subj. 40*l.* to 50*l.* res.
(ii.) Foreign Gov. Ger., Fr., and fair Mus. Salary according to qualifications.

16604. Jun. Master. Math.

16605. Master. Frenchman, or Englishman who has resided in France, and can teach French well, Ger. (not essential), elem. Lat. and Eng. subj. 35*l.*

16606. Eng. subj., Math., Bkkpg., Fr. (conv. and gram.), Lat., Mus., Class Sing., Ndlwk. (plain). 30*l.* to 40*l.*

16607. (i.) Eng. subj., fair elem. Lat., Euc., and Alg. 25*l.* to begin with.
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16615. Eng. Gov. to teach thoro. good Mus., Arith., some Alg., Euc., and Lat. 30*l.*

16616. (i.) Fr. or Swiss Gov. to teach Fr., and to assist in the general supervision of the school. Mutual terms, or small Salary.
(ii.) Articled Pupil, paying half fees.

16617. Junior Master.

16621. Gov. for a little girl and jun. boys in school. Ndlwk., Eng. subj., Mus., fluent Fr. (acquired in France), Paint. 25*l.* to 30*l.*

16622. Jun. Master. Eng., Lat., Fr., Mech., Math., Draw. 40*l.* about.

16624. A Grad. for a school in Tasmania. Good Class., Lat. and Gk. (prose and verse). To pay own passage. Salary to commence date of embarkation. A knowledge of some other Sci. other than Chem. 150*l.* non-res.

16626. Master. Good discipline, prepare for C.P. Exam., Jun. Camb. and Sen. Camb. 60*l.* to 70*l.* non-res.

16627. Fr. or Swiss Young Lady. To teach about two hours a day. Fr. and assist with Kindergarten, in return for lessons in Eng. and accomplishments. Mutual terms, laundress, and good home.

16630. (i.) Jun. Gov.
(ii.) Gov. pupil to teach Eng. in return for accomplishments and small premium, or reciprocal terms.

16631. Youth about 17 years of age, 12 to 15 hours teaching and superintend evening preparation, in return for full board, and instruction either in Class., Math., or Modern Com. subj. in the school classes.

16632. Jun. Master. Age 16 to 20. Mutual terms.

16633. Gov. student. Lessons in Fr., Mus., to prep. for Camb. and C.P. Eng. or Ger., Draw., Paint. Mutual terms if non-res.; if res., small premium.

16634. Ger. Master. Lat., and help with other subj., Mus. preferred. Mutual terms.

16635. Gov. student. Must be accustomed to school routine, a knowledge of Mus. and Theory necessary. Advantages will be given.

16636. Gov. Eng. subj., Mus., Lat., for two little girls, ages 6 and 7, and assist two boys. 25*l.*

16637. Gov. if French lady to teach Fr., Ger., a little Mus.; if English lady, to teach Fr. (acq. abr.), conv. and gram., to girls preparing for the Higher Loc. Exam. Commencing salary 40*l.*

16638. Jun. Gov. To state age, height, and salary required (which must be small).

16639. Master (Jun.). Fr. and Ger. Mutual terms.

16640. (i.) Kindergarten., Expd., Jun. Mus. afternoon work in boys' preparatory class and junior girls.
(ii.) Gov. Student, to be trained as Kindergarten and receive lessons in Languages and Music. Premium 25*l.*–30*l.*

16641. Daily Gov. to take charge of Girls' Sch. of 38 pupils. Thoro. Eng., Fr., Draw., Domestic and Pol. Econ., Physiol., Calisth., Ndlwk. (good). 1*l.* a week during school term.

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16646. Jun. Master. Eng., Math., Lat. (elem.), and assist generally. Disciplinarian. 10*l.* to 15*l.*

16648. Master. Ger. and Fr. 45*l.* If with Mus. adv. Piano, and Class Sing., 65*l.*

16649. Jun. Master, for Jun. Eng. subj. and Ger., and perhaps Fr. About 50*l.* res.

16650. Gov. Thoro. Eng., good Mus. and Sing., Fr., Ger. (elem.), Arith. (adv.), Alg. 20*l.* to commence.

16652. Gov. Good Mus. (pract. and theory), Draw and Paint., Ndlwk., Jun. Eng. and Fr. (occasionally), Violin player preferred. 20*l.* to 25*l.*

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16655. Jun. Master, with about Lond. Matric. Standard. 40*l.* non-res., and help in reading.

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16659. Gov. Student. 21 guineas premium.

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16661. A Young Lady as Articled Pupil could receive lessons in Fr., Mus., Draw., and be prep. for Exams. Premium 15*l.* to 18*l.*

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21887. Eng., Math., Sci., Class., Mus., Sol-fa, Shorth. M.A. Glasgow. Non-res. from 45*l.* Age 35.

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9838. Eng. subj., Arith., Lit., Phys., Geog., Fr., Ger. (elem.), Draw. (fr.), Mus. (good), Sing. Sen. Camb. Res. 40*l*. to 50*l*. Age 27.

9839. Eng. subj., Fr., Ger., Lat., Math., Draw., Mus. (piano and theory), Ndlwk. 2nd Cl. C.P. Res. 30*l*. Age 21.

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9850. Eng., Draw. (elem.), Mus. (good), Ndlwk. Res. 21*l*. Age 28.

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9855. Eng. (thoro.), Mus., Fr., Ger., Lat., Draw., Bkkpg., Ndlwk. (plain and fancy). 2nd Cl. C.P., with distinction 1st Div. Non-res. Age 34.

9857. Eng., Mus., Fr., Draw., Ndlwk. Res. 20*l*. to 25*l*. Age 22.

9858. Eng. (thoro. and adv.), Fr. and Mus. (good), Lat. (fair), Draw. (elem.). Camb. Cert. for Women. Non-res. 50*l*. to 70*l*. Age 45.

9859. Eng. and Arith. (adv.), Mus. and Draw. (good), Fr. (fluent), Ger. (good), Pol. Econ., Phys., Lat. and Paint. (elem.), Alg., Harm. Res. 40*l*.; non-res. 60*l*. 1st Cl. C.P., Sen. Camb. Age 21.

9860. Eng. and Arith. (thoro.), Fr. (gram.), Euc. (elem.), Lat., Alg., Draw. (free.), Mus. (theory), Bkkpg., Ndlwk. Sen. Camb., 1st Cl. C.P. Res. 20*l*. to 25*l*. Age 20.

9861. Kindergarten, Arith., Mus., Physiol., Bot., Zoo., Fr., Eng. subj. 1st Cl. Cert. for Kindergarten, Cert. for Mus. Res. 40*l*. to 50*l*.; non-res. 80*l*. to 90*l*. Age 23.

9862. Eng., Fr., Draw., Mus. (adv.), Ndlwk., Theory and Harmony. Non-res. from 30*l*.

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9865. Mus., Sing., Draw., Paint., Fr., Eng., Arith., Ger., Sci., Eng. Lit. Res. 70*l*. to 100*l*., or non-res. Camb. H. Loc., Univ. Coll. Age 40.

9866. Kindergarten (good), Mod. in Clay, Draw. Calisth., Sing., Mus., Elocution, Lit., Shakespeare. Non-res. or Visiting. Eloc. and Dram. Art. (Cert. and Medal, Brandram). Age 26.

9867. Draw. (freehd., med., geom., and persp.), Paint. (oil and water col., nat. and life, decorative designs). A.C.T. Cert., Bronze Medal, and numerous Prizes. Non-res. or Visiting. Age 29.

9868. Eng. subj., Arith., Fr. (conv.), Mus. (piano), Theory and Har., Draw. (freeh., mod., and geom.), Bkkpg., Maths. (elem.), Danc., Calisth., Ndlwk. R.A.M., Sen. Hons., Trin Coll., 4 S.K. Certs. for Draw., Soc. Prof. Music Prize in Har. Non-res. 40*l*. Age 23.

9869. Eng. subj., Arith. (adv.), Physiol., Alg. (elem.), Mus., Theory, Piano, Harm., Class Sing., Fr. and Ger. Non-res. 90*l*., or res. 50*l*. (from). Age 30. 1st Cl. C.P., A.C.P. Dip., Sen. Exam. R.A.M.

9872. Mus. and Theory (thoro.), Fr. and Eng. (elem.), Two Exams. R.A.M. Res. or non-res. Age 20.

9873. Eng., Arith., Euc. and Alg. (elem.), Fr. and Ger. (acq. abroad). Camb. Hons. Local. Non-res. 100*l*. Age 40.

9875. Eng. subj., Arith., Draw. (freeh., mod., persp., and geom.), Mus., Theory and Pract., Fr. (conv. and gram.), Pol. Econ., Script., 1st Cl. C.P., Trin. Coll. for Mus. Hons. Non-res. in Family, 35*l*. (from). Age 24.

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AND

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COLLEGE OF PRECEPTORS.—

EXAMINATIONS FOR 1890.

1. DIPLOMAS.—The Midsummer Examination of Teachers for the Diplomas of the College will commence on the 1st of July, and the Christmas Examination on the 30th of December.

2. CERTIFICATE EXAMINATIONS.—The Midsummer Examination for Certificates will commence on the 17th of June, and the Christmas Examination on the 9th of December.

N.B.—The Higher Certificates of the College are recognised by Her Majesty's Judges, and by the General Medical Council, as guarantees of good general education; and consequently the holders of them, who may be intended for the Legal and Medical Professions, are exempted from the necessity of submitting to the Preliminary Literary Examinations held by the Incorporated Law Society, and by the various Medical Corporations of the United Kingdom. The Lords of the Committee of Council on Education admit the holders of the same Certificates, without further examination, to the Competition for allowances granted to Students of the Junior Training Class of the National Art Training School. All the College Certificates above the Third Class, the holders of which have passed an Examination in Latin, are also recognised by the Pharmaceutical Society and the Royal Veterinary College.

3. EXAMINATIONS FOR CERTIFICATES OF PROFICIENCY IN MERCANTILE SUBJECTS.—The next Examination will take place on the 16th of June.

4. PROFESSIONAL PRELIMINARY EXAMINATIONS.—These Examinations are held in March and September. The next Examination will commence on the 9th of September.

5. INSPECTION OF SCHOOLS.—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

PRIZES.

Diploma Examination.—In addition to the Doreck Scholarship of £20, the following Prizes will be competed for: Theory and Practice of Education, £10; Classics (Greek and Latin), £5; Mathematics, £5; Physical Science, £5.

Certificate Examination.—The "Isbister Prize" will be awarded to the Candidate who stands First, and the "Pinches Memorial Prize" to the Candidate who stands Second in General Proficiency. Prizes of Books will also be awarded to the Third and Fourth in General Proficiency, and to the First and Second in the following subjects:—Classics, Mathematics, Modern Languages, Natural Science, English Subjects. The "Taylor Jones Memorial Prize" will be awarded to the best Candidate in Scripture History.

The Regulations of the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

PRELIMINARY EXAMINATION of MEDICAL STUDENTS.—The COLLEGE of PRECEPTORS will hold an Examination for Certificates recognised by the General Medical Council as qualifying for Registration as a Medical Student, on the 9th, 10th, and 11th of September, 1890.

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C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—

(Bloomsbury Square, W.C.)

The next Monthly Evening Meeting of the Members will take place on Wednesday, the 25th of June, when J. SCOTT KELTIE, Esq., will read a Paper on "The Teaching of Geography, with special regard to Commerce and Industry."

The Chair will be taken at 7.30 p.m., and a discussion will follow the reading of the Paper.

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C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—

The Half-Yearly General Meeting of the Members of the Corporation will be held at the College, Bloomsbury Square, W.C., on Saturday, the 26th of July, at 2 p.m. C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—

SCHOLARSHIPS FOR INTENDING TEACHERS.

With the view of encouraging the systematic training of teachers for their profession, the Council have established four Scholarships (two for male and two for female candidates), which will be offered for competition at the Certificate Examination in June, 1890.

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English	The Principal.
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II. *Science.*

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EVENING MEETING, MAY 14TH, 1890.

THE Chair having been taken by the Rev. Canon DANIEL, H. COURTHOPE BOWEN, Esq., M.A., read the following paper on

CONNECTEDNESS IN TEACHING;
OR,
THE SCHOOL CURRICULUM AS ONE ORGANIC WHOLE.

It is not my intention this evening to plead for the introduction of any new subjects into the programmes of our schools; nor shall I attempt to show you that we have adopted any which we might very wisely neglect or altogether exclude. My endeavour will rather be to lay before you, for your consideration, certain broad general principles which have, or should have, a most important bearing on the scope and the method of treatment of such subjects as necessity or chance or your own free will has already led you to choose. But I shall not restrict myself to the region of general principles. I shall try to show you what results of value in practice readily follow from their application, and so prove to you that the principles themselves are well worthy of your attention.

The subjects which compose the curriculums of our schools have been imported into them for a variety of reasons, of which fashion has always been one of the most powerful. The general public and the founders of schools have from time to time decided what parts of knowledge every well-informed adult should possess, and have then demanded—if demand it can be called—that these parts should form the material of the instruction given in schools. At first it was only Latin and religion; then, in the sixteenth century, Greek was added; in the seventeenth century Hebrew was at times inserted in the programme, and Evelyn tells us in the year 1655 that Arabic as well had a place at Westminster School. We ourselves have seen the advent of mathematics, and foreign languages, and, later still, of science; while the latest popular demand of all is for the teaching of trades in our elementary schools.* Chance, or fashion, or the narrow needs of the counting-house, or the almost as narrow view of eager specialists—whose advice so often reminds one of Euclid's definition of a line, "length without breadth"—these have had most to do with the composition of our curriculums. Seldom, or never, for this reason or for that, has the composition of a school curriculum, at any rate for children above the Kindergarten age, entirely, or even chiefly, depended on a scientific estimate of the educational values of subjects. We have not troubled ourselves with finding out what these values are, nor even with inquiring from the solitary students of educational science whether they know anything about the matter. It is as portions of information, not as instruments of education, that subjects have been given a place in our schools; and when so brought together they are given as little cohesiveness, as little true organic inter-relation, as the marbles in a boy's bag. While such educational values as have been stuck on to them *after they have been chosen* are almost wholly due to learned fad or private fancy.

But this is not all. Suppose that for the time being we waive the question as to what subjects should be taught, there still remain the even more important questions, what *parts* of the subjects shall we select, and how shall we treat them? Shall we select the parts as of future use to the man, or as of present use to the child? Shall we deal with the knowledges as things isolated and self-sufficient, or as having organic relations with the work of the school as a whole? Shall we treat each subject on lines solely dictated by some logical arrangement of the subject itself, or in such an order and way as to keep it continuously in living relations with the needs of child mind? As to how most of you would answer these questions I have no manner of doubt. What I hope to be able to do is to give you my reasons for agreeing with you, and to show you how you may give practical effect to your answers in your everyday work.

Information becomes knowledge when we understand it—understand it in such way as to be able to put it to its simple natural uses. To understand a fact or a thing is to assimilate it to, or class it with, other facts or things; or, if the thing be complex or possess many qualities, we may advance a step further, and seek to comprehend the relations of its parts to one another, and the likeness and unlikeness of these relations to those which exist between the parts or qualities of other things. The history of the growth of human knowledge has been the history of growth in the comprehension of the relations between things—based on careful observation and experiment. I need only mention the names of Darwin and Wallace, Spencer, Faraday, and Joule, to remind you of the splendid advances of this particular kind which have been made in our own day. We discriminate and separate in order to observe more accurately; but the ultimate aim, the triumph, of observation is the discovery of relations. If we, as teachers, will bear this in mind—that to produce understanding we must make clear and establish relations—we shall see that, to make a new *subject* intelligible to our pupils, we must make clear and establish its relations to other *subjects* already known. And I would go further than this, and say that we must *maintain* those relations. The young are not strong in futurity—cannot realize strongly a far-off aim or advantage—cannot, like a Darwin, wait half a lifetime to set forth a great theory, which has stirred all the minds of his generation, and like the rain in spring has made all the fields of knowledge fruitful, whatever crop they grow. The young want something more immediate, and often repeated. Their interest—and with interest their power of maintaining connections—is fluctuating, liable to vanish, and needs frequent renewing and refreshment. Interest, that most potent factor in attention, which again is itself one of the most powerful factors in understanding, and therefore in education—interest lies in connection, not isolation. A thing for its own sake, even art, is seldom very interesting for long, even to adults. It is in the multitude and nature of its connections and suggestions that lasting interest lies. This is still more strikingly true in the case of children—and their questions are always telling us this, if we would but listen and try and make out their meaning. "What is this for?" "Is so and so like this?" "Who made the rain?" and so on, and so on—all endeavours to get some kind of link between what is interesting them at the time and something else.

Again, interest lies in making use of knowledge, in seeing its bearing on what we and others do, which is a realizing of the connection between theory and practice, between knowing and doing. It lies, too, in discovering causes—another form of connectedness. It is hardly necessary for me to remind teachers of the great value of creating in a learner the feeling of the need of a fact, or of that genus (or that species) of the knowledges of fact which we call a *subject*. The need of a subject, how little we bear in mind the necessity that our learners should feel it! Nor do we often feel it ourselves—except for examination purposes. When the child or the adult learner blurts out the statement

* It is to be hoped that teachers may be successful in persuading the public to change this demand into one for something of true and great educational value, viz., manual training.

that "he does not see the use of learning this or that subject," are we not wont to put it down to dulness, or to indolence, or to sheer impertinence? But it is not impertinent at all; on the contrary it is very *pertinent* indeed, and should reveal to the teacher that he is letting the subject slip out of its proper relationships in the learner's mind, out of its organic connections with his other knowledges. Similar statements may be made with regard to the creation and maintenance of the feeling of an aim, and to the feeding and using of curiosity—in both of which the element of connectedness is very marked and very important; and we all know how much easier it is for the memory to carry what is connected than what is disconnected and isolated,—words, for instance, in a sentence, connected so as to express an idea, are easier to remember than as a string of separate items, as Comenius so often pointed out; while it is evident at once how important a part is played by *connecting* in all the processes of constructive imagination, conception, judgment, and reasoning.

Another valuable means of promoting interest and attention, and so of ultimately producing understanding, is *novelty*. And what better plan can we adopt for continually imparting this sense of novelty to a subject than by bringing out now its connection with this other subject, now its bearing on that, now its power to supply a link in an argument elsewhere, now its value in checking some too hasty generalization in another department—this in addition to, and far more than, all possible variation internal to the subject itself. Dramatists, poets, painters, men of science, have long ago shown us that novelty and interest lie but little in the change of the material employed: they lie rather in change, in the variety, of the connections and relations expressed by the same material. And, furthermore, what is there which strikes us with greater delight than the discovery of the new and wonderful in what is familiar and seemingly commonplace! And nothing produces this more frequently or more effectively than the noting of connectedness between subjects.

But some of you may say, "Why all this insistance on connectedness? Every subject which we teach, we always teach connectedly." Well, I will not contradict you, lest perchance I should seem rude; but I would ask you to remember that connectedness in a book or in a lesson, and connectedness in the learner's mind, are not necessarily the same thing. In a book, the order of the stages and the nature of the connectedness usually depend on some distant aim, some ultimate purpose, far beyond and out of reach of the young, or, at any rate, uninteresting to them. So Euclid wrote his Geometry as an introduction to his Astronomy; Hume wrote his History to expound his views of government; and so on. The adult may catch the clue, and may adopt as his own the line of interest and the kind of connectedness followed by the author; but, for the young, this is not always advisable, nor always possible. *Their* line of interest, and the connectedness *they* want, are not precisely the same as those of the adult, or of that particular adult, the author or teacher; and if, as we are so often told, the task of education does not consist in imparting ready-made information, but rather in exciting, promoting, and guiding inquiry, then it is absolutely necessary that, as a broad general rule, we should follow the lines of inquiry natural to, and so best suited to and most interesting to, the learner. It is for this kind of connectedness in a subject, and not for just any arrangement which happens to be logically coherent, that I am pleading to-night.

But there is another connectedness for which I have also been pleading, and the necessity for which I am still more anxious to make you see and feel—that between all the subjects of the school curriculum; such a connectedness as shall in every lesson make all the other knowledges of the child—or all of these that are possible—enlighten, enliven, and so render memorable the particular lesson he is learning; such a connectedness as shall bring all the subjects together, and keep them together, as parts of one organic whole; a system of school knowledge organized like the sympathetic-nervous-system of a human being.

The separation of knowledge into departments, subjects, distinct studies, is the work of the adult, and is for the adult,—a plan by which he can secure better observation and more definite experiment in his work as an adult, and more particularly as a scientific inquirer. But this withdrawing of attention from the many parts of the knowledge presented to us, and concentrating it continuously upon one part, this abstraction, is, like all other abstraction, very difficult for the young. To the great philosophic thinker all knowledge is one subject; just as to Darwin the ideas *genus, species, sub-species*, and the like are but different forms of the one idea *varieties*.* To the child also all the knowledge which interests him is one subject, though the *true* interrelations of its parts are unknown to him. It is only to us, who, like Mahomet's coffin, hang uncertainly between child and philosopher, that knowledge appears broken and disconnected,—written in a set of odd volumes which we cannot see are but parts of one great treatise. Most of us are given to protesting against specializing in schools, at any rate with pupils under a certain age—say twelve, or, better, fourteen. But what about specializing simultaneously in half-a-dozen different subjects, as we actually do? Is there anything to be said for it? To specialize is to concentrate attention on one subject to the exclusion of others; and this is what we do day after day with every subject in our school curriculum, treating it for the time being as if no other subjects existed, viewing it "in disconnection, dead, and spiritless." Even if we support specialization in the higher part of the school, as in adult study after it, surely he is the best specialist (in the higher school as outside it) whose subject consciously touches other subjects at most points, and draws strength and vitality from the most various sources. To paraphrase Grimm's famous paradox about languages, surely he who knows one subject only (if there be such a person) has no true knowledge at all—and to be ignorant of the inter-relations of subjects is very much the same thing. To know one subject far more thoroughly than any other subject is altogether a different matter—and this is the best definition of the true specialist, his knowledge of the bearing of other subjects on his own subject being taken for granted. But to return. The child, I have said, looks upon all knowledge as one subject, but does not know the *true* inter-relations of its parts; and it seems to me that the teacher's duty is, not to destroy this sense of unity, but to enlighten and perfect it, to make it truly understood, so that his knowledge may become what Herbert Spencer defines scientific knowledge, to be at any rate *partially unified*, with the hope that it may in the end grow into *completely-unified* knowledge—that is, true philosophy. To quote Herbert Spencer again, the most marked characteristic of growing and developing thought is unification; and in education, as in medicine and much else, we are finding that success is to be achieved only by rendering our measures subservient to that spontaneous unfolding which all minds go through in their progress to maturity. We must use the *child's* idea of connectedness, of unity—not our own—if we are to educate the child; seeking step by step to render his idea more clear, better defined, more accurate. I would plead, then, for the maintenance of this unity throughout at least the earlier stages of education, not only in the Kindergarten, but also in the school. And if, in the later stages of school life, we must partially specialize, it will then mean, not a complete loss of all sense of unity, as now, but only a temporary narrowing and deepening of attention with a full knowledge of the object in view; to be followed, we may hope, in adult life by a return in some measure to a search after unity, by some kind of effort to attain to a true understanding.

Now, I do not assert that every subject of a school curriculum can be brought into close connection with every other subject; nor that the degrees of closeness can be made the same in all cases. We might, perhaps, compose a curriculum in which both these conditions could be satisfied. But it would not *necessarily* be the best; for there are other principles to be considered, in addition to those now before us. Still, I think we may take it as highly probable, if not absolutely certain, that, as a general rule, if any subject, or the selected part of any subject, is found to have no very close connection with the rest of the curriculum, or is only indirectly connected, and that with very few of the other subjects, then the subject in question (or the selected part) has little or no right to a place in that particular curriculum, at any rate during the unspecialized period of school life. Here, then, is one test to apply to our curriculums as they at present stand, and to those new subjects which demand admission—not the sole test, but one of the most important. Again, since the degrees of relationship are not the same in all cases, it is evident that our subjects will tend to arrange themselves in groups, the contents of each group being united fairly closely to one another, but much less closely to other groups. This is particularly the case with mathematics—arithmetic, algebra, geometry, trigonometry—because they tend so soon to become formal and self-sufficient. But even then, in each group,

* So Herbert Spencer says in his *First Principles*, "Knowledge of the lowest kind is *ununified* knowledge; science is *partially-unified* knowledge philosophy is *completely-unified* knowledge."

one subject at least will be found to stand out pre-eminent for the number and directness of its relations to the contents of other groups; and I make bold to assert that such a subject is the one of greatest educational value. In the case of mathematics it is geometry — informal and practical at first, and gradually rising into the formal and theoretical. Need I point out that, as time goes on and education grows, and especially when the mathematical treatment of physics is introduced, this whole group reveals more and more its connections with other departments of knowledge?—while no teacher, one would fancy, can be so blind as not to see the nature and intimacy of its internal relations. Yet it is precisely these relations—the passage from arithmetic to algebra, from practical to theoretical geometry, the bearing of algebra on geometry, and of geometry on algebra — which we teachers habitually neglect, and De Morgan, with all his clearness and strength, seems to have pleaded with us in vain.

There is another way in which the principle we are considering will help us. We are constantly puzzled, when dealing with large and varied subjects, to know what parts we should select for our school course. Lecturers on geography and history are wont, at times, to startle and dismay us with descriptions of the amount and variety of what these subjects should contain, till it seems as if the whole time-table itself would scarce suffice for the hours that should be given to either. But, as Charles Lamb would say, it is only their fun. What they mean is that their subjects are intimately and variously related to many other subjects, are in consequence of great educational value, and should be treated with a continual consciousness of these relations. In arranging the contents of a geographical course for school children (not the teachers), I would place my geography successively beside the other subjects, and see what bearing they had on it, part by part, and what it had on them; from the materials so selected, I would chose those which are interesting and of educational value to the young; I would add such other material as is of essential *geographical* importance, and as is *really* necessary to enable me to make my geography connectedly intelligible; and I should be contented with that. The rest I should put, not into the children's memories, but into gazetteers and dictionaries—decidedly safer places. Much the same would be my plan with history; and in each case my course would be, not stereotyped for all, but progressive in three or four stages—progressive, not merely by accretions, but by internal development, which itself would largely mean growth in connectedness with other subjects. "But," breaks in the angry or broken-hearted specialist, "this is not geography! How can you have geography without . . . !" Plucking up my courage as I may, I answer: "Forgive me, but just at present we are considering education, not geography; or, rather, education by means of geography and other subjects." It is precisely because you specialists will make your subjects (though intended for school use) so formal, so pedantically complete and self-sufficient, that we teachers find them so hard to use educationally, and often long to turn them out of the curriculum altogether. We want to educate the young, not to make specialists in geography or history, or anything else. Indeed, it has long been my conviction that our school education, especially in the earlier stages, is far too formal, both as a whole and in its parts. We want a great deal more *informal* geometry and algebra, *informal* physics, *informal* botany, *informal* geography, *informal* language-teaching—yes, and *informal* drawing too,—a great deal more of all these than we get. We are so attentive to the subjects as subjects, and we isolate them so, that we lose sight of the learners' minds and *their* requirements. We seek to be considered as learned men, and forget that we are teachers. The principle of connectedness between subjects shows us our error. If the subjects of the unspecialized period of school life are to be connected—not at every point, of course, but like the threads of a net, or the nerves of the human organism—they cannot be kept strictly formal, and each shut up in its own water-tight compartment. The jealous barriers must be thrown down, that the inquisitive spirit of childhood may move freely through them all."

I might perhaps now take each subject one by one, and show you what should be its contents, as far as the principle of connectedness gives us any guidance. Or I might reverse the picture and show you the damage done in each case by isolation. How, from this cause, English composition, for instance, is the clumsy, sapless thing it is—having no vital connection with anything. How it could be intimately (and to their mutual advantage) connected with object-study and nature-study, with drawing, with art, with literature and history, and the rest, and so gain strength, and meaning, and even beauty.* But I fear that, in either case, I should only weary you with ceaseless repetition. Some of the more general aspects of the case will be more to the purpose.

Were we to attempt the task of arranging a curriculum on the principles I have been advocating, we might follow the lines of an ideal republic; or we might adopt a plan of a monarchical, or at any rate aristocratic, nature. In the former case, all our subjects would stand on a footing of free and equal citizenship, having their duties, public and social, to perform to their fellow-subjects; and also their private and domestic duties to their own families and to themselves. The discharge and interaction of these duties would constitute the life of the State—the microcosm of children's education. In the latter case, we should choose one or two, or even three subjects to be our rulers, and give them a properly ordered sway, while we placed the rest in due subjection under these rulers—relating them to one another, but laying more special stress on their intelligent and dutiful relations to those set in authority over them. I am almost afraid, in these democratic days, to say that I prefer the limited monarchy. I do not find, from the experience of others and from my own, that all subjects are equally suited to children up to the age of fourteen, or that it is wise or possible to *begin* them all simultaneously. Let us aim at and secure freedom—an intelligent freedom—by all means. But freedom of function does not imply equality of agents, and intelligent freedom should include intelligent submission to a common service for a common good; while we shall have made a long stride towards freedom if we only contrive to break down the walls and fill up the moats of the mediæval castles in which school subjects—so little subject to the school—have till now entrenched themselves. Did the decision rest with me, I should choose as our ruling subjects the knowledge of plants and of animals—an informal knowledge (growing, but only very gradually, more and more precise) of their external characteristics and habits, locality, uses to man, &c.—including man himself after a while. From which should develop simply, naturally, connectedly, all the rest—the study of form, of colour, of language, of number, of life, of material; beginning with the personally familiar, and proceeding to what is not so familiar, but still somewhat like, and so onwards, and diligently maintaining the mutual connectedness of everything at every opportunity. It will not require any great effort of imagination to see how the whole of the school curriculum gradually emerges from all this—in a somewhat similar way to that in which Madame de Portugall shows us, in her "Synoptical Table," that the whole of education emerges from the activities and subjects of the Kindergarten. Drawing (graphic representation first, and, later on, art) from the forms of leaves and flowers and animals; language (spoken, written, and sung) from the talks and stories about plants and animals and localities, with literature to follow later; geography from much the same sources, and from consideration of the effects of plants and animals (including man) on localities, and the effects of localities on them; history, in an informal shape, following close on its steps; natural science from almost everything, and particularly from the consideration of the effects on plants of the earth in which they grow, and of their need of water and air and light; geometry from the consideration of form and measurements and number; arithmetic, and that universal arithmetic which we call algebra, from the

* As a mere suggestion, I give the following to show, to some extent, what I mean. By "drawing" I mean, not Fine Art, but *graphic representation*, the value of which lies in the *effort to express oneself*, not in the beauty of the picture. 1. A simple object placed before the child, described orally by him *while it is present*, described in writing, and drawn. 2. An object (or an action)—as before, but now the description comes *after the object is removed*. 3. Short, simple narrative of a familiar and simple action read aloud by the teacher, and reproduced at once in writing by the child, (*a*) exactly, (*b*) with variations. 4. A scene or action described *from a picture*, (*a*) while present, (*b*) after removal. 5. An object (or collection of objects, or an action) drawn by the child from a description only. 6. Child to write a short, simple narrative from a few data (the story might also be composed in class *viva voce*, added to and modified by child after child). 7. Child to illustrate (in childish manner by graphic representation) the literature or the history, &c. he is studying. 8. Children's invention of simple episodes, bringing in the characters and circumstances of some book (story, history, &c.) they have just read in or out of school. They may describe their own experiments, and so on. It will easily be seen how every subject, except pure mathematics, may be brought in under some such plan. With a little care pure mathematics also may be made another form of expressing the child's own ideas and reasonings, and so be a kind of composition, instead of the mere rote-work it so often is.

same sources, and from observing the characteristics of plants and animals. But I have already finished our ordinary curriculum, and yet my resources are not nearly exhausted. I might add physiology (very informal, of course) and the consideration of some of those simpler conditions on which health and wise living depend. You will not, however, thank me if I add to the number of subjects; so I will merely ask you to bear in mind that I do not suppose these subjects only to start from the same origin, but always to have a living sense of that common origin, to draw continually fresh strength and new powers of growth from it, to minister freely and loyally to the ruling subjects, and constantly to develop connections with fellow-subjects, in every lesson every subject contributing all the help it can—in fact, to form together one organic whole, until the time comes when it is safe to narrow and deepen attention by some kind of specialization.

Is this merely the day-dream of a schoolmaster? I think not. It has shown itself from time to time more or less dimly in the thoughts of many writers on education. It becomes clearer in the minds of Comenius and Pestalozzi. But it is only distinctly evident as an underlying principle in the educational philosophy of Froebel, though even in his case we rather imply the principle than find it definitely and directly stated. In Herbert Spencer it can be seen in the background of his idea of the "unification of thought," though he makes no point of it in his tract on "Education." In Froebel it is the pre-requisite for his leading idea of the "unification of life." But in every good Kindergarten, and in the few schools which endeavour to carry the Kindergarten idea forward into higher education, you may see the principle to some extent realized in actual practice. No, it is not a dream; it is a principle of teaching which only requires to be more clearly expounded and more earnestly insisted upon. In the Kindergarten, the story of the week deals with the things which the children have been led to observe and take an interest in; it is illustrated by things collected from time to time by them or the teacher; it is used to improve the children's vocabulary and mode of expression; it is enlivened and dramatically made intelligible by the songs and games; and is pictured out, realized, and made the source of new interests by drawings, paintings, and a variety of objects freshly constructed by the children for the particular purpose. The story may prompt and direct the other work and play, or the work and play may prompt the story; it matters little which, so long as together they produce one organic whole. But the Kindergarten proper is only a model on a very small scale. What I propose is something which is much wider and which reaches further—something which, I trust, may before very long become a reality, and be seen by you all in this great town of ours.

I plead for unification of thought and unification of life by means of the unification of the materials of thought and unification of the preparation for life. And I base my plea on the psychological necessity of such a change in the means if we are ever to attain to such a result in the end; and on the fact that I do not ask you to increase the amount of your work, but only to add an interest, a novelty, an intelligibility to it which a true all-sided connectedness alone can give, and gives unceasingly. Alas! how often, instead of bending all our energies to attuning all the subjects, the instruments of knowledge, and to bringing out the full orchestral harmony of thought, we set our children to beating the big drum in the hope of collecting a crowd.

Mr. Heppel thought that one excellent illustration of the points that had been insisted on in the lecture was to be found in the admirable discourse on Spanish Art, recently delivered at the Royal Academy by Sir Frederick Leighton. In this the characteristics of the national art were explained by history, literature, geography, and ethnology. In school education it might perhaps be best, at first, to aim at a less complete unification. The kindred subjects in one group might be used to illustrate one another. When a boy learned Latin, French, and English in school, possibly also Greek and German, they were to him utterly independent and unconnected. Afterwards, in advanced works by great authorities, he came upon numerous illustrations and comparisons, many of which might easily have been taught him at the outset. He heartily agreed with the lecturer in his admiration of De Morgan, whose wise advice and pregnant suggestions as to teaching were yet far from completely utilised. On another point, however, he ventured to differ. He did not wish to see geometry placed above arithmetic and algebra, but rather that these, with trigonometry and mechanics, should be used to explain one another. The comparison of the effects of going round two sides of Bloomsbury Square, and of going from corner to corner, showed the contrast between ordinary geometry and the geometry of mechanics. The consideration of the square root of a negative quantity, which must come in at an early stage of algebra, when combined with the definitions of a sine and cosine, easily led to a graphic representation of De Moivre's Theorem, and from this the formulæ for sine and cosine of the sum of two angles might be deduced. Not that these truths should be reached solely by this road, but that the connexion between different branches should be exhibited. He scarcely liked to say a word about geography, feeling his great incapacity either to learn or to teach it; but, believing that memory here was especially required, he thought that memory by association should be cultivated, rather than mechanical learning by heart.

Mr. Baumann remarked that the want of harmony in our present schemes of study arose, to a great extent, from the fact that ours was an age of transition, and that we had tried to transplant Greek ideas and Greek culture upon an uncongenial soil. A good example of such a confusion of different elements of culture was seen in the period of Roman decadence, when the Greek sophists, as we were informed by Juvenal, greatly upset the notions and aspirations of the simpler Roman minds. In the mind of Plato, no doubt, the unity in education, which we so sadly lacked, had already been accomplished: but it should be borne in mind that Plato knew but one language, and that his scheme of studies embraced but two subjects, music and gymnastics in a wider sense. Would such a programme as this satisfy the modern mind which had passed through the school of Francis Bacon? He would have liked to hear the lecturer's opinion on the manner in which he wished the different school-studies to be linked together, and he thought that the connexion between study and study, subject and subject, would greatly depend upon what we considered to be the aim or object of education. The schools of the future, he hoped, would simplify their courses of study, and it might be so arranged that there were separate groups of schools, at least for the more advanced scholars. There might be mathematical schools, science schools, language schools, history schools, and so forth. For each group, the connecting link of studies would, then, of course, have to be an appropriate and a different one, and one central subject would have to lead and to give the tone to the school. For the mathematical schools, geometry might well be made the leading subject; with regard to science, he would rather refer to the elaborate discussion on this matter in the logical works of Bain. He was not quite sure whether Latin could be made the central subject of the language school, and he felt considerable hesitation in suggesting any connecting link for this very difficult group of subjects. As a practical schoolmaster, he saw just one danger in the excellent suggestions of the lecturer, when speaking of informal subjects, namely, the confusion of subjects, if left in the hands of unskilled teachers. In order to carry out the lecturer's idea with some prospect of success, it would be best to have but one teacher for one class. Rousseau might be called the father of informal teaching; for did he not recommend "Robinson Crusoe" as the only book and course of studies up to the age of fifteen? He expressed a hope that, in the good days to come, a Minister of Education, with his council of philosophers around him, would arrange and group the school-subjects for the schoolmasters, who were now left very much to grope in the dark for themselves, and to satisfy the requirements of Examiners.

Mr. Orchard considered that connectedness in teaching found its justification and its plea in the fact that, truth being one, and hence knowledge being one, all the various branches of knowledge were necessarily connected. The connectedness might be best exemplified practically by grouping together allied subjects—*e.g.*, Euclid, algebra, and trigonometry forming one group. Then the individual groups might themselves be grouped, whenever a connecting link was discovered. Connected teaching not only helped the pupil to understand better what he was taught, but also, and as a consequence, to recollect it better. In emphasizing the importance of connectedness, the lecturer was serving the cause of education. He had advocated connexion in the subjects taught, and had urged proceeding upon the lines of connexion already present in the child's mind. This was good counsel, but seemed to require supplementing. We ought surely to aim at improving the connecting faculty through cultivating the child's reasoning powers—say, by some training in Euclid or in logic. This would tend to preserve him from mistaking imaginations for facts, and assumptions for arguments, as had been done by Mr. Darwin and by Mr. Herbert Spencer. The distinction between knowledge and understanding might be expressed thus: Knowledge had to do with relations generally; understanding with those of cause and effect, precedence and consequence.

The Chairman said that the object of the paper was not so much to formulate a scheme, as to suggest that a spirit of connectedness should pervade the teaching of a school. Connectedness was indeed the very first condition of all teaching, and without which there could be no teaching at all in the proper sense of the word. There might be an apparent division according to the various subjects of study, but in reality a thread of connexion ran through them all. This relation of subject to subject necessitated a regard to the order in which the various subjects should be presented to the learner; but, in the earlier stages of education, when unformed minds had to be dealt with, it was necessary to handle the subjects in an informal way, allowing them more or less to run into and overlap one another. Then there was connectedness of another kind to be considered, viz., psychological connectedness

according to the development of the qualities of the mind. There was also the larger question of the organization of our educational system—the different grades of schools and the connexion between them, the connexion between home and school, between school and college, between college and the business of life. One of the great difficulties in establishing the connectedness was the division of knowledge, and the division of labour, in the ever-advancing development of modern life. The duty of the teacher was to mitigate the effects of this tendency. It was particularly desirable that specialists should be many-sided in their culture. It was a help to the human mind, this bringing in of allied studies, helpful to the memory by detecting connexions, the relation of fact to fact, and so on. The study of geography was a case in point. There could not be a greater mistake than to view this study as a mass of disconnected facts. There were many links to connect those facts with one another, chiefly in the way of causal relation, by which the facts could be brought under general laws. So in the study of language, causal links were to be traced. Economy of effort, for example, was a key to the explanation of varieties of speech.

Mr. Bowen having replied to the remarks of the various speakers, a vote of thanks to the lecturer concluded the proceedings.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A meeting of the Council was held on the 17th of May. Present:—Mr. J. Stewart, Vice-President, in the chair; Rev. R. Alliott, Miss Bailey, Mr. Baumann, Rev. A. W. Boulden, Mr. Bowen, Mr. Brown, Miss Buss, Mr. Charles, Mr. Chettle, Dr. Dillon, Mr. Eve, Rev. Dr. Frost, Mr. Milne, Sir Philip Magnus, Mr. Mason, Mr. Pinches, Mr. Reynolds, Mr. Robinson, Rev. Dr. Robson, Mr. Rule, Rev. Dr. Scott, Mr. Southee, Mr. Stièvenard, and Rev. J. Twentyman.

The minutes of the last meeting were read and confirmed.

The Secretary reported a considerable increase in the number of candidates entered for the forthcoming Certificate Examination, to take place on the 17th to 20th of June, as compared with the last Midsummer Examination.

He reported that the first of a Course of Three Lectures on the "Teaching of History," by the Rev. A. B. Beaven, M.A., Headmaster of the Preston Grammar School, was delivered at the College on the 16th of May, when there was a large attendance.

Saturday, the 26th July, was fixed as the date of the next Ordinary General Meeting of the members of the College.

On the report of the Examination Committee, it was resolved, that the following alterations should be made in the regulations for the Certificate Examinations in 1891:—(*a*) That, for a Second Class Certificate, only one of the two subjects, History and Geography, be obligatory, provided that the candidate passes in a second mathematical subject, a second foreign language, or a science subject. (*b*) That, for a Third Class Certificate, only one of the two subjects, History and Geography, be obligatory, provided that the candidate passes in a foreign language or a mathematical subject.

The following persons were elected members of the College:—

Mr. J. J. Findlay, M.A. Oxon., Wesley College, Sheffield.
Miss S. A. Garrod, The Lymes, Sudbury, Suffolk.
Mr. F. Spillan, 14 John Campbell Road, Kingsland, N.

The following books had been presented to the Library since the last meeting of the Council:—

Clive & Co. (University Correspondence College).—Matriculation Directory; Inter-Arts Directory; B.A. Directory; Matriculation Exam. Papers (January, 1890); Matriculation Exam. Papers (June, 1887, to January, 1890); Inter. Arts Exam. Papers (1889); B.A. Exam. Papers (1889); Solutions to B.A. Exam. Papers (1888); Guide to Matriculation Mathematics; Matriculation Mechanics Papers; Guide to Intermediate Mathematics; Guide to B.A. Mathematics; Guide to B.A. Mixed Mathematics; Guide to Matriculation Chemistry; Science Chemistry Papers (1869 to 1889); Science Model Answers; Inter. Science and Prel. Sci. Guide; Guide to Matriculation Latin, by B. J. Hayes); Guide to Intermediate Latin (by W. F. Mason and B. J. Hayes); B.A. Latin Exam. Papers; Latin Honours Exam. Papers; Vocabularies and Exam. Papers to Caesar, Gallic War, VII.; Cicero de Amicitia; Cicero de Finibus, I. (by S. Moses and C. S. Fearenside); Translation of Cicero de Oratore, II.; Cicero pro Balbo; Translation of Cicero pro Cluentio; Vocabularies and Test Papers to Horace, Epistles; Translation of Horace's Epistles (by W. F. Mason); Horace, Odes, I. (by A. H. Allcroft and B. J. Hayes); Horace, Odes, II. (by A. H. Allcroft and B. J. Hayes); Translation of Juvenal, Satires III., X., and XI.; Livy, XXI. (by A. H. Allcroft and W. F. Mason); Ovid, Metamorphoses, XI.; Ovid, Tristia, III.; Vocabularies and Exam. Papers to Sallust, Catiline; Translation of Terence, Adelphi (by A. F. Burnet and J. H. Haydon); Translation of Vergil, Æneid, I.; Vocabularies and Exam. Papers to Vergil, Æneid I.; Translation of Vergil, Æneid, II. (by A. A. I. Nesbitt); Translation of Vergil, Æneid, IV. (by A. A. I. Nesbitt); Translation of Vergil, Æneid, V.; Vocabularies and Exam. Papers to Vergil, Æneid, V.; Translation of Vergil, Æneid, VII.-X. (by A. A. I. Nesbitt); Translation of Vergil, Æneid, IX. and X. (by A. A. I. Nesbitt); Translation of Vergil, Georgics, I. and II. (by F. P. Shipham); Vocabulary and Test Papers to Vergil, Georgics, I. and II.; Undergraduate Latin and Greek Unseens; B.A. Latin and Greek Unseens; B.A. Test Papers in Latin and Greek (1889); B.A. Test Papers in Latin and Greek (1890); Matriculation Greek Papers; Guide to Intermediate Greek; B.A. Greek Papers; Translation of Aeschylus, Agamemnon; Aristophanes, Plutus (by M. T. Quinn); Translation of Demosthenes, Androtion; Translation of Euripides, Iphigenia in Tauris (by G. F. H. Sykes and J. H. Haydon); Homer, Iliad, VI. (by B. J. Hayes); Homer, Odyssey, XVII.; Translation of Sophocles, Electra; Sophocles, Antigone (by A. H. Allcroft and B. J. Hayes); Translation of Thucydides, IV. (by G. F. H. Sykes); Translation of Xenophon, Oeconomicus (by B. J. Hayes); Vocabularies and Exam. Papers to Xenophon, Cyropaedeia, I.; Vocabularies and Exam. Papers to Xenophon, Cyropaedeia, V. (by W. F. Mason); History of the Reign of Augustus (by A. H. Allcroft and J. H. Haydon); Synopsis of Roman History, 63 B.C. to 14 A.D. (by W. F. Mason); Synopsis of Roman History, A.D. 14 to 96 (by W. F. Mason and A. H. Allcroft); History of Sicily, 491 to 289 B.C. (by A. H. Allcroft and W. F. Mason); Synopsis of Grecian History, B.C. 405 to 358 (by W. F. Mason and A. H. Allcroft); Synopsis of Grecian History, B.C. 382 to 338 (by W. F. Mason); Matriculation English Language Papers; Intermediate English Test Questions (1889); Intermediate English Test Questions (1890); B.A. English Test Questions (1889); B.A. English Test Questions (1890); Notes on Addison's Essays on Milton; Translation of difficult parts of Alfred's Orosius (by J. Lockey); Glossaries to Alfred's Orosius; Notabilia of Anglo-Saxon Grammar (by A. J. Wyatt); Translation of Anglo-Saxon Chronicle, 787 to 1001 A.D. (by W. H. Low); Translation of parts of the Æsenbite of Inwyt (by A. J. Wyatt); Translation of parts of Lay of Havelok the Dane (by A. J. Wyatt); Milton's Sonnets (by W. F. Mason); Notes on Spenser's Shepherd's Calender; Matriculation English History Papers; History of England, 1660 to 1714 A.D. (by C. S. Fearenside and W. H. Low); Synopsis of History of England (1660 to 1714 A.D.); Matriculation French Papers; Intermediate French Papers; Guide to B.A. French; Guide to B.A. Mental and Moral Science.

Longmans.—Beard's Junior School Algebra; Chisholm's Smaller Commercial Geography; Sparks' School Trigonometry.

Macmillan.—Bayfield's Euripides' Alcestis; Page's Virgil's Æneid, III.; Rutherford's First Greek Syntax.

The Medical Register for 1890; The Dentist's Register for 1890; Medical Student's Register (1890); Biographical Sketches of Honorary Doctors of Laws of the University of Edinburgh.

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

The new Examiners elected by the Senate on April 30th, for the year commencing on July 1st, are the following:—In Greek, Mr. Marindin; French, M. Bué; German, Professor Althaus, of University College, London, who has previously served for two periods of five years; in Mathematics, Professor Horace Lamb, of Owens College; Physics, Professor Lodge, of University College, Liverpool; Botany, Professor Oliver, of University College, London, and of Kew Gardens; Geology, Professor Hull, of the Geological Survey of Ireland; in Jurisprudence and Roman Law, Professor Edmund Robertson, Q.C., M.P.; Common Law, Dr. Willis, Q.C.; Surgery, Mr. H. G. Howse, M.S.; Obstetrics, Dr. Cullingworth; Materia Medica, Professor Tirard, M.D.; and in Music, Dr. Bridge, of Westminster Abbey.

A vacancy in the Senate has been caused by the resignation of Mr. Thiselton Dyer, who is said to have broken with the main body of the Fellows upon questions relating to proposed measures of University reorganization. The nomination of candidates for the vacant seat rests, on this occasion, with Convocation; and a special meeting for the nomination will be held early in June, when the names of the three candidates who receive the highest totals of votes will be submitted to Her Majesty, through the Home Secretary; and, according to precedent, Her Majesty will probably (though not necessarily) appoint as Fellow that one of the three nominees whose total of votes is the highest. As, on the last similar occasion, when Mr. Anstie was elected, the interests of the Arts and Laws graduates were supposed to be considered, so now, by an understanding among the faculties, the Scientific and Medical graduates will expect the new Fellow to be chosen from one or other of these two faculties; he may, indeed, belong to both.

The ordinary annual meeting of Convocation was held on May 13th. The only business of interest arose directly out of the Report of the Special Committee of Convocation on the Constitution of the University, and indirectly out of the scheme, or rather schemes, of the Senate for the Reconstitution of the University; of which schemes, copies of the latest had been circulated among the members of Convocation. Of the speeches on this important business, by far the cleverest was that of Mr. R. D. Roberts, D.Sc., Secretary of the London Society for the Extension of University Teaching; who, while apparently humouring the notions of the rank and file of the graduates as to the pre-eminence of their University and the exalted value of their degrees, made it very clear that if the University refused to undertake the task of organizing higher education in London, and to encourage, and put itself at the head of, such movements as that for the Extension of University Teaching, some other body very soon would.

One other matter, not strictly within the business of Convocation, deserves mention. The Chairman (Dr. Wood), at the beginning of the meeting, read a "protest" against any lowering of the standard of the examinations for medical degrees, which bore 595 appended signatures, mostly those of undergraduates of the University who are still students at various hospitals. The protest is certainly timely; but there is reason to believe that the danger, if any, of such a "lowering of the standard," is less on the medical side than on some others.

Wednesday, May 14th, was Presentation-Day. In the regrettable absence of the Chancellor, Lord Granville, Sir James Paget, Vice-Chancellor, presided. The proceedings, including the speaking, were more than usually dull. A noticeable feature in the ceremony of recent years is the rapid increase in the number of the presentees, who bid fair, before very long, to occupy the whole of the theatre; and it will become a question whether visitors shall be almost entirely excluded, or whether this long-established function shall be transferred to roomier quarters outside.

Cambridge.

The death of Dr. Schiller Szinessy has entailed some rearrangement of the provision that is made for Oriental studies. The Readership of Talmudic has been suppressed, and of the funds thus set at liberty it is probable that £200 will be assigned as an augmentation of the salary in

Professor Bensley, in consideration of the work he undertakes in teaching Aramaic, and that £100 will be devoted in future to the teaching of Talmudic.

The Craven Studentship has been awarded to William Loring, B.A., Scholar of King's. The student is required to devote himself to advanced study or research away from Cambridge, in the languages, literature, history, archæology, or art of ancient Greece or Rome, or the comparative philology of the Indo-European languages.

The Prendergast Studentship, which is given to encourage study or research in the Greek language, literature, history, archæology, or art, has been awarded to Mr. C. A. M. Pond, B.A., late scholar of St. John's.

Professor Jebb has been appointed Rede Lecturer for the present year. He has chosen "Erasmus" as his subject, and will deliver his lecture in the Senate House on Wednesday, June 11th, at twelve o'clock.

Dr. Cayley has generously offered the sum of £500 to the New Library Fund.

The Le Bas Prize has been adjudged to F. W. Thomas, B.A., scholar of Trinity College. The subject was "The History and Prospects of Education in India under British Rule."

The Lightfoot Scholarship has been awarded to J. N. Figgis, B.A., St. Catharine's College. The Examiners were of opinion that W. A. J. Archbold, B.A., of Peterhouse, acquitted himself with marked credit.

The following are to receive honorary degrees on Thursday, June 12th:—*Doctor in Law:* Prof. Jowett, Canon Liddon, Sir Andrew Clark. Mr. Jonathan Hutchinson, Mr. George Richmond, and Mr. Henry M. Stanley. *Doctor in Science:* Dr. John Evans and Prof. Sylvester, *Doctor in Letters:* Mr. A. J. Ellis.

OXFORD.

The Chancellor's prizes have been awarded as follows:—English Essay: H. Ward, Corpus; *proxime*, T. G. Spyers, B.A., Magdalen. Latin Essay: G. H. Ashworth, B.A., New College. Latin Verse: R. L. A. Du Pontet, scholar of Trinity. English Verse (Newdigate): R. L. Binyon, scholar of Trinity.

The Gaisford prizes have been awarded as follows:—Aristophanic Verse: W. M. Geldart, scholar of Balliol. Platonic Dialogue: H. S. Jones, scholar of Balliol.

The Rev. Charles Gore, President of the Pusey House, and editor of *Lux Mundi*, has been appointed Bampton Lecturer.

A statute has been proposed admitting women to the examinations in law and in music. If this be passed, theology, medicine, and oriental languages will be the only schools from which women are excluded.

OTHER UNIVERSITIES, COLLEGES, AND SCHOOLS.

On the recommendation of the Secretary for Scotland, the Queen has appointed Sir Ludovic Grant, advocate, to be Professor of Public Law in the University of Edinburgh, in the room of the late Professor Lorimer.

After a severe competition and a series of probationary lectures delivered by six selected candidates, Dr. J. F. Bridge, organist of Westminster Abbey, was on Wednesday chosen as Gresham Professor of Music, in place of the late Dr. Wylde.

The new Secretary to the Royal Academy of Music is Mr. James G. Syme, who has been acting as secretary since Mr. John Gill's resignation.

Mr. W. H. Appleton, of Bradford, B.A. of University College, Oxford, has been appointed Professor of History and English History at Firth College, Sheffield. Mr. W. C. F. Anderson, M.A. of Oriel College, Oxford, has been appointed Professor of Classics.

Mr. S. Carrodus, one of the senior masters in training at the National Art Training School, has been appointed master of the Cirencester School of Art.

Montpellier is about to celebrate the six-hundredth anniversary of the foundation of its University, and, as has now become usual on such occasions, the students have invited undergraduates from other Universities to be present and enjoy their hospitality.

At the annual graduation ceremony of the University of Glasgow, held at the end of April, the honorary degree of LL.D. was conferred on Professor Kirkpatrick, of Edinburgh, Professor Palmer, of Dublin, and Dr. Henry Sweet.

King's College, London, has just received from the widow of Sir William Siemens, in fulfilment of the intentions of her husband, the sum of £6000 for the establishment of an electrical laboratory. Dr. John Hopkinson will be the new Professor of this department.

The Nizam of Hyderabad has founded twelve studentships of £300 a year, tenable in England by natives of his state for four years. The students must devote themselves to medicine, engineering, agriculture, or any other profession than that of law.

The Rev. J. R. Cohn, M.A., late Fellow of Jesus College, Oxford, and Headmaster of the Richmond Grammar School, Yorkshire, has been appointed Headmaster of Hereford Cathedral School.

COMMERCIAL EDUCATION ABROAD.

I.

It is impossible to describe the Commercial Examinations of the Continent without also describing the Commercial Schools and Colleges; for the examinations are connected with definite institutions, and are usually conducted by officers of those institutions, assisted by outside agencies. The schools may be divided into three classes—

A. Elementary and Secondary Commercial Schools (Ecoles commerciales primaire et primaire supérieur).

B. Schools and Colleges for Higher Commercial Education (Enseignement secondaire et supérieur).

C. Auxiliary Commercial Institutes, such as those for evening classes, free or otherwise, those for special subjects, and those which allow the students to take any of the subjects of the programme to suit their own particular needs.

We will first survey the schools of France, as being our nearest neighbours. Of the first type we may notice l'Ecole Municipale Turgot, and l'Ecole Commerciale de l'Avenue Trudaine; the first belonging to the Municipality of Paris, and the second to the Chamber of Commerce.

A. (1) The Ecole Turgot is the typical school and the model of others in Paris and provincial towns of France, designed to give a general education of a character suited to those who are destined for a commercial or industrial career. It therefore resembles the Middle-Class School in Cowper Street, London. Indeed, these two schools have been in frequent communication for over twenty years, and have probably mutually influenced each other. These communications commenced in February, 1868, by the Headmaster of the latter writing to the Director of the former as follows:—

"SIR,—Will you pardon a complete stranger who intrudes upon you, and who can only rely for a courteous attention upon the desires he has, in common with yourself, for the good of the rising generation and upon the proverbial courtesy of your nation to strangers?"

Then follow a number of questions to which the Director, M. Margarin, returned the following answers. As these answers describe the aims of the school, we quote them in full:—

"MONSIEUR,—Vous n'avez pas à vous excuser de me demander des renseignements. Comme vous le dites très bien, les instituteurs de tous les pays sont unis par une commune sollicitude pour la jeunesse. Je serais ingrat d'ailleurs envers l'Angleterre, où j'ai trouvé un excellent accueil auprès de tous les chefs d'établissements d'instruction, si je ne me mettais à la disposition de ceux entre eux qui veulent bien entrer en relations avec l'Ecole Turgot.

"L'Ecole Turgot, en effet, Monsieur, est faite pour la classe moyenne; elle se propose spécialement de donner une instruction appropriée aux enfants de la petite bourgeoisie et de l'élite parmi les ouvriers, qui se disposent à l'industrie ou au commerce.

"Je vous adresse en même temps que cette lettre le prospectus de l'Ecole, où vous trouverez la distribution des matières d'enseignement ainsi que le tableau de l'emploi des temps. Quant aux programmes détaillés des différents cours et des examens divers, ils n'existent pas imprimés. Dans la pratique, ils ne sont même pas arrêtés d'une manière définitive; chaque année amène des changements, et je n'ai pas encore trouvé très possible de les publier. Les programmes publiés par le Ministre de l'Instruction publique sous le titre de 'Programmes de l'Enseignement Secondaire Spécial' sont ceux qui se rapprochent le plus des nôtres; on s'est servi de nos cours pour les faire; on nous en a même emprunté quelques-uns littéralement.

"Je réponds maintenant aux questions que vous me posez—

"1. L'Ecole Turgot compte actuellement 800 élèves. Le défaut de place nous empêche seul d'en recevoir un plus grand nombre.

"2. La rétribution est de 169 fr. par an, y compris toutes les fournitures de classe outre que les libres.

"3. L'Ecole suffit à ses dépenses de personnel et de matériel; mais elle ne paye pas de loyer. Les bâtiments qu'elle occupe appartiennent à la ville de Paris. On les agrandit en ce moment, et la dépense pour le terrain et les constructions ira à plus de trois millions. Notre loyer, si nous devions le payer, irait donc à plus de 200,000 fr. Il nous serait impossible d'ailleurs de payer un loyer quelconque. Il faut considérer que nous sommes dans le centre des affaires de Paris.

"4. Notre personnel se compose de répétiteurs ou maîtres d'étude et de professeurs. Les répétiteurs président aux études, c'est-à-dire aux heures où les élèves font leurs devoirs; les professeurs donnent les leçons, chacun dans sa spécialité. L'emploi du temps vous montrera comment sont distribuées les classes et les études. Nos divisions sont très nombreuses:

Division préparatoire	180	élèves
Division de 1re année, dans chaque session 165 élèves, fait	330	,,
Division de 2e année	170	,,
Division de 3e année	100	,,
Division complémentaire	20	,,
Total	800	,,

Un seul répétiteur suffit pendant les études, un seul professeur pendant les classes.

"5. D'après ce qui précède, vous voyez que chaque professeur est chargé d'une branche particulière d'enseignement.

"6. Nous n'enseignons pas les langues anciennes.

"7. Nous jugeons que les différentes sciences sont utiles pour le développement de l'esprit, chacune servant à exercer et à dégager une qualité particulière chez les élèves; mais, à mon avis, les lettres mieux que les sciences contribuent à la culture générale de l'intelligence.

"8. Nous avons un laboratoire et une salle de collection, mais non d'ateliers. Nous n'avons plus le temps de faire du travail manuel que du latin.

"9. La ville de Paris entretient cent boursiers à l'Ecole. Il n'y a aucune distinction qui vaille à celui qui l'obtient quelque avantage pécuniaire.

"10. A partir de la 2e année, les élèves sont aptes à entrer dans d'autres écoles plus spéciales. Ceux mêmes de 2e année, l'année scolaire terminée, peuvent entrer dans les écoles d'arts et métiers, destinées à faire des dessinateurs, des ouvriers, des contre-maîtres mécaniciens. Ceux qui sortent de 3e année peuvent être admis à l'Ecole d'Alfort, qui fait des vétérinaires, et à l'Ecole de Grignon, qui est une école d'agriculture. Après la 4e année, ils sont assez instruits pour être reçus à l'Ecole Centrale d'Architecture; à l'Ecole des Beaux-Arts, qui fait des architectes, des peintres et des sculpteurs; à l'Ecole Centrale des Arts et Manufactures, qui produit des ingénieurs, et à l'Ecole des Mines.

"11. L'âge moyen auquel sortent la plupart des élèves est de seize ans; ceux qui veulent se préparer pour les grandes écoles dont je viens de parler restent jusqu'à dix-huit ans.

"J'ai répondu aux différentes questions que vous m'avez posées; je me mets tout à fait à votre disposition pour tous autres renseignements que vous pourriez désirer.

"Peut-être nos deux maisons pourraient-elles se servir mutuellement. J'ai quelquefois à envoyer des enfants, ou plutôt des jeunes gens en Angleterre pour se perfectionner dans la langue anglaise qu'ils apprennent à l'Ecole. Si je pouvais les adresser à quelque maison qui n'eût pas des prix très élevés, je pourrais sans doute en adresser quelques-uns régulièrement chaque année. La difficulté c'est que votre établissement, comme le mien, ne reçoit que des extérieurs.

"Veuillez, Monsieur, etc."

The suggestion of M. Margarin above has so far been carried out that, up to the present moment, a succession of students holding bursaries from the Municipality of Paris have attended Cowper Street, while occasionally, with less regularity, pupils of the latter school have spent a year at Paris.

To a later question as to the proportion of scholars who found it possible to pass on at the age of sixteen to the higher commercial institutes, the Director replied as follows:—

"Je réponds aux questions que vous me posez.

"1. Un quart des familles qui nous envoient leurs enfants, sont en état de payer la rétribution dans les écoles spéciales où ils auront à poursuivre leur instruction; mais toutes ne se proposent pas ce but. Puis il faut que l'élève ait les aptitudes nécessaires. Lorsque ces aptitudes se trouvent chez des enfants dont les familles sont trop pauvres, si les aptitudes sont vraiment distinguées, je ne les dirige pas moins vers les écoles spéciales; ils y entrent au moyen de bourses fondées par l'Etat ou par la ville de Paris. Pour nos élèves la proportion est d'un boursier pour un élève payant.

"Quant à ceux de nos élèves qui n'entrent pas dans les écoles spéciales, et c'est la grande majorité, ils ont besoin en général de trouver des emplois où ils touchent de suite ou dans un terme rapproché quelques appointements. Nous plaçons tous ceux de nos élèves dont nous sommes satisfaits même d'une manière moyenne. Mon plan a été de nouer des relations avec des négociants, des banquiers, des fabricants, des directeurs de compagnies, de les habituer à s'adresser à l'école pour recruter leur personnel d'employés. Aujourd'hui l'habitude est prise et on nous fait des demandes presque tous les jours."

The latest of these communications, dated May 21st, 1890, in answer to an inquiry as to any changes of aim or method introduced in recent years, states that "the Ecole Turgot still pursues the aim which it had from its foundation, and follows the same methods of instruction." As in all the higher primary schools of the city of Paris, the instruction given is now entirely gratuitous. The examinations are held in places appointed for the purpose by the Government or the City of Paris, and not, as formerly, in the school itself.

The following tables show the different occupations and competitive examinations for which the pupils prepare. Up to the age of fourteen the course is directed to secure the certificate for the higher elementary studies.

Examinations.	
Certificate for the Higher Elementary Studies ...	90 p.c. passed.
Baccalauréat for Special Teaching	30 p.c. ,,
Competitive Examinations.	
Central School	90 p.c. ,,
School for Fine Arts	60 p.c. ,,
,, Arts and Trades	30 p.c. ,,
,, Physics and Chemistry	75 p.c. ,,

On leaving, the boys are fifteen to seventeen years old. They all find occupation according to their age. The figures below, which refer to the period from 1883 to 1886, show how the 1,258 outgoing pupils for the three years have been distributed in different branches:—

1. Commerce and Banks		672
2. Industry and Industrial Arts		389
3. Public or Private Administration		52
4. Professional Schools—		
Central School of Arts and Manufactures	25	
Special Central School of Architecture	17	
National Schools of Arts and Trades	20	
School of Fine Arts	3	
Municipal School for Physics and Chemistry ...	27	
Assisted School for Decorative Arts...	9	
Normal School of Cluny	1	
Elementary Normal Schools	6	
	—	103
5. Abroad for the Practical Study of Languages		37

(2) In 1860, the Chamber of Commerce of Paris applied itself to the question of commercial education, and entrusted to its secretary, M. Denière, the task of inspecting and reporting on the institutions existing for the purpose of spreading commercial and industrial education. In his report he particularly dwelt on the popularity of the Ecole Turgot in a district densely populated with small manufacturers and small merchants. He said the pupils of this excellent school, which had already served as a model for other foundations in the city of Paris, were to be found in Parisian workshops, in the service of architects, surveyors, draughtsmen, and designers, as well as in the public service, in banks, in trade, and in the higher central schools of arts and manufactures and of fine arts. He approved of the absence of specializing which characterised such schools, but remarked that the Ecole Turgot, and even the Ecoles d'Arts et Manufactures, opened to students careers in the Civil Service, the counting-house, the workshop, and the studio, rather than on the Exchange and in the active work of commerce generally, such as buying and selling. Hence he suggested that special preparation for the latter should be provided by the Chamber. He therefore proposed the foundation of the "Ecole Commerciale," to be placed in a central position, and to receive pupils who would give proof of having obtained an elementary education, and who were at least thirteen years of age. The four years' course of lessons was to include writing, science, French language, and arithmetic (with special attention to mental calculation), bookkeeping, commercial correspondence, Exchange and foreign monetary arrangements, foreign languages, history of commerce, geography, and general notions of all kinds of industries. The fee was to be 220 francs per annum. The Parisian Chamber of Commerce adopted the idea, and appropriated 700,000 francs to build the school in the Avenue Trudaine. In 1874 the Chamber started free classes for women, in the evening from eight to ten. In 1882 the Minister of Commerce granted 1,100 francs towards the expense of this gratuitous instruction; the Educational Council of the Arrondissement granted 1000 francs per annum, and in 1888 the Bank of France 2000 francs. Finally, in 1880, the Chamber of Commerce opened similar classes for men, the subjects being arithmetic and accounts, commercial law, French and foreign languages. At the present moment there are about 500 day students and over 1,700 evening students, the latter receiving gratuitous instruction. The day school does not receive help from the State, but the following scholarships have been founded:—By the Chamber of Commerce, 10; by the Minister of Commerce, 10; the Bank of France, Credit Foncier, and other firms and companies give 130 others, making a total of at least 150.

On entering the school every pupil receives a fortnightly report book, with the object of keeping parents acquainted with the work and conduct of their children. The book is a record of the marks obtained in each subject, and according to these marks the pupils are arranged in order of merit. The book is signed by the headmaster every fortnight, and sent to the parents, who are required to sign it and return it.

At the end of each scholastic year, an examination in each subject is held in the presence of members of the Chamber of Commerce, delegated for the purpose. The marks obtained in this examination are added to the average marks of the year contained in the report book above referred to, the pupils being classified according to the results. The subjects of examination

to enable a pupil to pass from one section to another are chiefly French and arithmetic.

The Chamber of Commerce gives a diploma or certificate of ability to every pupil of the fourth year who passes a satisfactory examination on leaving. Both the diploma and the certificates are signed by the President of the Chamber of Commerce, the President of the Council, and the Headmaster. The number of diplomas given since the opening of the school is 284, the number of certificates 65.

The Commercial School of the Avenue Trudaine is a model establishment for the rest of France, and one which has been fruitful in its results. And no doubt a great deal of its usefulness is due to the anxious solicitude and care bestowed on the school by the Chamber of Commerce since 1863. In the first place, the Chamber decided to appoint a Council of Administration, chosen from among its members, whose object was to watch the working and management of the school, so as to be able from its own experience to make such modifications as should add to its usefulness. Next, it decided that each scholastic year should be closed by a grand distribution of prizes, diplomas, and certificates of study. This distribution of prizes is presided over in regular turn by the best known members of the Paris Chamber of Commerce. We cannot close this account of the school better than by quoting the words of M. Dietz-Monnin, Senator and President of the Chamber of Commerce, in distributing the prizes last year:—

"Modest in its attractions, but excellent in its methods and the practical character of its teaching, our school has had the good fortune to supply commerce and industry with the best and choicest men. It is considered, and justly so, in Paris as the best nursery for the recruiting of an industrious, intelligent, and sound staff."

B.—Higher Schools and Colleges.

(1) *L'Ecole Supérieure de Commerce de Paris.*

In 1820, two Paris merchants conceived the idea of founding a boarding-school with a view of preparing young men for business by a special course of study, complementary to their general studies. The school thus founded was called L'Ecole Spéciale de Commerce. Such an enterprise, which seems natural enough now, was a difficult one to carry out in those days. In fact, public opinion did not admit the utility or the necessity of such a school, or even the possibility of carrying out the proposed course of instruction. Notwithstanding the opposition, the school was founded, and a course of studies was drawn up by a Council consisting of some of the leading bankers and merchants of Paris. These men, among whom we find Chaptal, Jacques Laffitte, Casimir Périer, J. B. Say, &c., traced with a sure, firm hand the programme and rules.

Their plan practically still guides the school, and has served as a model for all attempts of the same kind, both in France and in other countries. It was by their advice that the course of studies was divided into three stages or years, called *comptoirs*. No pupil was to pass from one *comptoir* to another without having passed an examination in the subjects of his previous stage. The same rule is still maintained. The school was at first successful. Pupils came in fast from all parts of France, and also from abroad. From the beginning about one-third of the pupils were foreigners. But the expenses were found to be great, and, after changing hands several times, the school collapsed altogether.

It was, however, soon revived by Adolphe Blanqui, and to him it owed its present name, L'Ecole Supérieure de Commerce. It was continued with varying success till 1869, when the Paris Chamber of Commerce, always mindful of the national interests, took the school under its charge. The then President of the Chamber of Commerce, thinking that the school would acquire more prestige in the eyes of merchants, &c., if it were immediately under the control of the Chamber, proposed to his colleagues to purchase the school. This they did, paying for it 120,000 francs, with an annual rent of 25,000 francs. The Chamber of Commerce have since spent 100,000 francs in enlarging it.

The Chamber appointed M. Schwaeblé headmaster, and the number of resident pupils soon rose from seventy to ninety-two. The war of 1870, and the insurrection which followed it, necessarily caused the school to be closed; but as soon as possible it was reopened, and an important change was introduced. Till this time day scholars had not been admitted, but now the Chamber of Commerce decided that day scholars should be admitted, the only condition attached being that they should dine at the school, so as to cause as little break as possible in the day's work. This change soon brought the numbers up to 130, at which number it has pretty well remained since, and at the present moment it has 87 in residence, and 46 day boarders.

Here we may again contrast the action of the Chamber of Commerce of Paris with that of the London Chamber. The former starts with acquiring, at considerable cost, a school which had already done good work; the latter starts with an examination.

The school receives no grant from Government, but the Ministry of Commerce gives six scholarships, open to public competition.

L'Ecole Supérieure de Commerce is divided into three stages. The complete course lasts at least three years. The first stage is always the most numerously attended, and is therefore divided into two sections. The second section comprises the more backward pupils, and is preparatory for the first division, the whole being preparatory for the other two stages. The first year is devoted to improving the writing, to the study of history and geography, arithmetic, elementary notions of bookkeeping, and commercial usages, physics and chemistry (the knowledge of these latter subjects being confined to elements, nomenclature, and classification), elements of ordinary legislation, and drawing. Foreign languages are also commenced in this stage. The division of work, of which we give the details hereafter, necessitate the fixing of a minimum age for entrance. The Council consider that, if intelligence and memory suffice for the study of some subjects, the study of sciences which lie at the foundations of commerce requires reflection and judgment as well as attention. The minimum age for entry to the first stage was therefore fixed at fifteen, and the school, guided by experience, is rather inclined to raise the age than lower it.

The programmes of studies of the Ecoles Supérieures de Commerce, like those of all similar institutions on the Continent, are teaching programmes of the various professors. Each subject has its own professor, who is generally a specialist, and sometimes one subject is divided between several professors. In the Ecole Supérieure of Paris, for instance, there are four in law and thirty-eight altogether. The divisions of each subject detailed in the programmes correspond generally with the subjects of the several lessons or lectures. Each professor is engaged to give a stated number of lessons per annum, and the matters explained and dwelt on in each lesson are laid out in the programme with as much definiteness as is consistent with the free treatment of the subject by the lecturer.

The following table gives the number of lessons in each subject:—

	First Stage.			Second Stage.			Third Stage.		
	1st term.	2nd term.	3rd term.	1st term.	2nd term.	3rd term.	1st term.	2nd term.	3rd term.
Arithmetic	15	30	30	30	35	35	—	—	—
Accounts	30	—	—	—	—	—	—	—	—
Bookkeeping	—	30	30	40	35	35	—	—	—
Geography	24	24	24	24	24	24	24	24	24
Law & Legislation	15	15	15	24	24	24	12	12	12
History	15	15	15	12	12	12	—	—	—
Physics	12	12	17	12	12	12	—	—	—
Chemistry	17	17	17	12	12	12	—	—	—
Natural History	12	12	12	—	—	—	—	—	—
English*	30	30	30	35	35	35	35	35	35
French	30	30	30	24	24	24	—	—	—
Drawing	—	—	—	—	—	—	—	—	—
Com. Corresp'nce.	—	—	—	12	—	—	Practice.		
Products	—	—	—	15	15	15	15	15	15
Banking & Financial Operations	—	—	—	—	—	—	35	35	35
Companies' Assurancies, &c.	—	—	—	—	—	—	25	25	25
Political Economy	—	—	—	—	—	—	12	12	12
Technology	—	—	—	—	—	—	12	12	12

* *Or* German, Spanish, *or* Italian.

Second Stage.

No pupil is admitted to the second stage, or year, under sixteen years of age. This rule is strictly maintained, but not without difficulties. We are told that every year pupils apply for leave to enter at once into the second stage, without troubling themselves whether they are capable of usefully following out the

course. We are further informed that the different directors of the school have always found themselves in face of this difficulty: to convince those who leave the *fabriques du baccalauréat* that the science of commerce is not simply a collection of facts which have only to be remembered to enable them to become good merchants. These young men are astonished to find that it is necessary to work seriously, and for a long time, in order to understand what appeared to them easy and simple *à priori;* they would like, for the most part, to reach the higher parts of the science at a bound—to engage in finance, or great commercial enterprises and complicated Stock Exchange operations, &c.—in a word to begin at the end, to begin at what can only be the complement of serious study, leading to positive and real knowledge, which will be a proper initiation into a business life. Hence it is found necessary to fix a limit of age for the second stage as well as for the first, and to have an examination for classification purposes, to which every pupil must submit. Bachelors of science and teachers certificated for secondary instruction are alone exempt from this rule.

The work carried on in the second stage comprises the continuation of the preceding studies—tests referring to commercial correspondence; the application of arithmetic and algebra to all commercial and bank operations; theoretical and practical book-keeping in its different parts; commercial geography and the history of commerce; the study of the commercial code; fiscal and customs legislation; chemistry applied to arts and commerce; physics; principal commercial substances and products, samples of which are to be found in a museum attached to the school; linear drawing and design, and shorthand.

Third Stage.

The third stage is devoted to instruction in the higher branches. This course, which no pupil is allowed to undertake without having passed a year in the second stage, comprises (besides the recapitulation of previous stages) exchanges, book-keeping applied to different industries, banks, &c.; questions of insurance, which involves the knowledge of probabilities; chemistry applied to the study of different goods and to adulteration; mechanics applied to necessities of commerce, railways, docks, &c.; commercial and maritime law; technology of different branches of industry; political economy, mechanical drawing, and foreign languages. A good pupil is able, on the completion of his third year's course, not only to understand one or more foreign languages, but even to correspond in them. A few—we are told that it is rarely the French pupils—are able to converse in them so as to be understood. The lectures on the foreign languages during the third year's course are entirely in the language being studied.

In this stage, in which technology and products are of exceptional importance, the studies are carried on as if in actual business. Each pupil opens and closes accounts of all sorts; he buys and sells goods according to the market reports of the day; he does the work of a bank; he despatches vessels, insures, commissions, corresponds in different languages;—in a word, he devotes himself, under the guidance of an experienced master, to the most varied and difficult operations.

Commercial and Industrial Excursions.

An industrial education can only be gained by becoming commercial, so the commercial education strives with reason to become industrial. Hence, with a view of strengthening the theoretical instruction given in the various subjects, the pupils make frequent visits to the principal factories of Paris and its suburbs. Each pupil is afterwards required to write an account of his visit from notes taken on the spot. The efficacy of such a plan is evident. But the Chamber of Commerce has even gone further. Certain industries, notably spinning and weaving, are not represented at Paris. Hence, in 1875, the Chamber decided that every year, about the month of April, the pupils of the third stage should take a *real commercial journey* for three weeks. These excursions are generally to the north of France or to Belgium. An account of the journey must be written by every pupil on his return. The Council, in addition, gives a prize of 1000 francs to the pupil who makes the best report of the journey. This sum is expended in making another tour at home or abroad, with the object of studying some particular industry selected by the Council.

We must note here, as in other colleges, how large a portion of the examinations are oral. Special examiners question frequently a certain number of pupils of the three stages in the different subjects of study. Competitions take place every three months, as a means of classifying the pupils. Immediately after this examination an extract of the marks obtained by each pupil for work and conduct is sent to the parents. In addition to this, parents receive a monthly report of progress, &c. On leaving school each pupil is required to pass an oral examination. This examination, as being the most important, is presided over by well-known men. The examiner has generally about a score of pupils to examine; this occupies him the whole day. The importance of each subject is fixed by a coefficient, by which the mark given by the examiner is multiplied. The products thus obtained in each subject are added together, and the pupils classified accordingly. All those who obtain a total corresponding to the average mark of 12 out of a possible 20, receive a parchment diploma signed by the Minister of Commerce. The average number of diplomas granted per annum is about eleven, and in the course of eighteen years 233 diplomas have been granted to 288 candidates. Pupils of the third *comptoir* who do not obtain a diploma receive a certificate of study signed by the President of the Chamber of Commerce. Such are the only titles the school recognises as official, to show that the pupil has completed his three years' course. No partial certificates are given.

Medals.—A certain number of medals are given as prizes each year to the pupils of the different *comptoirs* by the Minister of Commerce, the Chamber of Commerce, the Commercial Geographical Society, and by the old pupils. The medals are of gold, silver, and bronze in the third *comptoir*, silver and bronze in the second and first *comptoirs*. One of the prizes given by the Chamber of Commerce consists of a travelling scholarship of £40 (1000 francs). Special prizes for shorthand are also given.

(2) There are similar higher schools of commerce in the other cities and large towns of France. The Ecole de Commerce de Rouen was founded in 1871 by the Chamber of Commerce, the Municipal Council, Lloyds' Association, and the Société d'Emulation du Commerce de la Seine-Inférieure, and receives 4000 francs annually from the Minister of Commerce, the Chamber of Commerce, and the Department of the Seine-Inférieure. The number of students varies from eighteen to seventy.

(3) The Ecole Supérieure de Commerce et de Tissage of Lyon, and the allied institution at Mulhouse.—No pupil is allowed to pass into a higher class until he has shown, by an examination, that he has profited by the lessons received during the previous year, and that he is capable of successfully following those of the next year. Hence the word *année* must be accepted in a technical sense as meaning "course." In the examination at the end of the course of study, which examination determines whether a diploma shall be given or not, each pupil is examined in seventeen subjects. Of these, ten are taken by partly written examination, and seven wholly oral. The total marks obtained, from 0 to 20, multiplied by a particular coefficient, determines whether he passes or is sent back. The coefficient is 2 for office work, geography, English or German, and writing; and 1 for all other subjects. The maximum marks are 320. No diploma is given unless 60 per cent. of the marks be obtained. The examining jury is divided into several sections, so that several subjects may be taken simultaneously. In the oral examinations, the jury, after giving exercises on the blackboard examine the different books of the candidates. One subject treated of is selected, and while following the copy of letters, or letters received from correspondents, and accounts, the pupils are made to develop the details. In the marks the candidate obtains, account is taken of his marks for work during the year, the intelligence he has shown, the regularity with which he has kept his accounts, and the neatness of his writing.

(4) Ecole Supérieure de Commerce de Marseille.—This was founded by the Chamber of Commerce in 1872, in consequence of a requisition from a number of merchants of the town. It has had an average of 110 students since 1875. There is no entrance examination for the preparatory year, but there is one for the first year's course, only B.A.'s, B.Sc.'s, and Bacheliers de l'enseignement secondaire spécial being excused.

(5) Ecole Supérieure de Commerce du Havre.—This was founded by a proprietary action of the merchants of Havre in 1871, and is assisted by the State, the Chamber of Commerce, the City of Havre, and the Department, which together supply about 20,000 francs per annum.

(6) Ecoles Supérieures de Commerce de Bordeaux have a similar history. All these give diplomas for those who pass the final oral examinations, and certificates to those who are not candidates for

diplomas, but who have successfully applied themselves to selected parts of the courses. To show that it would be impossible to arrange one examination for all, we append a comparative time-table of all these higher schools:—

TABLE OF THE NUMBER OF HOURS PER WEEK IN EACH SUBJECT IN THE HIGH COMMERCIAL COLLEGES OF FRANCE.

SUBJECTS.	PARIS.		LYON.		MARSEILLE.		HAVRE.		ROUEN.		BORDEAUX.		ANVERS.		MULHOUSE.	
COURSE.....	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
Office Work.....	4½	3	12	12	9	12	13	12	11	11	10	12	12	12	12	12
Arithmetic, Algebra, Geometry.....	3½	3	...	...	...	...	...	...	...	...	2	...	3	3	...	...
Writing.....	2½	1	3	2	3	2	2	1	2	2	2	1	...	...	2	...
Shorthand.....	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Commercial Geography...	3	3	4	3	3	3	3	3	4	4	2	3	1	3	3	3
Routes and Transport...	...	...	...	...	...	...	...	...	...			...	...	...	...	...
Technology.....	...	1	...	...	...	...	...	...	...	...		...	...	...	...	...
Raw Material.....	1½	2	3	3	3	3	3	3	2	2	3	4	2	3	4	4
Materials and Commercial Microcopy.....	...	...	...	...	...	...	...	...	1½	1½	...	...	...	...	...	...
Armament.....	...	...	...	...	...	2	1	2	...	...	...	2	1	...	...	...
French.....	2	...	2	2	3	1	...	...	...	...	3	1	...	...	...	...
English*.....	3	2½	...	...	5	4	3	3	4	4	7	7	3	3	4	4
German*.....	4	3½	...	...	...	modern Greek	3	3	4	4	2	2	3	3	4	4
Spanish*.....	1	1	4	4	3	3	...	...	...	...	...	...	3	3	4	4
Italian*.....	1	1	...	...	Arabic	...	...	...	...	...	...	...	3	3	4	4
Portuguese*.....	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...
Elocution, Discussions...	...	...	...	...	...	2	1	1	...	...	...	...	...	...	...	...
Civil Law.....	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Commercial Law.....	1	1½	1	1	2	1	1	1	1	1	2	3	2	...	...	...
Commercial Legislation...	1	...	1	1	1	1	1	1	1	1	...	...	1	...	1	3
Financial Legislation.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Physics.....	1	1½	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Chemistry.....	1½	1½	...	...	...	...	...	...	...	...	2	...	...	...	...	...
Natural History.....	...	...	...	...	...	...	...	...	1½	1½	...	...	...	...	...	...
Mechanics.....	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Linear Design and Decoration.....	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...
History of Commerce.....	1½	1½	...	...	...	...	2	2	...	...	...	2	2	...	...	...
Political Economy.....	...	1½	...	2	...	1	...	1	...	1	1	1	1	2	...	2
Industrial Visits and Excursions.....	...	3½	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hours per week.....	36	36	30	30	32	35	33	33	32	33	37	38	36	35	30	32

* According to the student's choice.

EDUCATIONAL NOTES AND SUMMARY.

THE news that Dr. Henry Barnard, of Hartford, U.S.A., is in great pecuniary distress is sad indeed. He is in his 80th year, and has spent his whole life, and a considerable fortune, in the untiring and unselfish service of education. All teachers who take a serious interest in their work owe him an immense debt of gratitude wherever the English language is spoken. Our readers will remember Dr. Barnard best as the editor and (alas!) the publisher of *The American Journal of Education*—incomparably the most important educational publication which has ever appeared in English, and not surpassed by any in any other language. It was planned and continued on a most liberal scale for *thirty years*, and its bulky annual volumes contain an immense store of school information, discussions, reprints of rare and valuable tracts, &c., &c., most of which material has since been rearranged and republished in various sections. No educational library is, or indeed ever can be, complete without them—the two thick volumes on *English Pedagogy* alone forming in themselves no bad library of their subject. But the publication never went near paying its way; and on it, and on other educational endeavours, the whole of Dr. Barnard's fortune, and much more, has been spent. And now, in his 80th year, he is in want. As to his services to education in the United States, we need not here speak, beyond mentioning that they have been great, and have been given freely. Dr. W. T. Harris, United States Commissioner of Education, Washington D.C., appeals for help to teachers and to all who are interested in education; and the Rev. R. H. Quick (Earlswood Cottage, Redhill) has expressed his willingness to receive subscriptions in England. Evidently the case does not admit of any delay; and English teachers are not likely to have again so fine an opportunity of showing their international goodwill.

THE Budget of the London School Board, as unfolded by the Chairman of the Finance Committee at the weekly meeting on the 22nd ult., justifies all that the most unfriendly critic of rate-supported education ever ventured to allege, in respect to the extravagance, and gross negligence (if no worse) of popularly elected bodies in spending the ratepayers' money. Sir Richard Temple stated that the demand on the ratepayers for the current year would reach 10¾*d.* in the £, and he assured his colleagues that they were coming, in spite of all the resistance the Finance Committee could offer, within measurable distance of a shilling in the pound. The usual mark of bad finance, a deficit, had to be acknowledged for the past year. This amounted to the respectable sum of £79,835. The explanation hardly mended matters; it was that the Works Committee had expended more than they anticipated in repairs of school buildings, and that there was a falling off in grants owing to the "average attendance being below the Board's just expectation." We get some insight here into the chief cause of the increased expenditure. The Board has provided school places for 420,000 children, the average attendance has only reached 350,000. Thus there have been 70,000 vacant places during the past year, and so also not only in school fees, but in grants. There is one suggestion made in the Budget which we hope in the interests of the ratepayers will come to nothing, viz., seeking a legal remedy for the defective work that has cost the Board so heavily. To run up law costs to recover from the jerry-builder hardly looks an economical proceeding.

The scheme of the Charity Commissioners for dealing with the City of London parochial charities, under the Act of 1883, has been formally approved by the Education Department, and has been signed by Lord Cranbrook and Sir W. Hart Dyke, M.P.

A Government Bill has been introduced into the Hungarian Diet making it obligatory on each of the 12,000 "communities" in Hungary to have a Kindergarten, and on parents to send to it all children between three and six years old, if not otherwise properly taken care of. The measure, being compulsory, is a new departure, and is explained by the great mortality among children in Hungary, owing to their being left alone when the parents go to work. The number of Kindergartens already existing does not exceed 600.

In view of the importance which attaches to a physical education, and the absence of any definite and uniform qualification among teachers of gymnastics and calisthenics, the National Health Society, 44 Berners Street, have formed a department of physical education under the management of an influential committee, and will grant diplomas of proficiency to such teachers as have fulfilled the necessary curriculum and have passed the required examinations.

The National Education Association has examined the New Code with a view to ascertaining how far the unanimous recommendations of the Royal Commission have been adopted, and to what extent the proposals of the Education Department will tend to improve education. The following is the general conclusion :—

"In some respects the New Code marks an advance on the Draft Code of last year. The higher qualifications demanded from teachers, the addition of compulsory drawing, of alternative schedules for the class subjects, of new specific subjects, and the recognition, hesitating though it is, of manual training, all make for the improvement of education. On the other hand, the lavish amount of money that may be obtained by a school that barely fulfils the requirements for efficiency, the very small addition made to the minimum staff, the continued sanction of overcrowding in the Voluntary schools, and the disregard of most of the recommendations of the Commission as to the pupil-teacher system, all show that we are far from obtaining a Code which shall secure real efficiency in our elementary schools."

Twenty scholarships have been offered to enable poor students to attend the summer meeting of University Extension students, which will be held, as in the two previous years, in Oxford, commencing on 1st August. To the scholarship fund the Marquis of Ripon has contributed £50; Mr. J. G. Talbot, M.P., and Mr. F. D. Mocatta, £10 each; Professor F. Max Müller and Mr. C. S. Roundell, £5 each; and the Misses Harris, of Cockermouth, £4. An anonymous donor has given £20 for scholarships for working men. The summer meeting will last nearly five weeks, and the period of study will be divided into two parts to meet the convenience of those students who cannot attend the whole meeting.

With the view of making Rugby School more accessible to parents who wish to educate their sons as day boys, the masters have decided to offer free tuition to every day boy who is admitted into the upper school—*i.e.*, the lower fifth form—before he is fourteen years of age.

The early morning classes in commercial subjects, which were commenced recently at the Polytechnic, Regent Street, London, have been very successful. In the arithmetic class 90 students entered; French, 168; shorthand, 115; book-keeping, 105; German, 74; type-writing, 16. Many of the students attend from long distances, and arrive at seven o'clock. At the conclusion of their class they are enabled to get a good breakfast at a very cheap rate. The classes were started with the view of organising a thorough course of instruction in connexion with the scheme proposed by the London Chamber of Commerce, and the successful results attained will encourage the committee to start classes in other important commercial subjects.

An open competitive examination for Boy Clerks is announced to take place on the 2nd July next in London, Edinburgh, Dublin, Liverpool, Aberdeen, Glasgow, and Belfast, for the unusually large number of 119 vacancies for Boy Clerks in the Civil Service. The last day for receiving applications for permission to attend will be 19th June. It is only a few months since an examination for 103 Boy Clerk vacancies, and now even this large total is to be exceeded. The public offices, it is evident, are slowly finding out what useful service they may get out of the Boy Clerk. The wages of Boy Clerks commence at 14*s.* per week and rise by 1*s.* per week per annum, but Boy Clerks cannot be retained after the age of 20. The examination is not a severe one.

According to the returns of the Education Department now published, 2,358,560 children in the elementary schools of England and Wales have earned a grant of £117,928 for singing by note. Singing by ear, which is paid a lower grant, earned £33,514, with 1,340,581 scholars. Six years ago only 20 per cent. were taught by note; now the proportion is 63 per cent. The increase appears to be due to the Tonic Sol-fa system, for the number of schools or departments adopting that system has risen since the year 1884 from 3,871 to 12,790. Adding Scotch and English figures together, 2,336,533 children passed in Tonic Sol-fa, 380,366 in staff and various notations, 1,450,240 were taught by ear, and 18,586 do not sing at all. Thus six children pass in Tonic Sol-fa for one in staff or other systems. Between four and five out of every thousand do not learn to sing, and almost two out of every three sing by note, so as to earn the higher grant.

Sir William Hart Dyke, Lord George Hamilton, and Mr. Jackson are sponsors for the Bill which has been introduced to render operative certain articles of the Education Code, 1890. This Bill, in the first place, provides that it is not to be required, as the condition of a parliamentary grant to an evening school, that elementary education shall be the principal part of the education there given. For this purpose, so much of the definition of "Elementary School" in Sect. 3 of the Elementary Education Act 1870 as requires that elementary education shall be the principal part of the education given in an elementary school, is not to apply to evening schools. Secondly, it takes power to award a special parliamentary grant to the amount of £10 annually to evening-schools where the population of the school district in which a public elementary school is situate, or the population within two miles measured according to the nearest road from the school, is less than 500, and there is no other public elementary school recognised by the Education Department as available for the children of that district, or that population. This grant will be in addition to the ordinary annual grant, and in addition to any special grant under Section 19 of the Education Act 1876, and is not to be included in the calculation of the ordinary annual grant for the purpose of determining whether it does, or does not, exceed any maximum fixed by law. No school, however, is to be entitled to receive a special grant of this character unless it satisfies the conditions contained in the minutes of the Education Department, in force for the time being, with regard to such special grants.

It has been announced that the negotiations in respect to the Meyrick Endowment which have been going on for some time past between Professor Rys, representing Jesus College, Oxford, and Mr. Rendel, acting for the Welsh Members of Parliament, have ended in a manner very creditable to both sides. It has been agreed, so it is stated, that the College authorities shall lay upon the table of the House of Commons an amended statute respecting the endowment in question, under which the College will make, as a first charge upon the whole endowment, an annual payment equal to the interest upon £20,000 Consols, the amount in dispute, for the maintenance of scholarships in intermediate schools in Wales and Monmouthshire, subject to the control of a committee to be appointed by the joint education committees of Wales and Monmouthshire, on which committee Jesus College shall have a representative. This settlement has met with the approval of the College authorities on the one hand, and the Welsh Members on the other, who, on their part, will, as soon as the amended statute is laid on the table of the House of Commons, withdraw the Bill they had introduced to deal with the matter. The sum thus made available will provide two scholarships each of twenty guineas for each of the thirteen counties comprised in Wales and Monmouth.

King's College, London, has just received two benefactions that will naturally increase the efficiency of the two departments directly benefitted. The widow of Sir William Siemens, the

eminent electrician, has, in fulfilment of the intentions of her late husband, given £6000 for the establishment of an electrical laboratory. Dr. John Hopkinson will be the new Professor, and it would be difficult to select any one better fitted to organize this new department and preside over its working. The other benefaction is that given by Mr. Bannister Fletcher, Master of the Carpenters' Company, which is to be devoted to the formation of an architectural museum.

Dr. Russell, the President of the Chemical Society, devoted a considerable portion of his presidential address to the discussion of the question of chemistry teaching in schools, especially as it affected the education of medical students. He did not say much of any value to the schoolmaster. He did not point out any means of overcoming the difficulties that exist to the more general teaching of chemistry in schools. Those difficulties are well known—want of time, want of suitable lecture-rooms and apparatus, and want of suitable teachers. Only the larger schools can afford to have, on their modern sides, all these requisites. Notwithstanding the drawbacks that chemistry labours under as a school subject, there can be no doubt that the number of schools in the country that possess properly equipped laboratories and competent teachers has greatly increased. The establishment of technical schools will also greatly advance the study of this science.

From some remarks in "Reports on Elementary Schools" in the Buenos Ayres *Monitor de la Educacion Comun*, we see that the educationists of a region so remote as the Argentine Republic are not behindhand in matters of scholastic method. For instance, a Sub-Inspector of Schools says in his report that—

"Laws and truths are consequent on the observation of facts; and in every subject it is possible to set out from the facts and arrive at the law. After a pupil has been shown the facts, he should be left to himself to examine them singly, and to endeavour to deduce the law. If he fails to do so, he should not be allowed to remain in ignorance. The teacher should show his skill by placing before him a number of similar facts, by questioning him on these facts, and by varying the facts themselves somewhat. If the knowledge is even yet inaccessible to the pupil, the fault lies not in the method, but in the teacher, who has not yet thoroughly grasped the way he should arrange his subject, and the steps he should follow in teaching. . . . All these unsatisfactory results are caused by the fundamental error of believing that the chief object of the school is that of instructing, of communicating the truth, of imparting a certain amount of knowledge. We all know that this is an error, and yet who does not commit it? The object of the school is not so much to teach the truth as to teach the method of seeking it. This maxim is expressed in the 'Law on Education' in the following words: 'The object of elementary schools is to further, and at the same time to direct, the moral, intellectual, and physical development of the children.'"

Whilst we are waiting for the fairy who will bring us the means of establishing the superior training colleges for secondary teachers, we are pleased to find that the number of good schools prepared to take student-teachers is increasing. The Wesley College, Sheffield, under Mr. Findlay, a first grade modern and proprietary school containing 150 boys, and the Batchelor School for Girls have fully matured their arrangements for receiving such students.

The executive of the National Union of Teachers have forwarded to the Education Department a resolution suggesting that in future all certificates granted to teachers should be issued by a council upon which teachers should be represented. The following resolution on the same subject was adopted by the annual conference of teachers:—

"That, in the opinion of this conference, the practice of the Department in admitting every year to the teaching profession a large number imperfectly qualified persons is highly injurious to the progress of national education; and the conference is further of opinion that certificates should only be granted to those who, by education and professional training, have shown themselves fully qualified for the office of a teacher, and that the granting of such certificates of competency should be vested in a representative educational council (created under Act of Parliament) consisting of representatives of the universities, training colleges, certificated teachers, and nominees of the Crown."

Such a council, we may point out, would be very like those which are sketched in the Bills for the Registration of Teachers, in which we are all so interested. And should the Department accede to the request, a very decided step would be made in the direction we all desire—the establishment of a representative educational council.

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THE EDUCATIONAL TIMES.

LONDON, JUNE 1, 1890.

The Headmaster of Harrow discussed in last month's *Contemporary Review* a subject that is always with us, "The Educational System in Public Schools"; discussed it, too, with an appreciation of its multitudinous difficulties, and a fairness and openness of mind not by any means too common amongst eminent schoolmasters. He sees as clearly as outside critics that a public school system fashioned to meet the wants of bygone generations is not the best possible for meeting the practical needs of the present generation. The essentially classical system of our old public schools, modified as it has been by the accretion of new subjects, he characterises as "more like an old coat let out here and there to suit a growing child, than like a new coat properly made to fit his body." This makeshift provisional method of retaining the old and admitting new subjects into the curriculum ignores some well-established facts—that school time is a constant quantity; that average human capacity, if not constant, has its limits, whilst the number and range of subjects of instruction are practically limitless. Such a system stands condemned. It is therefore the duty of schoolmasters to make every possible effort to bring into use a more enlightened system. It will at once be seen that the necessary condition of doing this is to decide, in the first place, on the relative values of the subjects of education. Such a decision is not very easily arrived at. And even when we have settled, by the light of psychology and utility, the number of studies, and the order in which they are to be taken up, there remain the practical difficulties of providing that the largest number of pupils in a school are pursuing their appropriate studies. The educator of a single pupil can readily ascertain the subjects (if any) in which his pupil is capable of excellence, those for which he has no recognisable taste or talent, and those to which it is essential he should devote his time by way of direct preparation for his life-work, and shape his training accordingly. In a large school no such adaptation of teaching to individual capabilities and requirements is possible. As Dr. Welldon says, "Nobody has yet succeeded in showing how a school can be organized and administered without some sacrifice of individuality among its members. The association of boys in forms, classes, pupil-rooms, or houses, implies a subordination of personal character to the good of the whole."

His own proposal is to divide educational subjects into two classes, the "fundamental" and the "accessory." The former he would teach to all boys in a greater or less degree during the whole, or nearly the whole, of the school life; the latter should not be taught to all boys, nor should any boy be made to learn them throughout his school life.

That is to say, when a boy's position is low in a school, he must learn the same subjects at the same times as all other boys in his class, whilst, as he advances in the school, such opportunities of specialization would be afforded him as might be suitable to his needs and capacities. Now we suspect that this is the method in operation in schools at the present day. Specialization may come into play too early in some schools, and subjects may be taught as "fundamental" which should fall into the "secondary" or "accessory" group; but we are much mistaken if uniformity be not the note of the teaching in the lower forms of schools.

But the all-important question remains: What are "primary" subjects? The Headmaster of Harrow answers: Divinity, Mathematics, Language (studied for its own sake), French (studied as an instrument of utility), some branch or branches of Natural Science, and the elements at least of English Literature and History, as well as of Geography. By Divinity is meant the Christian religion, considered doctrinally, morally, and historically. The Language to be studied for its own sake is, according to Dr. Welldon, Latin, not Greek, on the ground that a language "occupying an imperial position in the world, which is the language of law, of liberty, and of religion, which is the parent of half the languages spoken in Europe, which exhibits a singular strength and precision of grammatical idioms, and which has been so long and closely studied as to be furnished with the necessary means and appliances for teaching," takes precedence of Greek as a primary subject of education. The branches of natural science which Dr. Welldon suggests are the same as Professor Huxley recommended many years ago, where only two branches are possible, viz., botany and physics—the one as cultivating the powers of observation, and the other as admitting of verification by experiment.

There can be little doubt but that the adoption of a curriculum such as sketched out above, would be an immense improvement on the curricula now in force in our public schools. One essential matter has still to be settled, and that is the apportionment of school time to these primary subjects. No one subject must be allowed to make greater demands on the time available than a just regard for the other subjects sanctions. Dr. Welldon does not enter on this matter, though we suspect, if he had considered it in all its bearings, he would no longer be as greatly astonished as he acknowledges himself to be "at the poverty of the results attained in schools by the teaching of science."

Hitherto, the science teacher has had to take the residuum of the school. Boys who showed no aptitude for classics or mathematics were turned over to the science side, and thus impressed with the stamp of inferiority from the outset. Those who were not so given over could spare so little time from the demands of those subjects in which they excelled, as to do but scant justice to science or its teacher. Quite apart from the faults of teachers, the barrenness of the science department in schools, so far as it may exist, is easily accounted for. It is one of the merits of the curriculum we have been discussing that it assigns to science a place amongst those fundamental subjects which should be taught to all boys, brilliant or dull, during the whole, or nearly the whole, of their school life. On the just distribution of the school hours, however, depends the success of this as of every other scheme of school education. It is not enough to select the right subjects to teach: it is still necessary to adjust the claims of these on the disposable time.

Our critics and reformers seem never tired of telling us that we teachers have no *esprit de corps*, no "public spirit." But the way they mix up these terms is so confusing that we hardly know whether to acknowledge our shortcomings with humble shame, or to repudiate the charge with indignation. The terms certainly do not mean the same thing—indeed, to some extent they mean opposite things. Public spirit is a sense of public duty, a desire to serve and to promote public welfare, without any reference whatever to personal gain or loss. It is that true and enlightened love of one's fellows on which, as a firm basis, all that is noblest in human character rests; and which, far more than the desire for fame, urges "the clear spirit to scorn delights, and live laborious days." Milton himself was one of the most conspicuous examples of public spirit. And we recognise it, as he did, and as the Greeks of long ago did, not only as one of the great aims of all true education, but also as itself one of the best means we possess to produce the desired result.

Esprit de corps, on the other hand, is a sense of union in a body corporate, a determination in the members of a society to stand by one another, and by common effort to promote a common success. It may be—and is commonly at school—the nursery-garden of public spirit. But it does not ignore gain and loss; it has distinctly an element of selfishness in it; and may at times be pushed to such an extreme as to become a public evil—whenever, for instance, the interests of a section of the public are set before the interests of the public as a whole. Still, within limits, it is a decided advantage, and enables us to effect by co-operation many things which singly we could never attempt; while it is evidently the nearest approach to patriotism which some natures seem capable of making.

Such being, in our opinion, the main distinctions between *esprit de corps* and "public spirit," it is plain that we have some excuse for pleading that we are only confused by charges in which these terms are indiscriminately employed, as though they were synonymous. But let us take the charges separately. Are teachers lacking in public spirit—lacking, that is, in a sense of public duty, in a desire to promote in their work as teachers the public welfare? Speaking broadly, that is of the great majority, we do not think that the charge is true—either in the case of teachers as a whole, or in that of any section of teachers. In many cases there is, perhaps, consciously or unconsciously, at times too much of a reference to personal gain or loss. And, though there is much excuse for this, it does undoubtedly, wherever it exists, prevent the spirit from assuming its purest form. Yet we very much doubt whether any teacher ever does his or her work without *some* sense of public service, *some* desire to promote the general welfare. And we will go further and say that there is no section of the community which is more unselfish, and which spends itself more freely for the good of the whole, than does the body of teachers. No; our public spirit may not be perfect, but we emphatically deny that we are conspicuously lacking in it.

Are we then wanting in *esprit de corps?* No and yes. There is only one section of our body which possesses at present any corporate bond—the teachers in public elemen-

tary schools; and they are united rather *quâ* civil servants than *quâ* teachers; *i.e.*, their bond is one of direct service to the State, and of requirements imposed by their employer as conditions of that service, rather than one of a self-regulated, distinctly professional nature. Still, bond of some kind they have; and he must be blind indeed who would accuse them, as a body, of lacking a determination to stand by one another, and by common effort to promote a common success. And the rest of us—well, until a Registration Bill of some kind is passed, we have no real bond of union at all. Any one can any day walk into our midst and take up his or her abode there, unchallenged, and with equal rights. As long as this state of things exists, there cannot be a corporate unity; and therefore a sense of union, of oneness, is wholly impossible. And so to charge us with lacking *esprit de corps* is simply ridiculous. It would be much better—decidedly more just—to charge us with lacking common-sense in not having long ago demanded and obtained registration, so that we might set our house in order. But even to this charge we can now answer that we have seen the error of our ways, that we have again brought the matter before Government and the public, and that we do not mean to rest until our end is obtained. And when that end is obtained, we shall, doubtless, soon learn to set so high an estimate on the true dignity of our work as will lead us to look upon no preparation as too careful or too scientific which can render it as sound and as effective as possible.

The future historian of the rise and growth of our system of public elementary education cannot fail to contrast the changes introduced into the administration of that system by the Codes of 1862 and 1890—the former following the report of the Duke of Newcastle's Commission, the latter being the firstfruit of Lord Cross's Commission. He will, no doubt, describe the evils and abuses which the Code of 1862 was intended to cure, as well as the new evils, more formidable than the old, which its working generated,—how the examination of every child in every school to which grants were to be paid, and the making of the prospects and position of the teachers dependent, to a considerable extent, on the results of this examination, recommended by the Duke of Newcastle's Commission, gave rise to a machine-like uniformity of method in measuring those results, injurious to education, degrading to teachers, and blind to the variously endowed intellects of children. And, if our historian is disposed to moralise on the circumscribed penetration of the future given to the most intellectual of statesmen, and the likelihood of their forecasts turning out to be even as the vaticination of Zadkiel's Almanac, he has an apt text in Mr. Lowe's famous formula, summarising what he believed would be the effect of his Revised Code: "If this new system is costly it shall be efficient, and if it is inefficient it shall be cheap." Costly it undoubtedly has been; the best commentary on its efficiency is the new departure taken by its successor, the Code of 1890. We have already given a summary of the principal changes made in the New Code now awaiting adoption by the Legislature; and here we need only notice some mistakes made by our contemporaries, and, strange to say, by the Vice-President of the Education Department, in respect to the effect of these. They have been represented as "giving a death-blow to payment by results." This, we submit, is an error. The school is to be judged, now as formerly, by educational results, and rewarded accordingly. But a new method of measuring those results is introduced. Under the old system the Inspector was bound to examine each child in a prescribed task in a prescribed way. He is now permitted considerably more freedom, whilst teachers and managers may classify children according to their proficiency in the subjects of examination, without regard to age, placing a pupil in a higher class for one subject and in a lower for another, if in such manner his progress can be best secured, and the Inspector is bound, as a rule, to examine the children in the classes in which they have been taught. Again, it is a condition precedent to every grant that the general efficiency of the school shall have been ascertained by an individual examination of a third of the pupils; the remainder are, "as a rule," to be examined "*by sample*"; but the examination of scholars in Standards III. to VII. inclusive may be individual throughout, "*if the managers so desire.*" The principle on which the grant will be distributed is this: firstly, a fixed grant, varying from 12*s.* 6*d.* to 14*s.* per scholar, will be given to every school which, after a thorough inspection, is reported efficient, and whether the higher or lower amount is awarded will depend upon the accuracy of knowledge and general intelligence of the scholars in elementary subjects. Next, a "special and graduated grant" is to be awarded for "the discipline and organization of the school"; thus a new factor in determining the educational results achieved by a school receives distinct recognition.

Shortly, it may be said the New Code depends for success on capable and enthusiastic teachers, public-spirited and intelligent school managers, and Inspectors free from pedantry and crotchetiness. If such a combination of co-workers were attainable, there can be little doubt but they would render it an efficient educational instrument. A Code, however excellent, cannot be self-acting: all it can do is to set forth a practicable, realizable ideal of education. It must leave to those who direct its working the realization of such ideal.

Nothing can be better than the "instructions" given by the Education Department to guide those who have to supervise the working of the new system. "The position and experience of Her Majesty's Inspectors," it is pointed out, "afford exceptional opportunities for aiding and encouraging the efforts of teachers, and for informing them from time to time of any plans and devices which may have been seen in beneficial use in other places." And again, "it will be largely owing to your influence if all concerned with the management of schools habitually regard the officers of this Department not merely as critics and examiners, but as advisers and helpers in an important public work." If all parties concerned in the success of our public elementary education would work in the spirit of these instructions, our primary schools might count for more than they now do in the stability and progress of the Empire.

We regret, however, to see that it is the teachers who still grumble. They are not at all disposed to welcome the discretionary power with which the Inspectors are invested by the New Code. They complain that they are not sufficiently recognised as working for the highest motives and the truest and best educational advancement of the children under their

charge, and they say, in effect, Let us be recognised as persons possessing loyalty, honour, and professional knowledge, and then, and only then, we will feel that we are at one with the Education Department and its Inspectors, and united with them in the performance of an important public work. To all such we would earnestly commend the Report of the Duke of Newcastle's Commission. They will there learn that the time was when the elementary schoolmaster had much or all of the freedom that he now asks for, and that he abused it. His successors of to-day ought not to expect the Education Department to forget everything and learn nothing.

REVIEWS, NOTICES, &c.

Notes on American Schools and Training Colleges. Reprinted from the Report of the English Education Department for 1888–9, with the permission of the Controller of H.M. Stationery Office. By J. G. Fitch, M.A., LL.D. (*Macmillan & Co.*)

All schoolmasters and schoolmistresses ought to welcome this reprint, for it rescues from the wilderness of Blue Books a most interesting and instructive contribution to the library of pedagogy. It contains pleasant lectures on the history of education, psychology, school management and method, as well as on national characteristics. In it Dr. Fitch shows himself in many characters. 1. As a traveller willing to tell the foreigners what he has left at home. 2. As a returned traveller, delighting to tell what he has seen, occasionally taking up the *rôle* of a prophet or seer. 3. As a teacher, trained in the practical business of schools and colleges. 4. As an Inspector, trained to look with penetrating vision below the surface. 5. As a government official, drilled in the bureaucratic style. 6. As Dr. Fitch himself, breathing out the essence of grace, courtesy, and compliment. We propose to justify this division by giving under each of these six heads characteristic quotations.

1. With regard to the first, it is unnecessary to quote remarks on English Education, and Dr. Fitch's purpose in making them is thus described:—

"These facts, so familiar to my own countrymen, are here recounted, partly with a view to show to American readers the very exceptional conditions which dominate the organization of English education, and mainly in order to explain the point of view from which an English official is likely to look."

2. The returned traveller writes:—

(*a*) *Of the Elementary School System.*

"Among the prerogatives of an independent and autonomous Government, with which the States have not parted, and are not likely to part, is the absolute control of public education. There is, therefore, no national or American system, but a number of separate systems. Each State has its own educational laws, and raises, appropriates, and distributes school funds in its own way.

"There is, it is true, at Washington a Central Bureau of Education, which was founded in 1867, and which is maintained by Congress at an annual charge of about $50,000. But it is in no sense a controlling or even an advising body, and its existence is hardly recognised by the local educational authorities in the several States. The liberty of classification enjoyed by English teachers could not, as a rule, be exercised in America.

"An English boy who goes through the course with credit up to 14 is said to have passed the seventh standard. An American boy who reached the same point would be said to have 'graduated' in the grammar school."

(*b*) *The High School.*

"It should be observed that the American high school is unlike any institution in England. It is essentially a continuation school, and is in close organic connexion with the primary or grammar schools. It does not receive pupils till the age of 14, and all its arrangements pre-suppose that, before entering it, the pupil has gone successfully through the grammar grades. An English 'grammar school' or middle school exists side by side with a public elementary school, but has no relation to it. The broader and more liberal aims of the English grammar school affect the character of the daily lessons from the first. Subjects are begun in it by the age of 10 or 11 which do not come in the curriculum of the elementary school at all. Hence if by means of scholarships or otherwise a boy of promise is to be taken from the lower school to the higher, it is necessary to choose him early, say at 11 or 12, and to transfer him to the other at once. He would not derive the full advantage of the higher school course, if he stayed to complete the seven standards of the elementary school. But in America the 'ladder' is differently constructed. The end of the grammar school curriculum coincides with the beginning of that of the high school. Both schools are generally under the same management. And, except for the fact that it is the poorer parent who is compelled to withdraw his child earliest for labour, both are attended by the same class of pupils."

(*c*) *Training of Teachers.*

The normal colleges are unequally distributed.

"Many of them are ordinary high schools, with a class of advanced pupils in the last year, or in the last six months, studying school methods or organization. The theory of teaching is one of the 'elective studies' in some of the local high schools. As a rule, the purely normal colleges are for women only, but in several of them a very small number, not exceeding 10 per cent. of male students, may be found. The colleges are nearly always day schools, the students living at home or in lodgings. Men who intend to devote themselves to the teaching profession prefer to graduate at one of the ordinary higher colleges, and to rely on their academic distinctions; and do not, except to a very inconsiderable extent, go to normal institutions."

(*d*) *The College System.*

The conception of a "University" as an organization apart from a college to test students does not exist in America.

"There were enumerated in the last official returns of the 38 States of the Union no less than 491 distinct institutions for higher education, every one of which possesses the right to confer degrees."

As exhibiting the "seer" we give the following:—

"The question is often discussed, whether, having regard to the terms and to the spirit of the Federal Constitution, and to the absolute religious equality which that instrument secures to the community, it is within the power of any single State to make grants of public money to schools under the management of clerical bodies. The question has not been authoritatively settled; and whenever it takes a practical shape, and any State or city seriously proposes to accept the co-operation of the Churches and to subsidize denominational schools, a very grave and acrimonious controversy may be expected to arise and to excite interest throughout all the States of the Union."

3. That the traveller was an experienced teacher shows itself on every page, and particularly in the notes on methods. He remarks that a large importance is attached to drawing in the American schools.

"It is, in fact, the one form of manual training on the value of which all the best educational authorities are agreed. Many misgivings are expressed even by some of those authorities about the educational value of other kinds of Handarbeit, but none as to the importance of drawing and design."

Of "manual training," as recently spoken of—the latest pet subject of the educational theorists—there is little in America. There are a few real technical schools intended to develop skill and producing power, and, through the energetic initiative of the school superintendent at Philadelphia, a Manual Training School has been founded, not on the grounds of any industrial or economic needs, but solely on educational considerations.

Amongst other suggestions we note the following:—a caution against excessive use of "concert drill"; the setting of the scholars to a silent reading of a quarter of an hour, and questioning on the subject afterwards; the practice of "oral compositions"; attention to "recitation," a word which, in America, denotes any oral lesson or catechetical exercise. There seems to exist a general practice of asking the scholar to make a sum and then to work it out before the class; and yet, with all this practice in elocution, Dr. Fitch tells us there is an undue proportion of time given to "memorizing." The lessons in patriotism are noted, and after referring to one on "The Equality of American Citizens in Political Rights," Dr. Fitch observes:—

"One may be amused at this, but it is nevertheless true, on both sides of the Atlantic, that a boy is most likely hereafter to do something to make his country proud of him, if he is early taught to be proud of his country, and to have some good reason for being proud of it."

4. H.M. Inspector of Schools has his eyes open to buildings, fittings, and differences of plans. Of course he refers to—

"The continuous blackboard, or blackened surface extending all round the room, after the fashion of what house-painters here call a 'dado.' I am frequently struck in England with the waste of power caused by the smallness of the blackboard surface accessible to the teacher."

But, with our arrangement of classes, and notions with regard

to light, to adopt this plan effectively our rooms would have to be circular, and the floor a locomotive turn-table.

"The power of rapid and effective freehand drawing," says Dr. Fitch, "is cultivated more generally, and with more success, among the best American teachers than among our own, and it gives them a great advantage."

Probably the following must also come under No. 4:—

"When I was in New York, an indignation meeting was held, and attended by many teachers and friends of education, to protest against the existing system, to set up a society for the reform of the city schools, and to denounce the 'hated manuals' put forth by the Board. Very strong language was used at the meeting and in the press. 'Our system,' it was said, 'does not properly educate, and is conducted too much on the principle that the teacher's work is to cram the pupil with hard facts. The school system of this city is nothing more or less than a magnificent piece of machinery, crushing out, whether designedly or not, all individuality. Uniformity is the thing aimed at, and the uniformity achieved is that of mediocrity.' I thought I had heard language of this kind somewhat nearer home, but I never heard it used against public authorities because they did not measure the teaching of schools by its results, but would insist on minute and mechanical rules controlling the processes by which the results were produced."

5. There is a bureaucratic flavour in such paragraphs as the following:—

"Through the favour of your Lordships, I was permitted last year to extend the usual official holiday, and so to gratify a wish which I had long entertained, to visit some of the leading schools and colleges in America. I have appended to this report, in the form of some notes, such of the chief facts and considerations brought under my notice in the course of this journey as I thought most likely to prove interesting and suggestive to school managers, masters and mistresses at home, especially to those who are concerned in the training of elementary teachers."

"The truth is that, till the end of time, any conceivable system which subjects either teaching work or any other work to external criticism is sure to be unsatisfactory to some of those who are criticised. But once admit that public authority is to be brought to bear on school work at all, there are, it would seem, only two possible ways of doing it. Whether the immediate object be to award credit to the teachers, or to assess the share of a public fund, to which the school should be entitled, or to make a report for the information of the public, is immaterial. The work of a school must be estimated either by its methods and machinery or its results; and of the two the former plan hampers teachers and restricts their freedom far more than the latter."

6. Dr. Fitch is none other than Dr. Fitch when he writes as follows:—

"My consent to the course (*i.e.*, the reprinting of the notes) has been willingly given, and the more willingly because to the real sympathy and admiration with which I witnessed some of the educational phenomena in America, there is added in this instance a very deep sense of the generous and thoughtful attention which I everywhere received from those whose institutions I visited or whose help I sought."

We have frequently deprecated the unpatriotic and unphilosophic habit of many of our political educationists who are perpetually assuming that "they manage these things better in France, or Germany, or America," or that the fear of results of competition should make us imitators of the plans of other nations. Dr. Fitch, with his usual clearness, points out that there is little or no analogy between the educational systems in a young community which has found itself unhampered by traditions, and free to fashion new institutions, and those of a country like England, in which educational systems, if so they may be called, are unsymmetrical, and are the outcome of compromise and of historical development. Dr. Fitch goes further, and in his own gentle way rebukes the habit to which we have referred. He points out that the American is naturally an optimist.

"His golden age lies in the future, not the past. He does not indulge in the Englishman's habit of self-depreciation. He never falls into the mood in which his English cousin is often fain to disparage the institutions of his countrymen, and to assume that educational and other work is better done by foreigners than himself. He believes that Englishmen are only half sincere when they use such language. But, if he is sometimes boastful, it is only because he feels secure in the conviction that he can justify his boasts. He is aware of the many defects in his own educational system, especially its frequent lack of thoroughness, and he is very sensible of the need for amendment. But he is not disheartened; for in the first place he believes that he is fully able to effect improvement, and in the second place he means to do it."

Pestalozzi: his Life and Work. By Roger de Guimps. Authorized Translation from the second French edition. By J. Russell, B.A. With an Introduction by the Rev. R. H. Quick, M.A. (Sonnenschein.)

More than seventy-five years ago "an Irish traveller," whose attention had been called to Pestalozzi by the writings of Madame de Staël and Mrs. Hamilton, was induced to visit the school at Yverdun for a couple of hours; he stayed for three months. His account, published in 1815, at Dublin, is the first we have in English of the struggles of Pestalozzi. Shortly afterwards the pompous Dr. Bell came on a similar errand, and with an amusing fatuity declared that in twelve years Pestalozzi's method would be forgotten, and mutual instruction adopted by the whole world! We believe the hope of adding the authority of the name of Pestalozzi to the system of mutual instruction so warmly espoused by the religious educational bodies among us was largely instrumental in directing attention to his writings.

In the first edition (1801) of "How Gertrude Teaches her Children," we learn that the lack of an assistant often compelled Pestalozzi to put a clever child between two others to teach them what he or she could.

In Biber's "Life and Writings of Pestalozzi" (1831), we find this simple statement, that "children taught children," has grown into the "better informed boys acted as assistant-teachers" (p. 38). Biber does, indeed, admit that Pestalozzi deserved the title of "teacher of teachers," because he was willing to learn from the children, to follow their lead rather than to impose dogmatically his will and his method on them *ab extra*, as the theologian does. All this, however, is omitted in "A Lecture on the Life of Pestalozzi," given by the Rev. C. Mayo, the founder of the Pestalozzian School at Cheam. We are simply told that "the number of his pupils led him to adopt the principle of mutual instruction." This lecture was edited and largely annotated by Robert Dunning, and published by the Home and Colonial School Society; in Dunning's notes we learn that the monitorial system was employed in Pestalozzi's school, though, as he is careful to add, it was not to be confounded with Bell and Lancaster's system. We hope not. "It is you, sir, I believe, who invented mutual instruction?" "God forbid!" replied Pestalozzi. In the Cotta edition of 1820, the words "children taught children" are carefully expanded and explained. Pestalozzi, apparently, had no desire to be confused with Bell.

Biber, we may add, was only in Yverdun after Pestalozzi had left it, and in 1827 he published the atrocious attack that was Pestalozzi's death-blow. "I feel that I am going to die; but I must have six weeks longer to refute these shameful calumnies." Biber afterwards came to England, and was made, in 1842, the vicar of Rochampton. During thirty years the only interest he took in education, as far as we have been able to discover, was to sign a petition against the disestablishment of the Irish Church, and to edit *John Bull*. Now Biber is one of the main authorities for Barnard, R. H. Quick, and Leitch. The need, then, for the present translation is obvious; the facts and dates in Pestalozzi's life have been carefully verified from the original documents; the book is a popular one in the best sense of the word.

De Guimps is the last of those who came directly under Pestalozzi, and he has a large measure of the biographical virtue of letting his hero speak for himself.

The first edition of De Guimps (1874) is a handsomer book than the second (1888); the alterations are few and unimportant. Before attempting to characterise Pestalozzi's work and its present value for us, we may mention the few complaints we have to make against the subject of our review. The frontispiece portrait is of no value; the tedious repetition of "Pestalozzi: his Life and Work," at the top of the left-hand page, might have been helpfully replaced by the number of the chapter and the date; on p. 229, for "eighth" read "seventh," and decrease the numbers by one up to p. 237; the bibliography at the end contains too little or too much: either make it fairly complete, or limit to a very few of the best books; the omission of the "Letters on Early Education, addressed to Mr. Greaves" (1827), is curious; worst of all is the common French lack of an index; the author who writes a serious book without an index ought to be compelled to pay a heavy fine to some literary benevolent society.

It is usual for the reviewer, with the air of a very superior person, to dismiss the translator with a few words of scant praise. For our own part, we can only say that, after the first chapter we completely forgot him in the fascination for Pestalozzi's work. The translation reads itself. In passing from the German of Pestalozzi to the French of De Guimps the heavy involved

sentences disappear; even the heaped-up genitives that stuck for ever to Pestalozzi, like his debts, are reduced to order. Mr. Russell has, perhaps wisely, confined himself to De Guimps' text: a reference to the original might, perhaps, have kept the technical terms clearer. Our pedagogic nomenclature is a gruesome muddle. On p. 183 we have the striking remark, which Pestalozzi so eagerly accepted at the time, from Councillor Glayre: "Vous voulez mécaniser l'éducation." This, according to De Guimps, was soon improved by Pestalozzi to "Je veux psychologiser l'éducation," but a few lines lower down we find, "*Ich suche den menschlichen Unterricht zu psychologisiren:* Je cherche à psychologiser l'enseignement humain." In the translation the German has been left out, and *enseignement* rendered by *education*. We venture to believe that Glayre said *l'instruction* and not *l'éducation*, and that he hit the nail on the head more smartly than either Pestalozzi or De Guimps gives him credit for. In common with many of his followers, Pestalozzi had a fetish belief in *the* method; with this once settled, it would be possible for the peasant's wife to apply it: the "Book for Mothers" was intended to show her how to proceed. You think, in effect said Glayre, you can make a perfect machine which an untrained hand can put in motion. *The* method at Yverdun was Pestalozzi himself. The translator's substitution of *sense-impressed* for *intuitif*, as a rendering of *anschaulich*, seems to us a stroke of good luck as well as of judgment. The reader has only to turn to p. 215 of R. Dunning's notes on Mayo's lecture to see how *intuition* can set a man floundering in the mists and bogs of metaphysics.

The extent of meaning of the word *Anschauung* in Pestalozzi is very hard to determine; morality, religion, may be taught by *Anschauung*. Perhaps Mr. Quick will help us in the forthcoming edition of his *Essays*. "It is here," as Mr. Dunning says, "that this Evangelical Institution parts company with Pestalozzi." The intellect may be trained by sense-impressions; but to win morality and religion from within the child, without the external imposition of the catechism or original sin, "as the Church teaches it," this was asking too much.

What is the secret of Pestalozzi's influence on education, the deepest since the time of Luther? This above all, that he loved his fellow man. Like that mightier voice, Rousseau, he knew the way into the inmost recesses of the human heart. After the fiery flames of indignation against injustice, comes the tender dew of pity for the outcasts of the world. The influence of Rousseau led to the violent overthrow of external institutions. Pestalozzi, with far deeper insight, saw that the sole chance of raising mankind was from within. He turned to education as the potent weapon for this regeneration. In him the social reformer was doubled by the pedagogue. He based education on conformity to child-nature, and gave it an ethical goal. The psychology may be inaccurate, the ethics may change; but psychology and ethics will remain the two poles on which all real education must turn.

Although De Guimps' book marks a distinct advance for us in sober and accurate knowledge, it would be a grave mistake to treat it as more than an introduction; if the student, in spite of the high misdemeanour of no index, tries to dig, he will find himself baffled. He will be unable to discover to what extent Pestalozzi employed manual work, or what tools he used; did he invent any new apparatus for gymnastics? If the student tries to work for himself, he will soon feel the difficulty of distinguishing flame from smoke in the scattered writings of a man who was a philosopher by nature, but not by trade.

A grave defect is the lack of historic background; what was the exact relation of Pestalozzi to Rousseau? how far were the conditions of the times favourable to the acceptance of Pestalozzi's ideas? When men are sitting among the ruins of destroyed beliefs, any attempt at positive reconstruction is welcome. Why are we not given some sort of picture of a school when Pestalozzi was a boy? Unless we bear constantly in mind the relation of a man to his times, we shall always be open to the risk of applying remedies that answered in one case to totally different conditions. The exaggerated importance laid on method by Pestalozzi and his followers is probably only another way of stating that the ordinary school of his time had absolutely none.

In the "Book of Mothers" we are told to develop the child's faculty for expression by forming sentences on the thing nearest to it, its own body: "the right calf lies behind the right shin, between the right knee and the right ancle"; but a healthy child does not naturally turn its attention first to its own body. Pestalozzi, however, we must remember, dealt with the very dregs of society, and for them considerable attention to the body was imperative.

A still worse fault in De Guimps is the ever-present fear that Pestalozzi may be considered unorthodox. We have given up apologizing for Burns on the score of respectability: let us cease to trouble ourselves whether Pestalozzi ought to be *called* a Christian; if ever a man worked in the spirit of Jesus, surely it was he. His pupils, said von Türck, will not talk about religion, but they will be religious. What more can we ask from the school? The first and foremost duty of a biographer is to tell us all the facts he knows about his hero; you must take a mountain or leave it, says Victor Hugo. If the Bible was never read at Pestalozzi's, as Ramsauer and Pastor Vaudois affirm, such a fact should not be suppressed. The question whether or not the Bible ought to be read is not settled by Pestalozzi's action in the matter: it is only the unwise who value every word in an author of repute.

Education has been greatly retarded in England by the fear, still strongly felt, though its expression is now much more timid than formerly, that the poor, when educated, would grow discontented with their lot in life, that they would crowd into positions so far the exclusive privilege of the middle and higher classes.

As long as our schools prepare directly for examinations which permit a man to obtain a better living "with his coat on" than he can get with it off—as long as society pays more respect to those social parasites, who do no work save to spend the money others have made for them, than it does to an honest and skilful carpenter—so long will the poorer classes strive to "rise." Pestalozzi, however, never thought that primary education and the education of the poor were different things; he did not dream of raising the people by turning them into scholars. He did not wish his scholars to have something, but to be something. He strove to awake the moral sense, to give a more adequate idea of what man is and ought to be, to set in motion all the forces, physical, intellectual, and moral, that reside in every child, to render it fit in due time to acquire for itself such skill or knowledge as its intellectual capacity or station in life rendered necessary. Pestalozzi strove to discover those first steps in the development of humanity which must be taken alike by pauper and peer.

As we close the book we feel anew the irresistible power possessed by a man who has really seized some side of the truth. Neither war nor poverty, neither neglect nor the bigotry of sects miscalled religious, neither sickness nor the loss of friends, can quench the flame of him who strives after truth in the service of man.

The Dictionary of National Biography. Edited by Leslie Stephen and Sidney Lee. Vols. XXI. and XXII. Garnett to Gravet. (Smith, Elder, & Co.)—The last two volumes of our national biographical dictionary, of which every man of letters is reasonably proud, includes many valuable articles, especially in the historical and literary sections. We have, for instance, within the alphabetical limits of the letter G—from *Gar* to *Gra*—the four royal Georges, Edward Gibbon, Giffards and Giffords and Glanvills, Giraldus and Geoffrey, Godwin, Goldsmith, and a shoal of Gordons, Gowers, Grahams, and Grants. The two editors—for Mr. Stephen has wisely associated with himself, in the prosecution of his gigantic task, one of the best of his former colleagues, Mr. Sidney Lee—contribute some of the more important of these articles. Mr. Stephen, who deals with William and Mary Wollstonecraft Godwin, is not specially unsympathetic towards the author of "Caleb Williams," but tells the plain unvarnished tale of his life, which contains some facts commonly overlooked by writers who regard him simply as one of the charmed circle of Shelley's relatives and friends. Goldsmith's Life, by the same hand, is pleasanter reading, and its wealth of detail makes it unquestionably the most comprehensive account hitherto published of the author of "The Vicar of Wakefield." A good example of Mr. Lee's style may be found in his memoirs of the two Gills, father and son, who were High-Masters of St. Paul's School between 1607 and 1639. The life of Alexander Gill the younger, the friend of Milton and Laud, alternately rebel and sycophant, raised to the High-Mastership after being condemned to have his ears cropped, and subsequently dismissed from his post for unjust severity, could not easily be matched for romantic vicissitude of fortune. The numerous tribe of Gordons receive perhaps more than adequate treatment, but there have been many irrepressible Scotch Gordons, and especially George Gordons, and hardly one of those admitted to the Dictionary could fairly have been excluded. Mr. Stephen takes Lord George, and Charles George has been entrusted to a brother officer. Colonel Vetch, who has treated him, on the whole, fairly enough,

It is difficult to get away from these pleasant chapters of biography after once taking a volume in hand, but considerations of space forbid us to do more than indicate the general character of the later additions to the work.

Harvard Studies in Classical Philology: Edited by a Committee of the Classical Instructors of Harvard University. Vol. I. (*Ginn & Co.*).—The "Studies" are published by authority, and are intended to be annual. The class of 1856 has generously contributed 6000 dollars towards the expense of publishing. The first article is on the "Fauces of the Roman House"; the second discusses the antique modes of obtaining fire, and is written in Latin—surely a superfluity of pains. The notes, with citations from English and German works, have a most incongruous look. Nearly all the other nine articles are on the minutiæ of classical scholarships; even the discussion on the social and domestic position of women in Aristophanes does not amount to much more than an enumeration of the passages that bear on the subject. There are two excellent indices. Was there not room for one article breathing a larger life than all this intense specialism,—not for one article bearing on things of to-day? After the death of Goethe and his contemporaries, who found the gospel according to J. J. Rousseau unsatisfying, and tried to replace it with something still more unsatisfying, the gospel of antique culture, a profound change, due mainly to Ritschl, has come over our classical studies. They have become entirely objective; Latin and Greek are treated scientifically, and the result is the "Museum Philology" of the present volume.

A First Aryan Reader: consisting of Specimens of the Aryan Languages which constitute the basis of Comparative Philology. Edited by G. A. Schrumpf. (*Nutt.*) — Although Schleicher's "Compendium of Comparative Grammar" was first published in 1861, it was not till 1874 that a portion of it, including in reality only Latin and Greek, was translated into English. We hope the present book is the sign of a wider interest both in philology and the study of antiquity, in which the classics take indeed a prominent but not an exclusive position. As far as we know, this is the first book in which all the primitive Aryan languages stand side by side as equals; it marks even an advance of Brugmann's "Outlines of Comparative Grammar," by the adequate representation of Armenian. The title, "A *First* Aryan Reader," exactly describes the book; the needs of the beginner are kept constantly in view. The plan of the book is to take a transliterated text, and to give a grammatical analysis followed by translations from the hands of various scholars. To each language is prefixed a very valuable and short account of the best and most recent books on it; this bibliography will enable the beginner to carry on his studies in any direction he chooses, while the advanced worker will find it very handy to have a compact and short list of his chief authorities.

Work: an Illustrated Magazine of Practice and Theory for all Workmen, Professional and Amateur. Vol. I. (*Cassells.*)—While there are many books on manual work before the public, most of them are written in such a way as to make them almost useless to the amateur or young beginner. This volume is essentially the book which an amateur of any age will find invaluable. Young people who have gone through a course of manual instruction will find in its pages every opportunity for developing their taste and skill by making at the smallest cost useful and artistic articles for the home, from the simplest row of bookshelves to a cottage piano. Not the least interesting part of the work is "Shop." These columns, we are glad to find, have proved of such use to all classes of mechanics that the editor has lately found it necessary to issue a "Shop" supplement. It is impossible to give any idea of the variety of the subjects dealt with in the work; let it be sufficient to say that the character indicated by the title is fully borne out in the volume. On this account, and also by reason of its exceedingly small price (1*d.* weekly), we cordially recommend it to all young people, as well as to adults, as an invaluable guide and friend in all branches of manual labour.

Demosthenes: The Speech against the Law of Leptines. Edited by W. C. Sandys. (*Cambridge Press.*)—Dr. Sandys tells us in his Preface that he has been familiar with this speech as student and lecturer for some twenty-five years. In this handsome volume he has given us the result of his labours, which we may as well say at once is in every way worthy of the reputation of the Public Orator. Following Shilleto, he has written his critical notes in the common language of scholars, Latin, and the explanatory notes and introduction in English. In his treatment of the text, while availing himself of the labours of his predecessors, he is decidedly conservative. The notes are copious and accurate, and contain all that is necessary for the elucidation of textual difficulties and the understanding of the circumstances under which the speech was delivered. A better introduction to the public speeches of Demosthenes could not be put in the student's hands, while all will admire the wide knowledge and sound scholarship with which Dr. Sandys has enriched his edition of this speech.

The Makers of Modern Italy. By J. A. R. Marriott. (*Macmillan.*)—These lectures were delivered at the summer meeting of the University Extension students at Oxford last year. The lecturer's aim has been to speak of the work of men of action, of Mazzini, of Cavour, and of Garibaldi, "and, not least, of him whose coolness and courage, whose temperate zeal and whose unswerving honesty, whose clearness of vision and unfailing common-sense gave consistency and coherence to the life-work of them all—Victor Emmanuel, the first King of United Italy." To these men the making of modern Italy is undoubtedly due, but the inspiration which they received from the works of Dante, Alfieri, Rossetti, and others, cannot of course be computed. The author had the very difficult task of keeping, throughout the lectures, a just balance between the three—Mazzini, Cavour, Garibaldi—and we must say that he has succeeded admirably. While Mazzini was the prophet of the new religion, Cavour had the practical sense of what could be done, combined with the rare dexterity of doing it; but the efforts of both would have been fruitless without the brilliant achievements of Garibaldi. Keeping this before his mind, we think the student will, like the author, admire all three characters, and see that each and all were necessary for the great work. The appendices contain an exhaustive list of works for reference, and a chronological table of the chief events in Italian history.

OUR LIBRARY TABLE.

Progressive Object Lessons for Infant Schools. By W. Taylor. (*National Society's Depository.*)—The author not only gives a collection of object lessons, arranged in courses which may be taught in any order, but a book which presents both the courses and the lessons, which make up the course in proper succession. The various courses of lessons are progressive in their scope, are graduated in difficulty, are progressive in the quantity of material for observation, and thought and also progressive in treatment. The book is divided into four courses. Course I. is for the lower classes in infant schools, and contains lessons on the class-room and its contents, common objects in the house, and familiar living things. Course II. contains lessons adapted to the middle classes, on common articles of food and clothing, and common things. Course III. for middle and upper classes, with lessons on natural objects, animal life, articles of food, pictures of country scenes. Course IV. for upper classes, on the larger animals, vegetable products, birds, lowly creatures, earths, stones, and metals.

The Principles of Oral Teaching and Mental Training. By Joseph H. Cowham, F.G.S. (*Westminster School Book Depôt.*)—This book is designed to meet the requirements of those who are preparing for the first and second years' certificate examination. The principles of teaching are illustrated by references to familiar school experience, and notes are given on the preparation and criticism of lessons.

Fraction Diagrams. By F. J. Knight. (*Bacon & Co.*)—A series of five coloured diagrams illustrating the manipulations of fractions. They will be found of great value by masters who are teaching the subject. The sheets are as follows:—(1) Fractions, comparatives, and reduction to lowest terms; (2) Mixed numbers, improper fractions, reduction to common denominator; (3) Addition of fractions and of mixed numbers; (4) Subtraction of fractions and of mixed numbers; (5) Decimal fractions. A small book of twenty-four pages accompanies the diagrams, and fully and clearly explains their use.

Expressive Readers. Book V. (*W. & R. Chambers.*)—One hundred and eighty pages of this Reader are taken up with interesting tales and anecdotes, or useful articles, each chapter or lesson being followed by words for spellings, words with meanings, a dictation test, grammar exercise, an exercise in word-building, and one on the use of words. Then follow twenty pages of poetry; and the book closes with grammatical notes, lists of prefixes and affixes, roots, and exercises in analysis and parsing.

Scholarship Questions, 1887-1889. (*National Society's Depository.*)—This book contains the questions set in all subjects at the last three examinations for both males and females, with hints and answers to the grammar questions, and solutions to the arithmetic, algebra, Euclid, and mensuration papers only. We think the value of the book would be increased by the insertion of model answers to the questions in domestic economy, geography and history, school management, the languages, and music.

The Concrete Arithmetic. Standards III. and IV. By Richard Lishman. (*Edward Arnold.*)—Each of these little books of examples contains about 700 sums suited to their respective standards. The special feature of the "Concrete Arithmetic" is, that it is based upon, and grows naturally out of, the exercises on mental arithmetic.

A Smaller Commercial Geography. By George G. Chisholm, M.A., B.Sc. (*Longmans.*)—This text-book is in the main an abridgment of the author's "Handbook of Commercial Geography." As much as possible of the matter that presents the leading facts of international commerce is retained; and the description of countries is confined to features of importance in relation to commerce. The tables of imports and exports given in the larger book are replaced by paragraphs summarising the main facts to be learned from such tables. In these paragraphs the attention of the student is drawn to the recent history of commerce, and the rise and fall in the trade in various commodities. The system adopted in the printing of names of towns in the larger book is to be found in this text-book, as also the division into paragraphs.

A New History of England and Great Britain. Part II. By J. M. D. Meiklejohn, M.A. (*Simpkin & Co.*)—This volume embraces the period 1509 to 1890, and is similar in every way to Part I., on which we favourably commented a few months ago. There are many effective maps throughout the book.

Supplementary Readers, Fairy Tale Books. (*Longmans.*)—The idea of publishing a series of Readers containing stories based on the tales in the "Blue Fairy Book," by Andrew Lang, is an excellent one, and we feel sure that a prodigious sale will be the reward of those with whom the idea originated. The seven volumes of the series before us are substantially bound in light blue cloth, and are well printed in large clear type on first-rate paper. The illustrations are numerous, and, as might be expected, mainly grotesque. Instead of enumerating the titles of the stories, it is sufficient to say that almost every child will find many new tales to remember amid many old favourites.

Light, Heat, and Sound. By Chas. H. Draper, B.A., B.Sc. (*Blackie.*)—An elementary text-book adapted to the requirements of candidates for the examinations in connexion with the Science and Art Department, and of the London University Matriculation paper in Light and Heat. There are exercises at the ends of the chapters, and an appendix of examination questions and answers.

The Excelsior Map of India. (*Bacon & Co.*)—The fact that this map comprises not only India Proper, but Further India, the Malay Peninsula, will make it a distinct acquisition to the walls of schoolrooms. The names are well printed and not too crowded; the colouring exceedingly good.

Attic Greek Vocabularies. By E. Dawes, M.A. (*D. Nutt.*)—Miss Dawes has collected a number of Attic words, and classified them according to subjects in the English alphabetical order. If learnt by heart, they are sure to assist the student in his reading and composition. The quantities are marked with the view to giving assistance in verse-making.

Horace, Odes, Book II. By A. H. Allcroft, B.A., and B. J. Hayes, M.A. (*W. B. Clive & Co.*)—That Part I. contains (*a*) Introduction, (*b*) Text, (*c*) Notes; Part II., (*a*) Test Papers and (*b*) Vocabulary; Part III., a Translation, sufficiently explains the nature of the contents of this volume. Book II. of the Odes of Horace is the prescribed book for Matriculation at the University of London next January, and a text-book, such as the one before us, containing all the points on which a candidate is likely to be questioned, is assured of a good sale.

A Class-Book of Geography. By William Balfour Irvine, B.A. (*Relfe Brothers.*)—Yet another addition to the already overwhelming stock of class-books of geography! A Geography, too, "Physical, Political, and Commercial, for Intermediate and Senior Pupils," an all-embracing and pretentious sub-title; but a close examination of its contents leads us to the discovery that the "physical" side of the subject is represented by lists of the names of capes, rivers, mountains, &c.; the political side by lists of towns with very scant notes relating thereto, while topics of commercial interest are conspicuous by their absence.

Medburn Musical Drill. By F. W. Farrington. (*J. Curwen & Sons.*)—A valuable handbook of physical exercises for use in schools. The fact that the importance of physical training as an essential part in the education of a child is becoming more and more generally recognised, sufficiently explains its publication. There are preliminary instructions, and musical accompaniments—mainly popular airs—to the Physical Exercises, and the New Physical Exercises, of the British Army. The illustrations, though somewhat small, are clearly produced.

Graduated Stories for Composition. By T. B. Ellery. (*Gotch & Gomme.*)—A collection of about one hundred and fifty short stories, carefully selected from books, papers, and periodicals, for the most part; a few, however, are now published for the first time. The Preface contains many hints which teachers will find of value.

The Laws of Every-Day Life. By H. O. Arnold-Forster. (*Cassell.*)—A "Handbook for Political Beginners," by the author of "The Citizen Reader," which, we are informed, has now reached its 125th thousand, is sure to meet with a good reception at the hands of the public in general, and of the schoolmaster. In his Preface, Mr. Arnold-Forster states that "the actual government of the country is in the hands of many millions . . . . it has become absolutely necessary that those who have the *power* should add to it *knowledge*." This is the keynote of the book, and the author is well justified in the hope that "it may afford some slight help to those who are compelled to form and give effect to their opinion on matters concerning the welfare of our country." The book is divided into four parts—I. The Law of the Land; II. The Laws of Nature and Reason; III. How to Live under the Law; and IV. Work and Workers,—is written in the same easy and simple style which characterises "The Citizen Reader," and is well illustrated.

Lower Grade English. (*Nelson.*)—This book professes to supply all the work in English required for the Junior Division of the University Local Examinations and similar examinations. It is really a text-book of English Grammar and Analysis. Derivation and word-building is fully discussed, and there are a few tables of English Literature.

The Royal Atlas Readers. (*Nelson.*)—Five volumes of this new series of geographical reading-books are to hand, two are in preparation. Each book fully meets the Code requirements in each standard. No. 1 contains stories and lessons on Plans, Maps, and the Compass. No. 2, Physical Geography, the explanation of geographical terms. No. 3, England. No. 4, The British Isles, British North America, and Australasia. No. 5, Europe, Latitude and Longitude, Day and Night, the Seasons. Each book contains a complete text-book and a course of questions. The illustrations are numerous, and by no means old fashioned, as may be seen from the fact that a picture of the new Forth Bridge is to be found in No. 4.

The Scenery of the Heavens. By J. E. Gore, F.R.A.S. (*Roper & Drowley.*)—Mr. Gore has arranged his work in two parts. The first part treats of the Solar System; the second of the Sidereal Heavens. He gives a popular but exact description of the interesting facts relating to planets, comets, meteors, fixed stars, and nebulæ, in language which all will understand. No mathematical formulæ are introduced, and all figures have been computed on the recently corrected basis of the sun's mean distance. The illustrations are numerous, and have been produced in first rate style by the glass print process. The work should be in the hands of all amateur astronomers; and the general reader will find in it much to interest and instruct him.

The Marquess of Dalhousie. By Sir William Wilson Hunter, K.C.S.I., C.I.E., M.A., LL.D. (*Clarendon Press.*)—This is the first volume of the Clarendon Press Series of Indian Historical Retrospects, and treats of the final development of the Company's rule in India. There is an excellent map of the Indian Empire, and for a frontispiece the statue erected to the Marquess. Students of Indian progress will find in this work a reliable authority.

The Flowering Plant: as illustrating the First Principles of Botany. By J. R. Ainsworth Davis, B.A. (*Griffin & Co.*)—The Introduction, which only occupies five-and-a-half pages, is far too condensed for a book which professes to illustrate the first principles of the subject, and is, consequently, hardly the book we would recommend to a beginner. The remaining 137 pages are devoted to morphological and physiological botany, and will be of value in the preparation for various examinations. There is an Appendix on practical work at the end of the book, but to this the same remarks apply as to the Introduction.

Advanced Physiography. By John Thornton, M.A. (*Longmans.*)—This is a continuation of the author's "Elementary Physiography," and undoubtedly supplies a want which has hitherto existed. The book abounds in information, which strictly follows the lines of the advanced syllabus of the Science and Art Department. There is a coloured plate of Spectra, the subject of which is of such importance that the author has devoted considerable space and certainly much pains to it, several maps, and numerous alterations; the ludicrous mistake in Fig. 16, p. 29, of giving the Earth *two* moons, and Mars none, should be corrected.

School Hygiene. By W. Jenkinson Abel, B.A. (*Longmans & Co.*)—This manual, which seeks to direct teachers and others what to do and how to do it in case of diseases, accidents, &c., is an amplification of the author's small Health Pamphlets. The topics dealt with are ventilation, disinfection, eyesight, infectious diseases, school surgery, poisons, and colour-blindness; there is, in addition, a series of test types. It should be placed in the hands of all responsible teachers.

Elementary Chemistry. By W. Jerome Harrison, F.G.S. (*Blackie & Son.*)—A first year's course for public elementary schools. It follows the outline of the first year's course as laid down in the Education Code, viz.: "Elementary and compound matter, illustrations of combination and decomposition in such bodies as hydrochloric acid, water, oxide of mercury, and rust of iron." The book is well written, and is a marvel of cheapness at the price (5d.).

Premier Livre de Lecture. By A. Cogery. (*Relfe Brothers.*)—A simple French reading-book for children, with an extremely literal translation beneath each line of the French. The type is large, and the subjects dealt with instructive, without being too serious.

Latin Course, Second Part. By A. M. Cook, M.A. (*Macmillan & Co.*)—The course which the author of this book has adopted is that of basing exercises on the grammar of each section, with occasional pieces of translation interspersed, and of giving recapitulatory exercises and translations whenever the end of a branch of grammar is clearly defined. Thus ten sections are taken up with the irregular and deponent verbs. Then follow rules and exercises on the participles, the ablative absolute, the subjunctive mood, the accusative and the infinitive, indirect questions, supines, and gerunds, occupying twenty sections. The chief merit of the book lies in the fact that the short, interesting pieces of translation may possibly prevent boys from being wearied to death by the practice of exercises on particular rules.

In our last number we attributed *The Gospel according to St. Luke*, by *F. W. Farrar, D.D.*, to *Messrs. Cassell & Co.* The book is published by *Messrs. C. J. Clay & Sons* at the *Cambridge University Press Warehouse.*

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending May 31st, 1890.

Allen's (J. R.) The Monumental History of the Early British Church, 12mo, 3s. cl.
Arbuthnot's (F. F.) Arabic Authors, a Manual of Arabian History and Literature, 8vo, 10s. cl.
Art of Authorship, Literary Reminiscences, &c., compiled and edited by G. Bainton, cr. 8vo, 5s. cl.
Artistic Japan, Illustrations and Essays collected by S. Bing, Vol. 3, roy. 4to, 15s.
Atkinson's (D.) The Web of Live, cr. 8vo, 6s. cl.
Backhouse's (J.) Handbook of European Birds, post 8vo, 10s. 6d.
Bagwell's (R.) Ireland under the Tudors, with a Succinct Account of the Earlier History, Vol. 3, 8vo, 18s. cl.
Bevan's (T. F.) Toil, Travel, and Discovery in British New Guinea, with 5 Maps, cr. 8vo, 7s. 6d. cl.
Bridgman's (F. A.) Winters in Algeria, illus. roy. 8vo, 10s. 6d.
Burns's (D.) Temperance History, Part 3, 1862–1872, 2s. swd.
Carez et Douvillé: Annuaire Géologique Universel, Vol. 5, 20fr.
Clinton's (H. R.) From Crecy to Assaye, cr. 8vo, 6s. cl.
Conferences of Agostino de Montefeltro, delivered at Rome during Lent, 1889, trans. by H. D. Galli, 2nd Series, 3s. 6d.
Dandin's Poetik, Sanskrit u. Deutsch hrsg. v. O. Böhtlingk, 10m.
Dawson's (Sir J. W.) Modern Ideas of Evolution as related to Revelation and Science, cr. 8vo, 5s. cl.
Dickinson's Rational Arithmetic, Addition and Substraction Sheets, Nos. 1 and 2, 6s. each on roller.
Draper's (C. H.) Elementary Text-Book of Light, Sound, and Heat, 12mo, 2s. cl.
Edwards's (E. M.) Severn to Tyne, the Story of Six English Rivers, cr. 8vo, 2s. 6d. cl.
Farrar's (Rev. F. W.) Lives and Times of the Minor Prophets, cr. 8vo, 2s. 6d. cl.
Favourite Nursery Album, Forty Coloured Pictures mounted on Manilla, 4to, 6s. cl.
Furniss's (Harry) Royal Academy Antics, illustrated, 2s. 6d. bds.
Gale & Polden's Military Atlas, 26 Maps printed in Colours, imp. 16mo, 2s. cl.
Handy Guide-Book to the Japanese Islands, with Maps and Plans, cr. 8vo, 6s. 6d. cl.
Hare's (A. J. C.) Cities of Central Italy, 2 vols. cr. 8vo, 21s. cl.
Helten (W. L. van): Altostfriesische Grammatik, 8m. 50.
Hodge's (A. A.) Evangelical Theology, a Course of Popular Lectures, cr. 8vo, 5s. cl.
Instructions données aux Ambassadeurs de France depuis les Traités de Westphalie jusqu'à la Révolution: Russie, avec Introduction par A. Rambaud, Vol. 1, 20fr.
Jevons's (W. S.) Pure Logic, and other Minor Works, edited by R. Adamson and H. Jevons, 8vo, 10s. 6d. cl.
Karpeles (G.): Allgemeine Geschichte der Litteratur, Vol. 1, 2m.
Kingsley's (C.) Glaucus, or the Wonders of the Shore, cheap edition, cr. 8vo, 3s. 6d. cl.
Levey's (G. C.) Handy Guide to the River Plate, including the Argentine Republic, with Map, cr. 8vo, 2s. swd.
Lynch's (J.) Egyptian Sketches, with 16 full-page Illustrations, 8vo, 10s. 6d. cl.
Mahan's (Capt. A. T.) Influence of Sea Power upon History, 8vo, 18s. cl.
Maugras (G.): Journal d'un Etudiant pendant la Révolution, 3fr. 50.
McCarthy's (J. H.) The French Revolution, Vols. 1 and 2, 24s.
McNally's (Surg.-Major J.) Elements of Sanitary Science, 8s.
Mirabeau (Comtesse de): Le Prince de Talleyrand et la Maison d'Orléans, 3fr. 50.
Motti (P.): Elementary Russian Grammar, 2m.
Motti (P.): Russian Conversation Grammar, 5m.
Nicholson's (H. A.) Lives and Labours of Leading Naturalists, cr. 8vo, 2s. 6d. cl.
Petrescu (G.), Sturdza (D.), et Sturdza (D. C.): Actes et Documents relatifs à l'Histoire de la Roumanie, Vols. 2 to 5, 60fr.
Petroz (P.): Esquisse d'une Histoire de la Peinture au Louvre, 5fr.
Poulton's (E. B.) The Colours of Animals, their Meaning and Use, cr. 8vo, 5s. cl.
Reich (E.): Physiologie d. Magischen, 10m.
Renard (A.): La Chimie appliquée à l'Industrie, 20fr.
Richardson's (A. T.) Tables for Chemical Analysis, 8vo, 2s. cl.
Rickaby's (J.) General Metaphysics, cr. 8vo, 5s. cl.
Roth's (H. L.) Guide to the Literature of Sugar, 8vo, 7s. 6d. cl.
Russell's (A.) Glimpses of Eastern Cities, Past and Present, cr. 8vo, 2s. 6d. cl.
Russell (W. C.) and Jacques's (W.) Horatio Nelson and the Naval Supremacy of England, illus. cr. 8vo, 5s. cl.
Sacred Books of the East, Vol. 35; Questions of King Milinda, translated by Rhys Davids, 8vo, 10s. 6d. cl.
Shilleto's (Rev. J. R.) The Works of Flavius Josephus (Whiston's Translation), Vols. 4 and 5, cr. 8vo, 3s. each, cl.
Stephen's (H. L.) The Law of Support and Subsidence, 5s. cl.
Théâtre de Musset, Dessins de Delort, Préface de Jules Lemaitre, Vol. 2, 25fr.
Thomson's (W. S.) Practical Guide to English Composition and Essay Writing, cr. 8vo, 3s. cl.
Thouvenel (L.): La Grèce du Roi Othon, 7fr. 50.
Timmis's (J. A.) Chronological, Historical, and Heraldic Charts of the Royal House of England, folio, 42s. cl.
Trave Talk in Italy, a Manual of English and Italian Conversation, compiled by Prof. M. Field, 2s. cl.
Vaschy (A.): Traité d'Électricité, 2 vols. 25fr.
Vincent's (F.) Around and About South America, Twenty Months of Quest and Query, Maps, &c., 8vo, 21s. cl.
Wharton's (E. R.) Etyma Latina, an Etymological Lexicon of Classical Latin, cr. 8vo, 7s. 6d. cl.
Wo d(R.): Handbuch der Astronomie, Vol. 1, Part 1, 8m.
Wordsworth (Christopher), Bishop of Lincoln, Life of, by J. H. Overton and E Wordsworth, cheap ed., 7s. 6d. cl.

THE MANCHESTER CHAMBER OF COMMERCE AND COMMERCIAL EDUCATION.

Mr. M. G. Glazebrook, M.A., High Master of Manchester Grammar School, has contributed to the *Monthly Record* of the Manchester Chamber of Commerce the following lucid account of their scheme:—

The Committee have endeavoured as far as possible to reconcile and satisfy the various claims of the different classes of persons whose interests were likely to be affected by such a scheme. Their work has been aided to some extent by the experience of the London Chamber of Commerce; but every principle, and every detail, has been carefully discussed among themselves. The greater part of their work may be described as an attempt to answer three questions—

(*a*) Is this to be a scheme of examination only, or is it to include a curriculum of studies extending over several years?

(*b*) To what classes of boys, and at what ages, should certificates be offered?

(*c*) What subjects are to be considered essential, and what choice of additional subjects may be allowed?

(*a*) The first of these questions received a practical answer from the variety of conditions under which boys grow up. There are comparatively few boys who remain at one school, as no doubt they ought, from ten to sixteen; very many suffer frequent changes; others are neglected by their parents till they are thirteen or fourteen, and then by energy and intelligence are able to make up for lost time. Boys, again, differ enormously in the rate of their development; so that what is necessary for one is superfluous for another. And, further, the Committee felt that it was better for boys and for the public interest not to interfere unnecessarily with the freedom of the teachers. The best work is done by those who are at liberty to teach in their own way. On the whole, therefore, they decided not to recommend the adoption of any curriculum.

(*b*) The Committee arrived at the conclusion that three certificates would be desirable, in order to meet the wants of three grades of students.

A very large number of boys leave the elementary schools every year in search of employment as errand boys, junior clerks, and so forth. Though their abilities are very various, there is no ready means of distinguishing them. Employers complain that a boy may pass all the standards in the Code without being either accurate, intelligent, or well-informed; so they are in the habit of applying rough tests of their own, the results of which are not altogether satisfactory. It is to meet this difficulty that the Committee have drawn up a scheme for a junior certificate examination. It comprises the subjects regularly taught in the higher standards of elementary schools, with the addition of English composition, a little English literature, and two optional subjects. These additions are designed to test the intelligence, and to give opportunities for the display of special faculties. Though the examination will be well within the reach of a clever boy of thirteen, it is proposed to leave the age of candidates unlimited, in order that students in the evening classes may freely avail themselves of it. It should be added that the optional subjects have been so arranged as to make it possible for secondary schools to use this examination as a test for their junior classes.

A more strictly commercial importance will attach to the second standard of examination. The "certificate for seniors" is intended to be a qualification for the higher kind of clerkship, either in mills or in offices. No doubt the majority of candidates for this certificate will be boys who are just leaving school to "go into business"; but it will also be available for the rapidly-increasing numbers of students in the evening classes. Accordingly, though the standard fixed is adapted to boys of sixteen who have fair abilities, and have had ordinary advantages in the way of instruction at school, the Committee desire to fix no limit of age. They think that it will be wiser merely to mark on each boy's certificate the age at which he obtained it.

A third certificate of a more advanced and specialized character will soon be needed to meet the wants of the students in higher evening classes, and of the happily increasing number of able boys who, though intended for commerce, remain at school till they are eighteen. But the Committee are of opinion that it would not be wise to make any detailed scheme for this until some experience has been gained of the working of the other two examinations.

(*c*) In drawing up the list of subjects for the junior examination the Committee had very little choice, since it was impossible to depart much from the curriculum laid down in the Code for elementary schools. They omitted English grammar on the ground that, as at present taught, it lends itself to cram, and does little to develop thought. On the other hand they have given a prominent place to English composition, which is the best practical test at once of grammatical knowledge and of general intelligence. They believe that the composition paper, together with that on a standard English author, will make it difficult for a boy to obtain a certificate without doing a little real thinking for himself.

The choice of subjects for the senior examination opened up a number of important and difficult questions. Starting with the assumption that it was to test at once training, intelligence, and the possession of useful

knowledge, the Committee began by laying it down as a principle that a high degree of accuracy must be required in such matters as spelling, reading, arithmetic, and the grammar of a foreign language; and that good handwriting must be regarded as essential. Then they were able to agree upon certain subjects which test both training and intelligence—composition, literature, algebra, and Euclid, the translation of unprepared passages in a modern language. The great difficulty arises when a choice has to be made in the wide field of so-called "useful knowledge." It is impossible to insist upon everything, even upon those subjects which any wise father would wish his son to learn. I will give the reasons which, I believe, led the Committee to choose as they did. As to the value of geography and at least one foreign language, there could be no dispute; but it had to be settled whether history, science, and drawing should be made compulsory; and there was the large question of the place to be assigned to the "commercial" subjects, such as shorthand and bookeeping. Science, the Committee thought, could not be made compulsory at present, for the simple reason that very few schools in the neighbourhood of Manchester have the machinery for teaching it. It was in view, too, of the existing state of education that only one language was made compulsory; but in order that boys who had the advantage of knowing two languages and some science might get credit for their knowledge, and also in order to find a place for other important subjects which could not be made compulsory, a list was drawn up of eleven optional subjects, of which two must be taken. This practically reduced the Committee to a choice between history and drawing for the last place among the compulsory subjects, and they agreed that history had the stronger claim.

In dealing with the commercial subjects, they were to some extent guided by the experience of the London Chamber of Commerce, which began by requiring a good deal of bookkeeping and other things, but has gradually given them up as impracticable. That seemed to show that the teaching of those subjects in schools had been a failure. Besides this, it is certain that the weight of educational opinion is against mixing up purely technical subjects with the early stages of education. At the same time, the Committee felt that to omit such subjects as bookkeeping and shorthand altogether would destroy the character of the examination. They think that they have found a satisfactory solution of the difficulty in the arrangement which allows commercial subjects to be taken up separately, six months after the general examination. The amount required in their scheme is not more than can be learned without difficulty in six months by a boy who has been able to pass the rest of the examination. Thus it is left open to the schools either to carry on all the subjects concurrently, or to establish a special class in technical subjects for those who have passed in the others. At the same time, the division of the examination into two parts will be a great boon to students in evening classes, who find it difficult to carry on a number of studies concurrently. It has even been suggested, though no resolution has been passed on the subject, that a further subdivision might be allowed in the case of evening students.

With these explanations it will be easy, I hope, to understand the scheme in all its bearings. Although there has been much careful discussion, the conclusions throughout have been almost unanimous. It is, perhaps, worth while to record that there was a remarkable absence of those differences of opinion which might have been expected to exist between the commercial and the educational members of the Committee.

Any one who reads the scheme will see at once that a great deal must depend upon the way in which it is carried out. A large number of practical details remain to be settled. The time and place of the examination have to be fixed, text-books to be recommended, examiners to be chosen. Most difficult of all, the standard of each paper has to be fixed and maintained. Whether all this will best be done by a standing committee of education, or in some other way, it yet remains to be decided; but the energy and clear-sightedness which has been shown by the Chamber of Commerce in dealing with the whole question leaves little doubt that all these points will be settled in such a way that the Manchester commercial certificate shall be what it ought to be—the most valuable in the country.

CORRESPONDENCE.

REGISTRATION.

To the Editor of the Educational Times.

Sir,—While admiring the hopefulness of the numerous registration schemes that have lately been advanced, there are two points upon which I feel tempted, in the absence of any more authoritative voice, to offer some remarks. The first of these, which was incidentally mentioned at Cheltenham, is the want of restriction on the employment of totally incompetent assistants. It was pointed out in that debate that an unqualified assistant would no longer be able to recover salary. Without wishing to question the great convenience and practical efficacy of this provision, based undoubtedly on a keen appreciation of the business relations of private schoolmasters, it may yet be asked if some further guarantee could not be required—as, for instance, making continuance on the register dependent on the maintenance of a proper staff. Otherwise, there is an apparent unfairness in inflicting a serious risk on the unqualified assistant, and none on the master who may decoy him from board, counter, or plough, by the promise of munificent pay.

The unconditional admission to the register of all unqualified persons now engaged in misleading the young of the middle classes, seems to be a condition common to all the schemes proposed. The idea is too strongly established to encourage opposition now. It is interesting, however, to point out that registration will be accepted as a satisfactory guarantee of a teacher's capacity by a very considerable section of the public. Many a dubious prospectus, at present mainly dependent for its attractiveness upon a poetically treated view of Hevingly House, Mr. John Kidd's exotic diploma, and the airy indication of visiting and foreign masters and a resident cow, will be endorsed by that solid-looking guarantee, "Registered Teacher." That will be the immediate and most actual fruit of the register.

To make qualification within a definite time one—and not the only—condition of permanent registration, is not only perfectly reasonable, but would probably give many masters an enviable intellectual stimulus for which they would, I am sure, be ultimately very grateful indeed.—Obediently yours,

H. G. Wells.

PICTURESQUE SCIENCE.

To the Editor of the Educational Times.

Sir,—May I be allowed space to enter a protest against the mode of criticism employed by your correspondent "M."? This is to first quote a passage, then to restate the matter of it in a presumably *corrected*, but really shockingly vitiated form, and then to assume that the differences of the two accounts are due to the errors of the one quoted. Sir Robert Ball states, in simple but figurative language, that the energy radiant from a coal fire was intermediately changed into potential energy in a chemical reduction occurring in the leaves of plants, and that its remoter source was the sun. "M.'s" description of this as "sheer nonsense" is a denunciation of the theory of energy, and is as opposed to the ideas of ordinary scientists as the views of the Flat-earth apostles. Any ordinary text-book of Physics or Chemistry, such as Ganot's or Thorpe's, will furnish him with the accepted "heresies."—Obediently yours, Sc.

MUSICAL DRILL.

To the Editor of the Educational Times.

Dear Sir,—Kindly permit me to point out that, in the recent controversy on the above question, the following facts have been totally ignored:—

(1) Educationally and physiologically, musical drill is not by any means the best form of exercise, and cannot therefore be deemed an *absolute* necessity.

(2) One of the finest, if not the finest, exhibitions of physical exercises and marching ever witnessed in this country—*i.e.*, that recently given by a party of Swedish gentlemen under the direction of Capt. Victor Balck, in the Drill Hall of the London Scottish Rifle Volunteers—was executed entirely *without the aid of music* or other artifice, and, I need hardly add, will long be remembered by those teachers who were fortunate enough to be present.

(3) Some of our most experienced and successful teachers are prepared to demonstrate that music is perfectly incompatible with physiologically-arranged movements.

(4) The adoption of Ling's Swedish system of gymnastics by the authorities at Newnham, Girton, Cambridge, and other notable training centres and high schools, tends to confirm the opinion that musical gymnastics will ultimately only obtain in localities where higher knowledge is either suppressed or unobtainable, or with those who appear averse to teaching aught entailing any real study and trouble.

On behalf of several teachers who, like myself, are anxious that our boys and girls shall, in the future, receive the best training obtainable, be it of Swedish or other origin, I would, in closing, respectfully suggest that the responsible members of our London School Board sanction an unbiassed scientific investigation and comparison (on the lines laid down by Dr. Holmes in his recent report to the Board) betwixt Ling's "Free Standing Movements" (Swedish drill) and a series of German "Free Exercises" recently introduced into the army under the name of "New Physical Drill," both of which, I understand, are at present

being taught to the male teachers, presumably with the view to eventually making a selection.—I am, yours faithfully,

May 19th, 1890. PROGRESS.

THE OLD AND THE NEW PSYCHOLOGY.

(From *The New York School Journal.*)

THE difference between the old psychology and the new is seen in this: the old studied theories; the new studies facts. New pedagogy is scientific. This means two things: first, its basis is facts; second, its order is classification. These two things are essential parts of a science. In chemistry, for example, everything depends upon the facts. Here is a solid foundation. After a while enough facts are collected to make it possible to compare and classify them. In this way the science of chemistry has grown to its present immense proportions. So it is in botany, mineralogy, zoology, and political economy. In old times teachers based their practice upon theories. Take John Strum as an example, born in 1507. After a course of study and practice in teaching, he came to the conclusion that the proper end of school education is eloquence, or a command of a language; that the study of things belongs to a mature age. He also assumed that Latin is the language in which eloquence is to be acquired, and he went so far as to cause it to supplant the mother-tongue, and punished pupils severely for using their own language. This seems to us most absurd, and it is. Why? Because it was philosophy based upon a theory, having no foundation of fact under it. But, as Mr. Quick has said, this was not the fault so much of Sturm as of the age in which he lived. It was an age of theory. But we have come out of those times into an age of experiment. Thought is different. A hundred years ago thousands believed in ghosts. Now nobody believes in them, because careful experiment has proved that nobody has ever seen them. This is taken by everybody as conclusive testimony.

Mr. Edmond Noble has studied the errors of children in pronunciation for the purpose of finding out a law, and here it is: Children give the dental and labial sounds the best. Why? Because sounds most accurately and soonest uttered are those whose formation is most obvious as a process. He assumed that "perfection of sounds depends upon the vividness of the percept, vividness of the re-percept, and mastery of speech organs." Now it is a fact, as Mr. Noble shows, that the attention of the child to the teacher's mouth has a good deal to do in learning new words. The labial and dental sounds give distinct mouth movement; so the child learns them first, not alone by the ear, but by the aid of the eye. The child that has the best sight attention pronounces the most distinctly. Now this is a part of psychological study. The organs of getting knowledge are studied as facts, and great care is used in observing all their phenomena.

The modern psychologist is also a physiologist and an anatomist. He considers the brain as the organ of the mind, not as the mind itself, and studies it in its relation to thought, just as he studies the eye, ear, nose, mouth, and hand, in their relation to thought. The modern physiologist is the right-hand friend of the psychologist. It is not difficult to see that this method of research is fast upsetting the old forms of study. The time is not distant when the best of the scholastic mental philosophers will be shelved, useful for reference, but of no use in practical life.

The new psychology has already worked a wonderful change in the way dull and feeble-minded children are looked at. It is already discovered that many supposed "feeble" children are not so at all. The difficulty is not with their brains, but with their eyes, ears, nerves, or muscles. When these are cured they are found to be as bright as other children. It is appalling when we think of the number of children who have been spoilt because they have not been understood—not been studied; in other words, the theoretical child, not the real child, has been the object of discipline and education. The old theologians used to call children "of the devil," having in them, by nature, "evil hearts of obduracy and unbelief." The real child is now seen to be something different. He is wanting in many points, but is not naturally, by heredity, bad. We are learning that kindness begets kindness; hopefulness, hopefulness; love, love.

MATHEMATICS.

10489. (Professor DÉPREZ.)—On donne dans un plan deux triangles ABC, A′B′C′; trouver le lieu d'un point P′ tel que les perpendiculaires abaissées de A sur A′P′, de B sur B′P′, de C sur C′P′ concourent en un même point P. Trouver également le lieu du point P.

10425. (Professor TARRY.)—Quatre trains se meuvent sur des voies rectilignes avec des vitesses uniformes. On donne leurs positions à deux instants différents. Construire une voie rectiligne qui puisse être parcourue par un train avec un vitesse uniforme telle que les quatre premiers trains paraissent immobiles au conducteur du cinquième.

Solution by Professor SCHOUTE; A. J. PRESSLAND, B.A.; *and others.*

(10489.) Nous cherchons d'abord la relation entre les points P_a et P'_a (Fig. 1), choisis de manière que les angles $(BP_a, B'P'_a)$ et $(CP_a, C'P'_a)$ sont droits. Cette relation est une transformation quadratique non involutive. Les points fondamentaux du système plan P_a sont B, C et le point à l'infini commun aux normales à B′C′; les points fondamentaux du système plan P'_a sont B′, C′ et le point à l'infini commun aux normales à BC. Les points de la droite l_∞ à l'infini se correspondent à eux-mêmes.

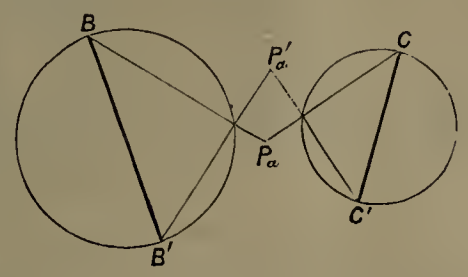


Fig. 1.

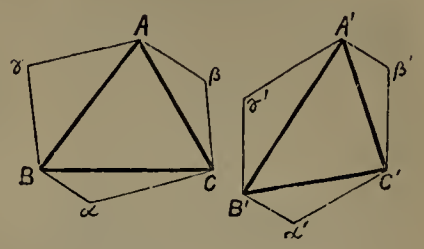


Fig. 2.

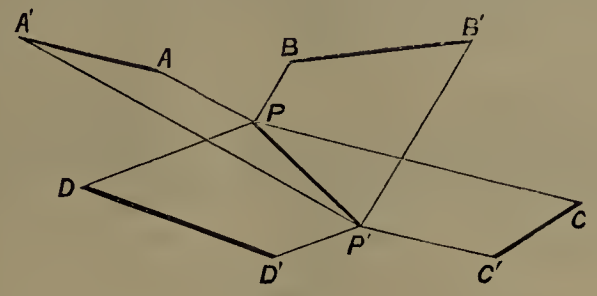


Fig. 3.

[The rest in Volume.]

1423, 2316, 3941, 4794. (By the late Prof. CLIFFORD, F.R.S.)—Prove that $\int_0^{\frac{1}{2}\pi} \cos(a \tan x) \,.\, \epsilon^{\beta \tan x}\, \delta x = \frac{1}{2}\pi\epsilon^{-a}(\cos\beta + \sin\beta)$.

Solution by the Rev. H. LONDON, M.A.

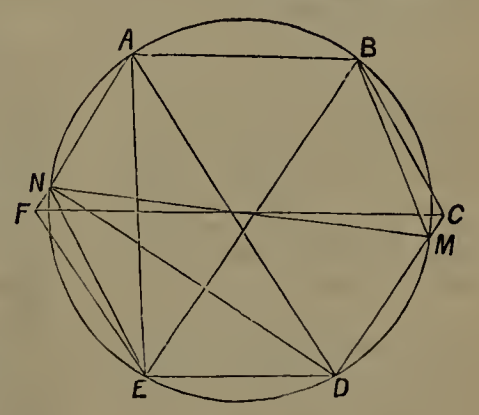
$$\int_0^{\frac{1}{2}\pi} \cos(a\tan x)\, \epsilon^{\beta\tan x}\, \delta x = \int_0^\infty \frac{\cos az \,.\, \epsilon^{\beta z}\, \delta z}{1+z^2} \text{ (where } x = \tan^{-1} z)$$

$$= \int_0^\infty \frac{\cos az}{1+z^2}\left(1 + \beta z + \frac{\beta^2 z^2}{2\,!} + \frac{\beta^3 z^3}{3\,!} \ldots\right) \delta z.$$

[The rest in Volume.]

10515. (Professor CATALAN.)—Si les diagonales AD, BE, CF d'un hexagone ABCDEF sont égales, et que les côtés soient parallèles, deux à deux, l'hexagone est inscriptible à une circonférence.

Solution by R. KNOWLES, B.A.; Prof. ANDERSON, M.A.; *and others.*



Since AB and ED are parallel, the lines AD and BE, being equal in length, are equally inclined to AB and ED; therefore

$$\angle ADE = BED.$$

The triangles ADE and BED have, therefore, two sides and the contained angle of one equal to two sides and the contained angle of the other. Hence

$$\angle EAD = EBD,$$

and the points A, B, D, E lie on a circle. Let this circle meet AF in N, and CD in M. Join MN, AE, ND.

[The rest in Volume.]

10534. (Rev. H. SEWELL, B.A.)—If $a, b, c, \ldots k$ be n positive quantities, prove that $\left(\frac{a+b+c+\ldots+k}{n}\right)^{a+b+c+\ldots+k} < a^a b^b c^c \ldots k^k$.

Solution by D. BIDDLE; *the* PROPOSER; *and others.*

Beginning with two quantities only, let $a < k$; then

$$\left(\frac{a+k}{2}\right)^{a+k} : a^a k^k = (a+k)^a \,.\, (a+k)^k : (2a)^a \,.\, (2k)^k$$

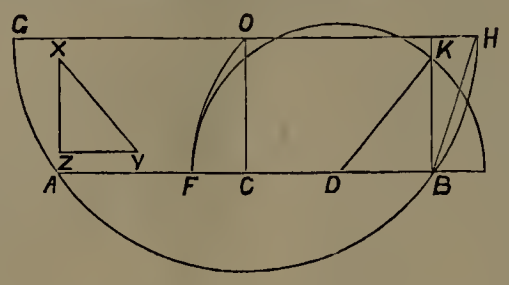
$$= \left(\frac{a+k}{2a}\right)^a : \left(\frac{2k}{a+k}\right)^k = \left(1 + \frac{k-a}{2a}\right)^a : \left(1 + \frac{k-a}{a+k}\right)^k;$$

and, since $\frac{a}{2a} < \frac{k}{a+k}$, whilst $\frac{1}{2a} > \frac{1}{a+k}$, it is easy to find, by expansion, that $\left(1 + \frac{k-a}{2a}\right)^a < \left(1 + \frac{k-a}{a+k}\right)^k$; therefore $\left(\frac{a+k}{2}\right)^{a+k} < a^a k^k$.

[The rest in Volume.]

10539. (Hilda Hudson.)—Through two points (A, B) draw a circle so that the end (H) of the diameter (GH) parallel to AB may be at a given distance from the point B.

Solution by M. Brierley; Profs. Anderson *and* Hudson; *and others.*



Let XY be the given distance. At Y, X make the angles YXZ, XYZ each half right angle. Bisect AB in C, and CB in D; draw BK at right angles to AB, and equal to XZ. With centre D and radius DK draw a circle cutting AB in F; and with centre B and radius BF draw another circle cutting a perpendicular CO to AB in O. Then O will be the centre of the required circle. For we have

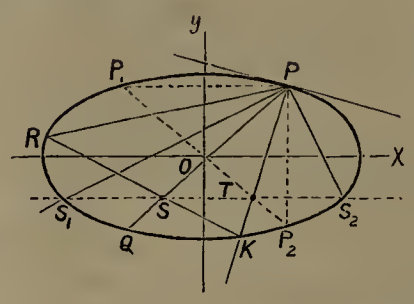
$$BH = OF,\ OF^2 = 2FC\,.\,FB = 2BK^2 = 2XZ^2 = XY^2;\ \therefore BH = XY.$$

9294. (Belle Easton.)—PK is a chord of an ellipse normal at P, PQ, PR two chords such that the straight lines bisecting the angles between them are equally inclined to PK; prove that the locus of the point of intersection of PQ, KR is the straight line

$$\left\{(a^2+b^2)\,b^2-(a^2-b^2)^2\sin^2\phi\right\}\frac{x\cos\phi}{a}+\left\{(a^2+b^2)\,a^2-(a^2-b^2)^2\cos^2\phi\right\}\frac{y\sin\phi}{b}$$
$$=(a^2-b^2)\,(b^2\cos^2\phi-a^2\sin^2\phi),$$

where ϕ is the eccentric angle of the point P.

Solution by Professor Schoute.

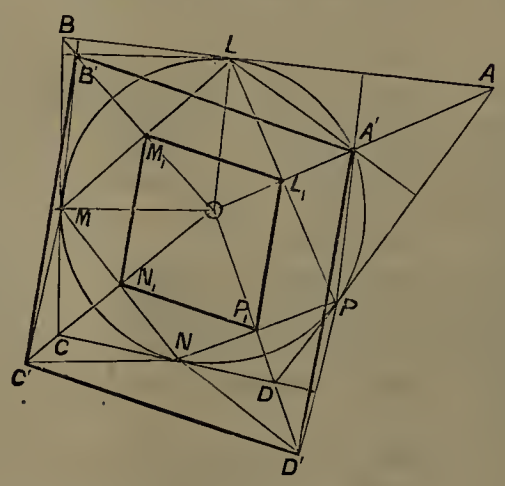


1. The locus of the point S common to PQ and KR is a straight line. For the pencils of rays PQ and PR are in isogonal hyperbolical involution. Therefore the pencils of rays PQ and KR are homographical, *i.e.*, in (1, 1) correspondence, and, as Q is in K when R is in P, they generate an improper conic consisting of the straight line PK and another straight line, the latter of which forms the locus in question.

[The rest in Volume.]

10519. (Professor Décamps.)—Dans tout quadrilatère circonscriptible, les points de rencontre des hauteurs des quatre triangles formés par deux côtés consecutifs et leur corde de contact avec le cercle sont les sommets d'un parallélogramme.

Solution by H. J. Woodall; Professor Anderson; *and others.*



Let ABCD be the given quadrilateral touching the in-circle at LMNP. Join centre O with A, B, C, D, and draw LM, MN, NP, PL; then therefore AO, BO, CO, DO bisect LP, LM, LN, NP at right angles at L_1, M_1, N_1, P_1, then L_1, M_1, N_1, P_1 is a parallelogram (because the sides are the joins of the mid-points of a quadrilateral).

Now OL, MB′ are perpendicular to AB, and likewise OM, LB′ to BC; hence LB′MO is a parallelogram; therefore $OM_1 = \frac{1}{2}OB'$,

$$OL_1 = \tfrac{1}{2}OA',\quad ON_1 = \tfrac{1}{2}OC',\quad OP_1 = \tfrac{1}{2}OD';$$

consequently A′B′, B′C′, C′D′, D′A′ are parallel to M_1N_1, N_1P_1, P_1L_1; therefore A′B′C′D′ is a parallelogram.

10538. (W. J. C. Sharp, M.A.)—A flexible hawser is fastened to a point at the bottom of a stream, in which the force of the current varies as any function of the depth. Find the differential equation to the catenary in which it hangs, and show that, if the axis of y be vertical, m be the weight of the unit of length of the hawser when weighed in water, b an arbitrary constant, and T the tension, $T = (ms-b)\,ds/dy$.

Solution by D. Edwardes, B.A.

Measuring the y-axis vertically upwards, the x-axis in the direction of the stream, and denoting by $\phi(y)$ the pressure on a vertical unit length of hawser, the equations of equilibrium are

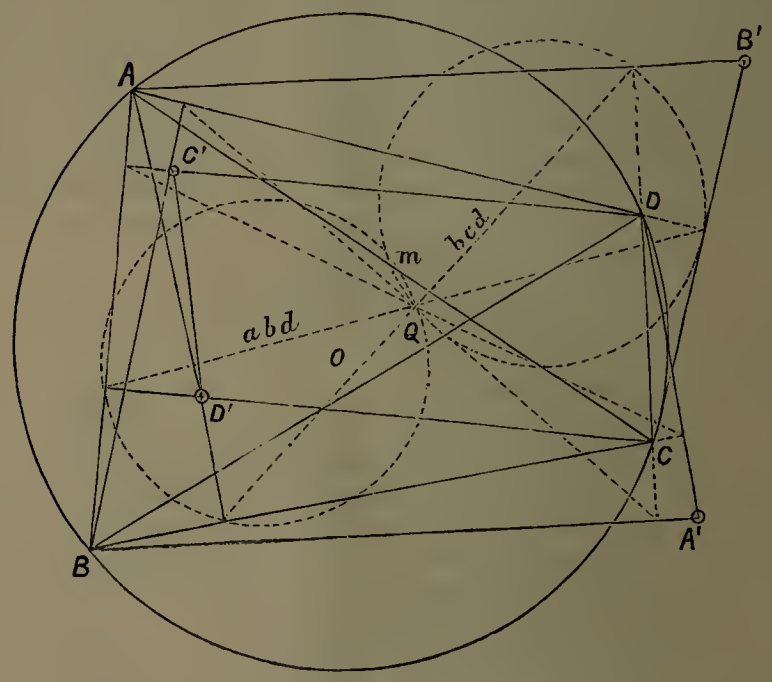
$$\frac{d}{ds}\left(T\frac{dx}{ds}\right)+\phi(y)\frac{dy}{ds}=0,\quad \frac{d}{ds}\left(T\frac{dy}{ds}\right)-m=0.$$

[The rest in Volume.]

9997. (J. C. St. Clair.)—If A, B, C, D be four points on a circle, prove that (1) the four nine-points circles of the four triangles ABC, &c. pass through the same point Q; (2) the Simson-lines of each triangle with respect to the fourth point pass through Q; (3) the four orthocentres form a quadrilateral equal to ABCD, and in perspective with it at centre Q; and (4) if a fifth point be taken on the circle, the five quadrilateral Q points lie on a circle, and so on.

Solution by the Proposer.

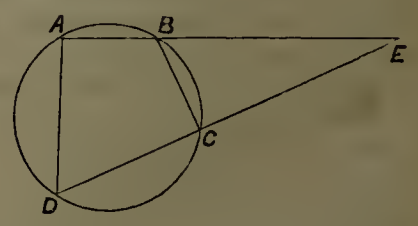
(1) If at the points A, B, C, D tangents be drawn to the circle, their intersections are the inverses, with respect to the circle, of the middle points of the sides and diagonals of the quadrilateral ABCD. Hence the



circumcircles of the four triangles formed by the tangents are the inverses of the four nine-points circles of ABC, &c. (see Casey's *Sequel to Euclid*, Bk. vi., Sec. iv., Prop. 12). [The rest in Volume.]

10185. (Professor Wolstenholme, D.Sc.)—Prove by Statical principles that, if A, B, C, D be four points on a circle, the poles of AC, BD with respect to the circle lie on the same straight line with the intersections of AB, CD, and of AD, BC.

Solution by Profs. Wolstenholme, Sarkar, *and others.*



Suppose four forces to act along AB, AD, CB, CD, whose magnitudes are inversely as the lengths of the chords along which they act, then the resultant of the forces along AB, AC will make with AB an angle equal to that which the bisector of BD through A makes with AD (since this last would be the direction of the resultant if the forces were as the lengths), or the resultant will act along the symmedian through A of the triangle ABD, and will therefore pass through the pole of BD. Similarly, the resultant of the forces along CB, CD will also pass through the pole of BC, and therefore the resultant of all four forces will pass through the pole of BC.

[The rest in Volume.]

10530. (Professor Emmerich.)—If ω be the Brocard-angle, and δ any acute angle of a triangle, prove that $\cot\omega\sin 2\delta > 2$ in an obtuse-angled triangle, and < 2 in an acute-angled triangle.

Solution by Professor Anderson, M.A.; R. Knowles, B.A.; *and others.*

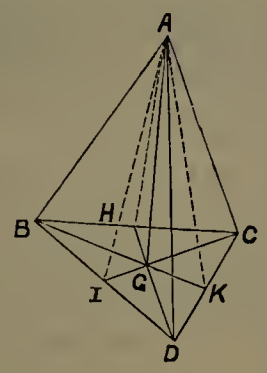
Let β, γ, δ be the angles of a triangle; then $\cot\omega = \cot\beta+\cot\gamma+\cot\delta$; therefore

$$\cot\omega\sin 2\delta = 2\cos\delta\left\{\sin(\beta+\gamma)(\cot\beta+\cot\gamma)+\cos\delta\right\}$$
$$= 2\cos^2(\beta+\gamma)+2\sin^2(\beta+\gamma)\cos\delta/\sin\beta\sin\gamma.$$

This is $>$ or $<$ 2, according as $\cos\delta/\sin\beta\sin\gamma$ is $>$ or $<$ 1. But $\cos\delta/\sin\beta\sin\gamma = 1-\cot\beta\cot\gamma$, which is $<$ 1 if β and γ are both acute, and $>$ 1 if one of them be obtuse.

10518. (Professor Svechnikoff.)—Soient A le sommet d'un tétraèdre, BCD sa base, G le point d'intersection des médianes du triangle BCD. Démontrer que $3AB^2+3AC^2+3AD^2 = BC^2+BD^2+CD^2+9AG^2$.

Solution by Profs. ANDERSON, ZERR, *and* H. J. WOODALL.



Since G is the centroid of the triangle BCD,

$$AB^2+AC^2+AD^2 = BG^2+CG^2+DG^2+3AG^2;$$

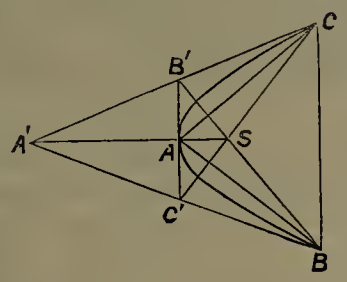
and, similarly, or directly from this equation by making A coincide with B, we have

$$BC^2+BD^2 = 4BG^2+CG^2+DG^2;$$
$$BC^2+CD^2 = BG^2+4CG^2+DG^2,$$
$$BD^2+CD^2 = BG^2+CG^2+4DG^2;$$

hence, adding, we obtain the result.

10510. (D. T. GRIFFITHS.)—The three tangents to a parabola at the points A, B, C form an equilateral triangle. Prove that the ellipse which touches sides of the triangle ABC at their mid-points passes through the focus of the parabola.

Solution by Profs. ANDERSON, CHAKRIVARTI, *and others.*



If the parabola be referred to the equilateral triangle as triangle of reference, its equation is

$$(lx)^{\frac{1}{2}}+(my)^{\frac{1}{2}}+(nz)^{\frac{1}{2}} = 0,$$

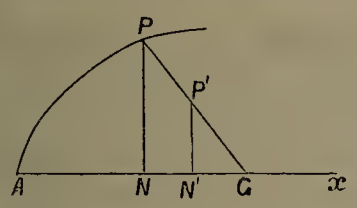
with the condition $l+m+n=0$; and the focus is given by $xl = ym = zn$. The equation of the ellipse referred to the triangle ABC is $x^{\frac{1}{2}}+y^{\frac{1}{2}}+z^{\frac{1}{2}} = 0$, which, when transformed to the equilateral triangle, becomes

$$n\,(lx+my-nz)^{\frac{1}{2}}+l\,(-lx+my+nz)^{\frac{1}{2}}+m\,(lx-my+nz)^{\frac{1}{2}} = 0.$$

This equation is satisfied by the coordinates of the focus, since $l+m+n=0$.

10175. (Professor TRUC.)—Trouver le lieu géométrique des milieux normales à une parabole donnée en supposant ces normales limitées à l'axe.

Solution by Rev. T. GALLIERS, M.A.; Prof. BEYENS; *and others.*



Let P′ be the middle point of PG, P′N′ the ordinate of P′. By properties of the parabola

$$PN^2 = 4AS\,.\,AN, \quad NG = 2AS.$$

Hence $\quad NN' = AS;$

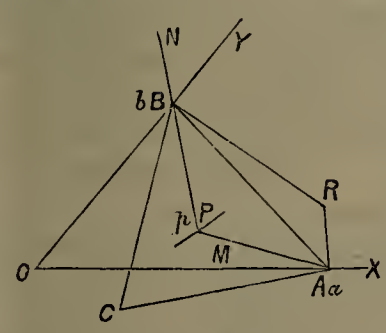
also, $\quad PN = 2P'N';$

therefore $\quad P'N'^2 = AS\,.\,SN'.$

Or the locus of P is a parabola, having its vertex at S, axis Ax, and latus rectum = AS.

10223. (Professor NEUBERG.)—Une droite AB de longueur constante se meut entre deux droites fixes OX, OY. On joint ses extrémités à un point fixe C du plan XOY. Déterminer géométriquement les points de contact de hauteurs AA′, BB′ du triangle ABC avec leurs enveloppes, ainsi que la tangente à la trajectoire de l'orthocentre.

Solution by Professor RAMASWAMI AIYAR.



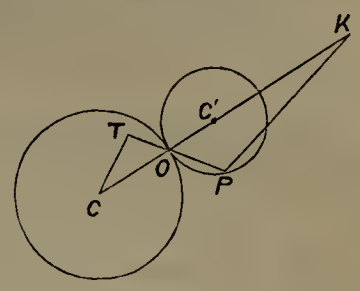
Let ab be a position of the line infinitely near to AB; P, p the orthocentres of triangles CAB, Cab; M the intersection of AP, ap; and N that of BP, bp; then

$$\angle AMa = BCb;$$

therefore the radii of circles AMa, BCb are to one another as Aa : Bb, that is, as RA : RB, if these be perpendiculars at A, B to OX, OY. Thus the circle AMa is determined, and therefore the point M. Similarly we may find N. Again, since the angles PMp, PNp = angles AMa, ACa, we see that the line Pp is such that the circles touching it at P and passing through the known points M, N are to one another as the known circles AMa, ACa.

10509. (R. H. W. WHAPHAM, B.A.)—In an epicycloid, let C be the centre of the fixed circle, C′ that of the rolling circle; P any point on the epicycloid; O the corresponding point of contact of the two circles. Prove the following construction for the centre of curvature at P:—Produce CC′ to K, such that C′K = CC′. Join KP. Through C draw CT parallel to KP, meeting PO in T; then T is the centre of curvature at P.

Solution by D. T. GRIFFITHS; Prof. ZERR; *and others.*



Triangles COT, KOP are evidently similar; therefore

$$CO : OT = KO : OP;$$

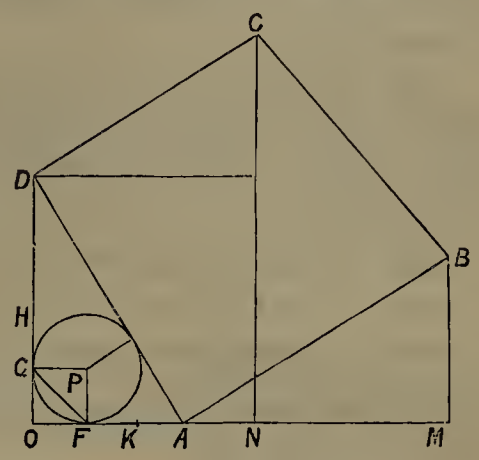
therefore $\quad OT = \dfrac{CO\,.\,OP}{KO},$

i.e., $\quad OT = \dfrac{CO}{CO+2C'O}\,.\,OP.$

Whence, by Art. 287, WILLIAMSON'S *Diff. Calc.*, T is the centre of curvature corresponding to P.

10168. (H. W. SEGAR.)—A side of a square moves with its ends on two straight lines at right angles, and touches a circle which touches those straight lines. Show that the other corners lie on two hyperbolas; find their equations referred to the fixed lines as axes.

Solution by Rev. J. L. KITCHIN; R. KNOWLES, B.A.; *and others.*



Let r = radius of circle,

a = side of square,

OA = b, OD = c;

then BM = b, AM = c;

$\therefore\ x = b+c, \quad y = b;$

$\therefore\ c = x-y, \ \therefore\ a^2 = (x-y)^2+y^2.$

Also, $a+2r = b+c = x;$

therefore $a = x-2r,$

$\therefore\ (x-y)^2+y^2 = (x-2r)^2,$

or $\quad y^2-xy+2rx = 2r^2,$

which designates an hyperbola.

For C, $x = c$, $y = b+c$;

therefore $\quad b = y-x,$

therefore $\quad a^2 = x^2+(y-x)^2 = (y-2r)^2, \quad \therefore\ x^2-xy+2ry = 2r^2,$

the locus of C.

Subtracting one from the other, we get $(x-y)(x+y-2r) = 0$; or $x-y = 0$, $x+y-2r = 0$ are common chords of the two conics.

QUESTIONS FOR SOLUTION.

10587. (Professor SYLVESTER.)—The true square of a matrix is the matrix formed by multiplying its lines by its columns. It is, in general, unsymmetrical, and possesses the property that its latent roots (*i.e.*, the roots of its determinant when each term in the diagonal of symmetry receives an addition $-\lambda$) are squares of the latent roots of the original determinant. But if we multiply lines by lines, or columns by columns, then we obtain two new matrices, which are symmetrical and distinct from each other, but have the same latent roots. These may be termed the *false* squares of the original matrix. It is a well-known theorem that the latent root of *any* symmetrical matrix has all its latent roots *real*. Prove that (1) the latent roots of a false square of a matrix are not only real, but *positive*; and, conversely, (2) that a symmetrical matrix of which all the roots are real and positive must be a false square.

—588. (Professor NEUBERG.)—La droite AB est fixe; la droite A′B′ se meut parallèlement à elle-même entre deux droites fixes OX, OY. Trouver le lieu du centre de similitude de deux figures semblables construites sur AB, A′B′.

—589. (Professor EMMERICH.)—Construct an isosceles triangle, knowing any three of the following points:—A (vertex), G (centre of gravity), K (Lemoine-point), Ω, Ω′ (Brocard-points).

—590. (Professor GENESE, M.A.)—A, B are two points of a circle, O any point in its plane; OPQ is any secant, and AP, BQ meet at R. The locus of R is a conic through A, B. Prove that, by properly choosing the circle and point O, the locus may be made to coincide with any given conic through A, B.

—591. (Professor ZERR.)—Prove that the area of the triplicate-ratio circle is equal to the areas of the cosine and the Brocard circles.

—592. (Professor MORLEY.)—Rays of light parallel to an axis are reflected at a cycloid. Show that the caustic is a cycloid.

—593. (Professor CATALAN.)—Si, à un quadrilatère inscriptible Q, on inscrit une infinité de quadrilatères P dont le périmètre soit minimum, démontrer que ce minimum commun est une quatrième proportionnelle au rayon et aux diagonales de Q.

—594. (Professor WOLSTENHOLME, M.A., Sc.D.)—On the parabola $y^2 = 4ax$ is taken the point P $(am^2, 2am)$, and the coordinates of a point Q are $[a\,(8+m^2), -\frac{2}{3}am]$; prove that the circle described with centre Q and radius QP will meet the parabola again in three points which are corners of an equilateral triangle, and that QP is always normal to the parabola $y^2 = 36a\,(x+12a)$.

10595. (Professor DE LONGCHAMPS.)—On donne a et α_1; puis, on calcule $\alpha_2, \alpha_3, \ldots \alpha_n$, par voie récurrente, au moyen de la formule

$$a(n-1)\alpha_n = \alpha_1\alpha_{n-1} + \alpha_2\alpha_{n-2} + \ldots + \alpha_{n-1}\alpha_1;$$

démontrer que les nombres $\alpha_1, \alpha_2, \ldots \alpha_n$ forment une progression géométrique.

—596. (Professor DÉPREZ.)—Soient a, b, c les côtés d'un triangle sphérique ABC; r le rayon du cercle inscrit; x, y, z les distances d'un point de ce cercle aux côtés de ABC. Démontrer la formule

$$\cos\tfrac{1}{2}A(\sin y \sin z)^{\frac{1}{2}} + \ldots = 2hgr\cos\tfrac{1}{2}A\cos\tfrac{1}{2}B\cos\tfrac{1}{2}C.$$

—597. (Professor DE WACHTER.)—Si les perpendiculaires abaissées des sommets d'un triangle ABC sur les côtés correspondants d'un triangle A'B'C' concourent en un même point D, les perpendiculaires abaissées des sommets de A'B'C' sur les côtés correspondants de ABC concourent en un même point D'. Dans ce cas on dit que les deux triangles ABC et A'B'C' sont *orthologiques*, que D est le *métapôle* du couple ABC, A'B'C', et que D' est celui du couple A'B'C', ABC (terminologie de MM. Lemoine et Neuberg). A prouver que deux triangles sont triplement orthologiques, s'ils le sont doublement, et que le terne de métapôles du triangle donné ABC parcourt l'ellipse de Steiner correspondant à ce triangle, si l'on change le triangle A'B'C' de manière à rester triplement orthologique à ABC.

—598. (Professor STEGGALL.)—Light is incident on a vertical film whose thickness increases uniformly downwards, but is constant along horizontal lines; a portion is reflected through a vertical slit close to the film, and is projected by a prism and lens into a spectrum. Show that the black bands have for their equation $y^2x = n^2 . a^3$, where n is any positive integer.

—599. (Professor GRAM.)—Résoudre l'équation

$$\{abx(x-a-b)\}^{\frac{1}{2}} + \{bcx(x-b-c)\}^{\frac{1}{2}} + \{cax(x-a-c\}^{\frac{1}{2}} = \{abc(a+b+c)\}^{\frac{1}{2}}.$$

—600. (Professor HUDSON, M.A.)—If the mid-centre of a triangle lies on a side of the triangle, prove that the difference between the angles to which that side is adjacent is a right angle. [The mid-centre is the centre of the mid-circle, that is, of the circle that passes through the middle points of the sides.]

—601. (Professor LEROUX.)—Éliminer x, y, z entre les équations

$$m\sin x + n\cos x = m\sin y + n\cos y = 1,$$

$$\frac{\sin x}{\sin z} \quad \frac{\cos x}{\cos z} = \frac{\sin y}{\sin z} + \frac{\cos y}{\cos z} = -1.$$

—602. (Professor COUPEAU.)—Si deux cordes AB, CD d'un cercle sont telles que les droites qui joignent A et B au milieu de CD soient symétriques par rapport à CD, les droites joignant C et D au milieu de AB sont également symétriques par rappart à AB.

—603. (Professor MANNHEIM.)—Quelle est, (1) parmi les normales à une ellipse donnée, celle qui est la plus éloignée du centre de cette courbe? (2) Même question pour un ellipsoide.

—604. (Professor ORCHARD, M.A.)—A quantity u depends upon n others, $x_1, x_2, x_3, \ldots x_n$, which may be constant one at a time, in such a manner that when x_1 is constant (and the $n-1$ others vary) $u \propto x_2 + x_3 + \ldots + x_n$; when x_2 is constant, $u \propto x_1^2 + x_3^2 + \ldots + x_n^2$;
when x_3 is constant, $u \propto x_1^3 + x_2^3 + \ldots + x_n^3$;
when x_4 is constant, $u \propto x_1^4 + x_2^4 + \ldots + x_n^4$; and so on.
Find how u varies when all the n quantities are variable.

—605. (The EDITOR.)—Through four given points draw (1) a conic such that one of its chords of intersection with a given conic may pass through a fifth given point, and show (2) what the problem becomes when two of the four points are the circular points at infinity.

—606. (R. TUCKER, M.A.)—P $(am_1^2, 2am_1)$, Q (m_2), R (m_3) are three co-normal points on a parabola: show that the rectangular coordinates of the "S"-point of PQR are given by

$$\Sigma(m)^2 . Y = -6am_1m_2m_3,$$

$$2\Sigma(m^2).\left[\Sigma(m^2)+24\right]X = a\left[\left\{\Sigma(m^2)\right\}^2 . \left\{\Sigma(m^2)+8\right\} - 36m_1^2m_2^2m_3^2\right].$$

—607. (W. J. C. SHARP, M.A.)—If $\Delta_1, \Delta_2, \Delta_3, \Delta_4$ be the areas of the faces of the tetrahedron of reference, and $(x, y, z\ w)$ the quadruplanar coordinates of any point P on $\Delta_1/x + \Delta_2/y + \Delta_3/z + \Delta_4/w = 0$, show that the feet of the perpendiculars from P upon the faces lie in the same plane. Find the equation of this plane.

—608. (W. J. GREENSTREET, M.A.)—If the normal at P on the curve $r^2 = a^2\cos 2\theta$ meet the axis in H; and if HQ, HR be drawn perpendicular to OH, OP, meeting the circle on the join of the poles of the curve as diameter in Q, R; prove that $HQ : OQ = OQ^2 : RP^2$.

—609. (M. BRIERLEY.)—Form five similar triangles one within another, having a common centre of gravity, the second one by joining the middle points of the outermost; the third by joining the centres of gravity of the three outermost of the four triangles thus made; the fourth by joining the centres of gravity of three triangles, the bases of which are the sides of the outermost; and the fifth by joining the centres of gravity of the three triangles which have for their bases the sides of the second formed triangle. Show the relative magnitudes of the whole five.

10610. (J. D. H. DICKSON, M.A.)—Give a general method of solving Mr. BIDDLE's Question 9957, already solved in a particular case in Vol. LI., pp. 67, 68.

—611. (WALTER STOTT.)—Sum the series $\frac{1}{1+2+3} + \frac{1}{4+5+6} + \ldots$

$$\tfrac{1}{3}\sum_0^n k\frac{1}{3k+2} = \tfrac{1}{3}\sum_0^n \int x^{3k+1}\,dx = \tfrac{1}{3}\int_0^1 dx \sum_0^n{}_k\, x^{3k+1} = \tfrac{1}{3}\int \frac{x}{1-x}\left\{1-x^{3(n+1)}\right\}dx.$$

—612. (J. J. BARNIVILLE.)—Prove that, when $\beta > \alpha+1$,

$$\frac{\alpha}{\beta} + \frac{\alpha(\alpha+1)}{\beta(\beta+1)} + \frac{\alpha(\alpha+1)(\alpha+2)}{\beta(\beta+1)(\beta+2)} + \ldots = \frac{\alpha}{\beta-\alpha-1},$$

$$(\alpha+\beta+1)\frac{\alpha^2}{\beta^2} + \ldots + (\alpha+\beta+5)\frac{\alpha^2(\alpha+1)^2(\alpha+2)^2}{\beta^2(\beta+1)^2(\beta+2)^2} + \ldots = \frac{1}{\beta-\alpha-1}.$$

—613. (J. O'BYRNE CROKE, M.A.)—Prove that the area of an ellipse given by the general equation $(a, b, c, f, g, h)(x, y, 1)^2 = 0$ is $\pi\Delta/C^{\frac{3}{2}}$, where Δ is the discriminant of the equation, and $C = d\Delta/dc$.

—614. (Rev. H. LONDON, M.A.)—In space of n dimensions, $n+1$ flats of $n-1$ dimensions equidistant from the origin repel according to the inverse n^{th} power of the distance. Prove that a particle at the origin will be in equilibrium.

—615. (H. W. SEGAR.)—If, in a triangle, we have $a > b > c$, or $b > c > a$, or $c > a > b$, prove that, (1)

$$\left(\frac{\sin B}{\sin C}\right)^{\cos A}\left(\frac{\sin C}{\sin A}\right)^{\cos B}\left(\frac{\sin A}{\sin B}\right)^{\cos C} < 1;$$

and if (2) the triangle be acute-angled, then also

$$\left(\frac{\cot B}{\cot C}\right)^{\sec 2A}\left(\frac{\cot C}{\cot A}\right)^{\sec 2B}\left(\frac{\cot A}{\cot B}\right)^{\sec 2C} < 1.$$

—616. (S. TEBAY, B.A.)—An urn contains florins and half-crowns amounting to £1. 13*s*. If a person draw three coins at random, what is the value of his expectation?

—617. (Rev. H. SEWELL, B.A.)—If $a, b, c, \ldots k$ be n positive quantities which are not all equal, prove that, (1)

$$(a^m + b^m + c^m + \ldots + k^m)/x > \left\{(a+b+c+\ldots+k)/x\right\}^m;$$

and (2) the general theorem of which the above is a particular case, that $\left\{a^m + b^m + c^m + \ldots + k^m)/x\right\}^{1/m}$ increases or decreases with m.

—618. (H. BROCARD.)—Trouver le lieu du point de contact de deux séries de circonférences, les unes tangentes à deux droites rectangulaires OX, OY, les autres tangentes à OX en un point fixe A.

—619. (By H. MACCOLL, B.A.)—Three points are taken at random on the perimeter of an equilateral triangle, and through each a straight line is drawn bisecting the triangle. Required the average area of the triangle formed by the three bisecting lines, the area of the given triangle being unity.

—620. (By A. KINSELY.)—Find the greatest number of globes one inch in diameter that can be placed in a hemispherical bowl one foot in diameter.

NOTICE TO CORRESPONDENTS.

Correspondents should be careful (*a*) to write each Question and each Solution on a *separate* paper (otherwise, when used for printing, the EDITOR has the labour of entirely *re-writing* such articles); (*b*) to make their Solutions as short as possible; (*c*) to send all Questions *early in the month*, but not to send Solutions till their Questions have been published; (*d*) to write their names at the *top* of *each* paper; (*e*) to *prepay* the postage in *full*; and (*f*) to send all communications to

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THE LONDON MATHEMATICAL SOCIETY.

Thursday, May 8th.—J. J. Walker, F.R.S., President, in the Chair. The President announced that a member, Lieut. Col. J. R. Campbell, F.G.S., late Hants Artillery Militia, of Charing, Kent, had asked to be allowed to give a donation of £500 to the Society, and that the Council had accepted the gift. On the motion of the Treasurer (A. B. Kempe, F.R.S.), seconded by S. Roberts, F.R.S., the following resolution was carried unanimously:—"That the cordial thanks of the London Mathematical Society be given to Lieut. Col. Campbell for his generous gift of £500 to the general fund of the Society."

The following communications were made:—"On the Function which denotes the Excess of the Divisors of a Number which $\equiv 1$, mod. 3, over those of a Number which $\equiv 2$, mod. 3," Dr. Glaisher, F.R.S.; "A Table of Complex Multiplication Moduli," Prof. Greenhill, F.R.S.; "On a Theorem relating to Bicircular Quartics and Twisted Quartics," R. Lachlan, M.A.; "On the Genesis of Binodal Quartic Curves from Conics," H. M. Jeffery, F.R.S.; "On the Arithmetical Theory of the the form $x^3 + ny^3 + n^2z^3 - 3nxyz$," Prof. G. B. Mathews.

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COLLEGE OF PRECEPTORS.

Evening Meeting, June 25th, 1890.

The Chair having been taken by H. C. Bowen, Esq., M.A., J. Scott Keltie, Esq., read the following paper on

THE TEACHING OF GEOGRAPHY, WITH SPECIAL REFERENCE TO COMMERCE AND INDUSTRY.

In a thoughtless moment, at the request of your courteous Secretary, I consented to let this stand as the title of my lecture to you to-night. When I came to reflect upon it, I seemed to myself extremely presumptuous. How could I, who know nothing about teaching practically, undertake to teach an assembly of teachers how to teach? If I attempted it, I should certainly be led into saying some very absurd things, and indulging in instructions which in practice it would be impossible to carry out. Teaching is your specialty, not mine; and I am sure I have nothing to tell you on the subject that you do not know already. I have, however, given a little attention to geography, especially in its practical bearings. What I shall endeavour to do, then, in the short time at our disposal will be to indicate what, in my conception, are some of the practical bearings of geographical knowledge on the interests of industry and commerce. I shall try to illustrate what I have to say by a few examples. The practical application of the hints and illustrations I must leave to you; if there is anything in them, I am quite sure you will yourselves see how to put them into practice in your daily teaching.

It might have been of much interest to give some examples of the light which geography can throw on history, but, considering the time at our disposal, it would be better to deal at once with the subject as announced; referring you for such examples to works like Green's "Making of England," his "Short Geography of the British Islands," and Buckle's "History of Civilization." In order to realize the bearings of geography on commerce, let us see what is commerce, and what is geography.

Commerce, in its larger sense, is essentially the transference or conveyance of commodities from one part of the world to another; from the place where they are found, or manufactured, to the place where they are wanted, *i.e.*, to their market. This implies the finding of your commodities, to begin with; a knowledge of the conditions in which they are found, of the circumstances under which they are to be obtained; of the facilities and hindrances to taking them from where they are to where they are wanted, *i.e.*, to market; and of the character of that market, and the conditions under which the commodities are to be disposed of there.

Commerce, to be progressive, must be constantly on the outlook for new sources of supply, and for new fields in which to dispose of her commodities.

Now, much of all this, I think it is evident, is clearly connected with the kind of knowledge which geography, in its broad sense, ought to be able to furnish, and also with the kind of enterprise which we call exploration. You may think that geography cannot be of much help to the merchant who deals with highly civilized and thoroughly known countries like Germany, France, Holland, and Belgium. But we maintain that the political, social, and economical conditions which prevail in those countries, the characteristics of the people, the conditions under which commerce must be conducted, are largely the outcome of the influence of geographical conditions on man, and of man's action in modifying them. What are railways, canals, telegraphs, but successful attempts to overcome topographical disadvantages, and to lessen distances? and these surely are geographical factors.

Let us, then, see what geography is.

For a short definition you cannot, I think, get anything better than the old statement found in all text-books, that Geography is a description of the earth. It all depends on what you mean by "description."

You may approach geography from two directions. You can begin at the surface and go downwards or inwards, and try to discover the causes of the great factors which you find on the face of the earth—the oceans and the continents and the islands, the mountains and the plains, the lakes and the rivers, and all those other features which give such variety and beauty to the home of mankind. This is the scientific aspect of the subject; here you are seeking after causes. Or you may take these features as you find them; take into account the action upon them of all influences to which they are subject, latitude and longitude, altitude above sea-level, of heat and cold, of rain and drought, of distance from or nearness to the sea, of the varied covering of the surface, vegetable or animal, sand and rock, and of all those other factors which give a region character. You can study their relations to each other, and, above all, their influences on the kindly race of men who are planted in their midst, and whose lives and activities are, to a great extent, dependent on them.

Geography, like commerce, deals with distribution. It might be defined as that department of knowledge which treats of the topographical distribution of the great features of the earth's surface and all that it sustains, of their relations to each other, and, above all, of their relations to the greatest factor on that surface—man himself. The three most potent factors on the earth's surface are land, water, and atmosphere, and it is the relations and interactions of these that give rise to the leading phenomena with which geography deals. But there are two other factors, or rather forces, which cannot be neglected, as without these, or at least one of them, all would be stagnation. There is the rotation of the earth itself, with all that it involves; and, above all, there is the great source of all energy, we may say all terrestrial life, the Sun himself. It is his action on the surface of the earth as it revolves around him year after year, as he sways between the tropic of Cancer and the tropic of Capricorn, his action on the three great factors of air, earth, and water that keeps everything in a state of constant activity and change, that produces many of those conditions which so closely affect the interests of commerce. Let us, however, deal a little more closely with the surface of the earth itself.

We have, first, the two notable divisions of land and water, in all their varied forms. The relations of the land to the water are often of the greatest commercial import. Take, for example, the outlines of the great masses of land. Compare the monotonous contour of the African continent with the broken outlines of the other continents. See how Europe is penetrated everywhere by great arms of the sea, by gulfs and bays and fjords and estuaries, affording magnificent harbourage, and giving access to the heart of the continent. Asia also, though not so broken in proportion to its size, is also fortunate in this respect, though, unfortunately, some of its finest water-approaches to the interior are rendered almost useless by their geographical position; the great estuaries of the Yeneissei, the Obi, and the Lena face the eternal posts of the North Pole. America has its wide opening leading up the St. Lawrence, which, by a little canalization, leads into its great lakes. All down the east coast are commodious harbours; there is the spacious sweep of the Gulf of Mexico, the openings that

lead up the Orinoco, the Amazon, the La Plata. Even Australia has its Spencer Gulf, its Port Philip, its Sydney Harbour, its Gulf of Carpentaria, though in the matter of openings into the land it is too like Africa, and, had it been situated in the same latitude, it might have been as far behind to-day as the Dark Continent. For, had Africa had great navigable arms of the sea similar to the Black Sea, the Adriatic, the Baltic, leading from the malarious coast to the high interior, it would probably have been taken seriously in hand by European commercial enterprise long ago.

Latitude is one of the most important geographical factors, and one having the closest bearings on the interests of commerce. Africa in this respect is the worst off of all the continents. If you look at the map you will see that two-thirds of its surface lies within the torrid zone. Now it is not only that that two-thirds is difficult of access to any enterprises conducted by Europeans, but this enormous surface is like a great furnace spreading its torrid influence north and south. Europe and Asia are within the temperate zone, except a bit of Arabia, India, and the Indo-Chinese Peninsula, and those northern regions which stretch into the inhospitable circle of the frozen ocean; but that is only a small proportion of the great Euro-Asiatic land-mass. So too with North America, the great mass of the mainland is within the temperate zone, as is a large section of South America, and more than one-half of Australia. Had it not been for its latitude, Africa would have been overrun by European colonization and European commerce long ago. If you look at South America you will see the difference which latitude makes to industrial development. North of the tropic of Capricorn lies most of Brazil, Peru, Bolivia, Venezuela, Colombia, Ecuador, where revolutions are chronic, where northern Europeans cannot labour, where the climate is inimical to exertion, and where everything is stagnant. South of that tropic we have the Argentine and Chile, two most enterprising nations, who have done well in the past, and who have a great future before them.

But there are certain circumstances which modify the natural effect of latitude. There is the influence of the ocean itself, which acts as a powerful moderator. Contrast the mild winter of the British Isles and Western Europe with the rigorous winter of the interior of the Continent even in more southerly latitudes. This factor is itself subject to variations dependent to a large extent on the direction and temperature of its surface currents, and these again owe their origin, to a large extent, to the prevailing winds. The Gulf Stream is a well-known example; there can be little doubt that it has some effect in producing the mild winter climate of our islands, a marked contrast to the rigorous winter climate of New York, more than ten degrees (700 miles) south of London, due largely, no doubt, to the cold current that comes south from Labrador. On the opposite coast of America from New York they have, at Vancouver Island and British Columbia, on our own latitude, the same open climate that we have, due largely to a warm current similar to the Gulf Stream—the Japanese Current, or Kuro Siwo. It is partly due to this, and partly no doubt to other causes, that what is known as the mean annual isotherm of 40° Fahrenheit sweeps north-west from the mouth of the St. Lawrence to Alaska; that is to say, the western parts of the Dominion of Canada, which are in the same latitude as inhospitable Labrador, have the same temperature as the country at the mouth of the St. Lawrence—a most important fact for industry and commerce, seeing that it renders possible stock-rearing and agriculture on a great scale in one of our most important colonies, and keeps the harbours open nearly all the year over.

There is still another point that must be taken into consideration in the interests of commerce, as tending to moderate climate, and that is altitude, or height above sea-level. The configuration of the land surface of the globe is one of the fundamental elements with which geography deals. We have mountains assuming many varieties of aspect—long ranges, such as we find up and down the coast of America, along the northern borders of India, and crossing Central Asia; great masses like the Alps; isolated groups and peaks like Kilimanjaro and Mr. Stanley's Ruwenzori; and then we have those worn-down mountains which we call tablelands. Mere altitude has such a modifying effect, that, even in South Europe, in Switzerland, North Italy, France, and Spain, human life and human activity cannot be carried on above a certain moderate limit; whereas at Quito, just on the Equator, you may have an elevation perfectly tolerable to Europeans, for it is 9,520 feet above the sea. As a rule, for every 270 feet you rise above sea-level, the air grows cooler by one degree Fahrenheit; so that, at 3000 feet above sea-level, you get it 11° degrees cooler, and 5000 feet nearly 20° cooler, than it is at sea-level. This is a most important fact for the industrial development of tropical countries like Central Africa under white men.

Here you see we have got into the subject of climate, a critical one, I need not tell you, with reference to the transactions of commerce. Latitude, altitude, the relation of the land to the ocean, are all elements which help to form climate. But, above all, the direction from which the wind comes, as a whole, is of critical importance, for that again governs to a great extent the rainfall; and the amount of rain that falls in a country, as you know, determines its fertility, and its suitability for a great variety of industrial operations. Take the Great Sahara, or the Kalahari, or the Gobi Desert. They are barren simply because they get little or no rain; and they get no rain, either because the wind does not come from the right direction, *i.e.*, over the broad ocean, or, if it does, all the moisture it has sucked up from the ocean has been tapped by the coast mountains. It is possible to have too much rain. Our average is about 25 inches a year. In the dripping forest through which Stanley passed to the rescue of Emin it is about 75 inches; in some parts of the Eastern Himalayas it is as high as 800 inches. Nothing can stand before that; everything is swept off the ground; even in some part of Africa railway construction will be a difficult matter, on account of the enormous deluges that sometimes come down.

This question of climate, and especially of rainfall, is of vast importance with reference to our own colonial empire. Thus in India the density of population in many places is in exact proportion to the rainfall. In Australia you have belts extending from the coast inland where the rainfall decreases in regular gradation from over 75 inches a year to almost *nil*. Now, the agricultural and pastoral capacity of the country corresponds precisely to its rainfall. Thus for every inch over absolute drought you can graze one sheep per square mile, though the ratio goes on increasing. You can have 22 sheep per square mile for every inch of rain over 9 inches. In N.S. Wales, 20 inches per annum gives you feeding ground for 640 sheep per square mile, *i.e.*, one per acre; and even that cannot be considered very high, and could only pay in a country where land is plentiful and cheap. Or take wheat in South Australia, one of the great wheat-exporting countries. You know that the yield of wheat is measured by so many bushels per acre. In this country, for example, you may get 26 to 30, or more, bushels per acre. In South Australia, 18½ inches of rain a year, the wheat harvest yields 12½ bushels per acre; 15 inches of rain yields 10 bushels; 13½ inches yields only 6½ bushels. As Mr. J. T. Wills points out in a paper on the subject, an extra inch of rain in the season on the total area of South Australian wheat lands—some two million acres—would give it an additional fee-simple value of ten million pounds, if wheat at 4s. a bushel, or equivalent crops, were grown. In Melbourne, recently, the people of Victoria have been attempting to manufacture their own wool into cloth, and so avoid the necessity of importing so largely from England. Fortunately for us, the climate there is so dry that, to begin with, they cannot succeed in making yarn that can at all compare with that made in Yorkshire. A certain amount of moisture, it seems, is required to turn out satisfactory yarn, which is found in the atmosphere around Bradford and other manufacturing centres, but which is not found in Australia. So, I am told, is the case with the manufacture of cotton yarn, which is the great staple in Lancashire; though the fact of that being the great centre of cotton manufacture in this country is no doubt due, to a large extent, to the geographical position of Liverpool, which makes it the great port for the import of raw cotton from the States.

I give you these facts to show you how very important a factor rainfall is in judging of the commercial value of a country; but for its scanty rainfall the Sahara might be as rich a country as the Central United States. The lack of rainfall in our Cape Colony is one of its greatest drawbacks.

Nothing is more influenced by the climate than the vegetable covering of the face of the earth, and how important that is from the commercial point of view may be seen from the fact that half our imports—*i.e.*, nearly 200 million sterling—are of vegetable origin, and over one-third of our exports are manufactured goods of vegetable origin; I need only mention the import of raw cotton, and the export of cotton goods. The distribution of forests over the globe means the possibility of timber supply; and there are other natural vegetable products, like indiarubber, ebony, fine woods, like mahogany, oil-nuts, and so on, which are of importance to commerce. But of much greater importance

are the cultivated plants. One of these, wheat, I have just referred to; and the laws which govern its distribution, the geographical conditions under which, in its many varieties, it may be grown with advantage, are well known. We know its northern and its southern limit in various longitudes. Now, in Europe it may be grown to 60° N. lat.; as you go eastwards through Asia to the Pacific the limit of growth gradually comes south to about 40°. In America, it will not thrive much beyond 44° in the east, but in the north-west territories of Canada it may be grown at about 60° N. Temperature, rainfall, soil, are the important factors. So with other cereals—barley, oats, maize, rice; so with tea, coffee, tobacco, cotton, the vine, indigo, the olive, and other cultures of commercial value. These articles are all regulated in their distribution by the various factors to which I have referred; and, with proper geographical data, we ought to be able to say, with respect to new lands, for which of these, if any, they are suited.

Wild animals are of less importance than wild plants to commerce, though, indirectly, their abundance and character may seriously affect the commercial value of a country. As a rule, however, the mere natural animal and vegetable products of a country can never be of the first commercial value; far more important is it to know for what artificial cultures and what domestic animals any country is adapted.

It is different with minerals. Gold is found in all climates and under varied geographical conditions. The precise nature of these geographical conditions greatly affect the profits which may accrue from working it. There is plenty of gold on the Gold Coast; but the climate is deadly. Almost equally deadly is it to collect the gold which is running in the low-lying rivers of Mashonaland that flow north to the Zambesi. Happily, plenty of reefs exist in South Africa, Australia, and Western America, that can be worked without injury to health. But these reefs may be so out of the way, may be so difficult to reach with the necessary stamping machinery, that to work them would be ruinous. Hence the vast importance of that special branch of commercial geography which deals with communications and trade-routes.

Of much greater importance for a country is its coal, its iron, its copper, its tin, than all the gold of all the rivers and reefs in the world. Even the export of wool alone from Australia far exceeds in value that of its ever-diminishing gold output. The geographical distribution of coal and iron over the globe is of vast commercial importance; and precise knowledge of the conditions under which they are found is invaluable.

It is of prime importance from an industrial point of view to know thoroughly the character of the people who inhabit the various regions of the earth. Thus, in Central Africa and other tropical countries, white people cannot do the hard work; if, then, you cannot get the natives to labour, or cannot introduce labourers adapted to the climate, how are you to develop the commercial resources of the country? Ignorance of or inattention to the peculiar religions, superstitions, and customs of a people, especially in semi-civilized or uncivilized countries, may ruin commercial enterprise. Even in countries like Spain, and China and India, traders often make the most fatal blunders through ignorance of the people and their ways.

I need hardly remind you of the intimate connexion between communications and geographical features, and of the vast importance of communications to commerce. You get your commodities, you overcome all local difficulties, and it remains for you to get them taken to their destination. What sort of a country have you to pass through? What are the means of conveyance? Must your commodities be carried on men's heads or on camels, as in a great part of Africa; or on llamas, as in the Andes; or on mules or horses, drays or canal boats; on railways or in ships; or in all of them?

The importance of railways I need not point out. One of the most striking examples is the railway recently completed between the Caspian and Bokhara in Central Asia, which threatens to divert the whole of the trade of that vast region from India to Russia. To take an instance from South Africa, a railway goes from the Cape up to Kimberley, some five hundred miles. You can take quartz-crushing mills all the way for a very moderate sum per ton; before it reaches its destination, not many miles further on, it will cost ten times the same amount per ton to be carried on ox-waggons. The construction of the railway through the heart of Canada, from the Atlantic to the Pacific, has enormously increased the commercial value of the Dominion. The construction of railways has turned India into one of the great wheat-exporting countries of the world.

A recent German writer on Geography has attempted to define it as the Science of Distances; and certainly, so far as commerce is concerned, the items of distance and of relative position are of the first importance. The great aim of all recent opening-up of new routes has been to overcome the commercial disadvantages of geographical position—to encircle the globe with continuous lines of rapid communication.

When once you get your commodities to the coast, then comes the question of the nearest convenient port, and at the other end the most suitable point at which to land them. But several other factors come into play in considering the various conveniences and hindrances for the transfer of commercial commodities round the globe—factors like the risks of navigation, various port charges, and especially customs duties or tariffs, which are so enormous in some countries as to be almost prohibitive of commercial intercourse.

I have here to-night a number of maps of Africa. I have had them hung up, not with the intention of giving you a lecture on the commercial geography of that strange continent, but as example of the use which may be made of maps in teaching the subject. It is important, of course, that you should have the best possible general map of any continent or any region with which you deal—a map exhibiting, with the greatest possible fulness, clearness, and accuracy, the results of geographical investigation. For teaching purposes, however, it is desirable to take the map to pieces, to analyse it, to exhibit graphically one thing, one feature at a time. This, as you see, can be done very easily by means of simple washes of colour. Any teacher who can use the blackboard and coloured chalks has a great advantage in this respect, as he can build up any particular aspect of a region before the eyes of his pupils. Or he can draw the outline on a large sheet of cheap rough paper, and fill in the interior in the way best adapted to his purpose. In Germany they make a cheap paper for the purpose, and a soft kind of pencil or greasy chalk in all colours. With these materials a teacher could, at his leisure, construct a stock of maps illustrative of every point in his lesson. The maps before you will show you the kind of features which might be exhibited in trying to show the bearings of geography on commerce.

With these maps before us, it may serve, to some extent, the purpose of this lecture, if we try to bring out some of the relations which exist between the geography and the commerce of Africa.

Look, for example, at the position of Africa with relation to the great oceans and the great land-masses. With the exception of the north and a little bit on the north-east, her coasts are bathed by the Atlantic and India Oceans, so that if the winds and ocean-currents are favourable, and the contours of the land analogous to those of some other continents, Africa, on the whole, should be well off. So far as currents and winds go, she fares not badly, as you may see for yourselves by inspecting a good map. When, however, we go north of about 22° N. lat., we find the geographical position not by any means favourable to commerce and industry. Thence we are in the region of the Sahara, covering some three million square miles. Although the Atlantic bathes all the west coast of this region, unfortunately the winds, instead of blowing towards it, blow away from it. What are known as the north-east trade-winds (owing to their importance to navigation) just skirt the coast, and do it little good. True, the prevailing winds of the year on the north and north-east come across the Mediterranean and Red Sea; but they have just passed over the great land-masses of Europe and Asia, and parted with most of their moisture to these favoured continents, and the little they can pick up from the narrow seas is deposited on the coast, and almost none reaches the Sahara.

In short, so far as its surroundings go, the great mass of the centre and south of the continent is not unfavourably situated as regards currents and winds, while some three millions of square miles in the north, more than one-fourth of the whole of Africa, is as badly situated as a land can be outside of the polar circle. It is unnecessary here to go into the reasons why winds and ocean-currents exert the influences I have referred to; you know enough of physiography to understand that for yourselves.

The contours or configuration of the land itself have a most important bearing on commercial enterprise. This we can see if we consider briefly to what extent they are, in the case of Africa, likely to modify or profit by the surrounding conditions to which I have referred. One of the maps before you is contoured to show the leading elevations of the continent above the sea. Land below 1000 feet above sea-level is uncoloured; the first and lightest tint, land between 1000 and 2000 feet; the next, between 2000 and 3000 feet; the darker tint, land from 3000 to 5000 feet;

and the darkest tint, land that rises above 5000 feet. Now, you will see that the greater part of the surface of Africa is what is called a plateau, or tableland, of from 3000 to 5000 feet above sea-level. Over nearly all the coast region you have a low strip of less than 1000 feet, rising rapidly in terraces to the general height of from 3000 to 5000 feet, which prevails over the greater part of the continent. In northern Africa, over most of the Sahara, the general limit is lowered to 2000 feet, and on the west, and some patches in the north, to less than 1000 feet, and even in a few spots below sea-level. On the east coast the low strip is often quite 100 miles wide, while, of course, the valleys of the rivers are all on a low level. But the configuration of the surface of Africa is, on the whole, that of a plateau of from 3000 to 5000, in some patches 6000, feet above sea-level, dropping down on the coast by irregular terraces. Look at the map and you will see scattered over the surface some darker patches. These patches indicate the only parts of Africa that rise over 5000 feet. You will see how few and scattered and isolated they are, compared with the whole extent of the continent; and how different Africa is in this respect from any other continent, except Australia, with which it has a good deal in common, making allowance for difference of latitude. Africa has none of the enormous mountain ranges we find in Asia, Europe, and America.

You may ask what all this has to do with commercial geography. It has a vast deal to do with the industrial development of Africa, and without the possibility of such development the occupation of commerce is gone. These mountain ranges are the great moisture-catchers.

Thus the configuration of a country has much to do with its rainfall, and on its rainfall the value of its commerce to a great extent depends. In Africa there are no great coast or even inland ranges to cool the moisture-laden air that would pour over them. If you look at the rainfall map you will see that scarcely a drop falls over the whole of the Sahara; the northern slopes of the Atlas catch what the winds from the north can bring with them. You will see how beyond the Sahara it begins to increase, reaching its maximum in a broad belt across the centre of the continent, falling off again as we go south, and especially towards the south-west, where we find the Kalahari, the Sahara of the south.

Thus over a very extensive area of Africa the rainfall is much too scanty to make agricultural and planting operations profitable without great trouble and expense in the way of storage of water for purposes of irrigation. In many productive wheat areas of India it is only by means of a network of irrigation canals that anything is made to grow at all.

I have already referred to the torrid heat of Central Africa. Of the eleven million square miles, something like eight millions have the sun vertical twice a year. If you look again at the rainfall map you will see red lines running across it, with figures upon them. These I need not tell you are isotherms—*i.e.*, the regions upon these lines have the same average annual temperature. You will see two lines, one going across the north near the tropic of Cancer, and another across the south irregularly, with 80° marked on it. That means that, on an average, all the region between—*i.e.*, the bulk of the continent—has an average annual temperature greater than 80°. The hottest day in our summer is little more than 80°, and a week of that makes us long to rush to the seaside, or the Highlands, or Switzerland, to get cooled down. Fancy what it would be if you had to lead your life in it all the year! And, remember, 80° is only an average; the temperature during the day is generally much higher, it may rise to 120° or 140° in the shade: though at night it may cool down much below 80° owing to the great evaporation. Now here comes in one advantage of the prevailing plateau character of the bulk of the continent, rising 2000 to 6000 feet above sea-level. Thus it comes about that in the interior, in spite of the want of the cool sea-breeze, the climate may be cooler than at the coast; so cold indeed sometimes at night that you want a blanket and a fire to keep you warm. Those islands of mountain-land scattered over Africa, the Cameroons, the Drackenberg, the Livingstone Mountains round the north of Lake Nyassa, Kilimanjaro, Ruwenzori, Abyssinia, the Atlas, will be the greatest boon as sanatoria in the future when white men come to have more intimate dealings with the continent.

Take it all in all, then, I think it is not too much to say that some four million square miles, more than one-third of Africa, is undoubted desert; while another million, I should say, is just beyond the desert stage, and could not be made anything of for planting and agricultural purposes without irrigation. Even in Africa, south of the Zambesi, you may have long rainless periods which turn much of the country into desert. Altogether, there is only about one-half of Africa over which nature is spontaneously exuberant.

There is another factor which I have only just alluded to, but which we must notice before going further. We have spoken of the supply of moisture from above; let us see now how the supply on the surface is distributed. Here, again, we find almost everything gathered into the great central region. All the great lakes of Africa are situated within the tropics, and all the great rivers either flow within that area or originate there. Thus you see how nearly all the natural riches of the surface of Africa are gathered into this central belt.

Another important element from the commercial point of view, is that of population, and one of our maps shows the density of population in the different regions of Africa. You will see that the distribution of this element has some analogy with the distribution of rainfall, and of the native products of the continent. With one or two exceptions, the native population is most dense in that region where nature is most exuberant. The average over the whole of Africa is probably not more than 20 to the square mile; in England it is 500. The characteristics of a people, I need not remind you, have an important bearing on commercial development. We know that over all Central Africa white people cannot labour continuously as they do in Europe, and that the resources of the continent must be developed either by native labour, or by the importation of peoples accustomed to work in tropical climates. The bulk of the Central African peoples belong to what is known as the Bantu stock, of which the Zulus are a type; and the point is, from the commercial point of view, can these people be trained to work under white superintendence? Equally important, in the interest of commerce, is the religion of a people; are they Christians, are they Mohammedans, are they heathens? Your methods of dealing must vary according to type; and, again, it must be remembered that Christians and Mohammedans are better customers for textile materials and manufactured goods than heathens, who are mostly naked barbarians.

Then might come in the question of how far Africa is colonizable by Europeans. On this subject of colonization, the haziest ideas prevail. You even hear it maintained that the Congo basin will form a splendid field for European settlement. From this point of view it is important to let your pupils comprehend the distinction between the two great types of Colonies—Colonies of exploitation, as the French call them, and Colonies of settlement. Our own West Indies, the Malay Archipelago, India, the Niger region, the Congo Free State, nearly all the French and German possessions, are types of the former. In these, native labour is absolutely essential to the development of their resources; Europeans can only settle as superintendents of such native labour. Victoria, New South Wales, South Australia, Queensland, Canada, the Cape, are types of Colonies of settlement, in which Europeans can easily become acclimatised, and live and work much as they do in their native land. But for the intending Colonist it is of vital importance to know in full detail the actual geographical and climatal conditions in which he must settle: the sort of labour for which the Colony is suited, the distribution of rainfall, the real nature of the physical features, the various means of communication, &c.

To return to Africa; in the matter of communications a good map seems to show that the centre of the continent must be well off with its magnificent rivers and great lakes. But here again appearances are deceitful. Good harbours are few and far between. And as for its rivers, you remember the configuration of the continent: how it rises in terraces from the coast to the tableland which characterises most of the interior. Well, these rivers have to find their way across the tableland, and down its terraces to the coast. The result is that every one of the great African rivers—the Nile, the Niger, the Congo, the Zambesi—is more or less obstructed by cataracts, necessitating long, tedious, and expensive portages, or the construction of railways between the navigable portions.

I have thus tried to bring before you the leading geographical elements which bear on the commercial development of Africa, with a view to showing you one way at least in which, I think, the subject may be taught. It is of course necessary to give statistical expression to some of the factors with which commercial geography deals; but mere tables of values of exports and imports, of the produce of cereals, textiles, minerals, &c., are repulsive to the pupil, and of no value. Only by bringing such results into relation with geographical conditions, by introducing comparisons, by putting life and actuality into figures, are they of any edu-

cational value. The results as to Africa when taken in this way are of great interest. I estimate the total commerce of Africa, imports and exports, at about 90 millions sterling; for Australia, commercially only a century old, and the fringe of which alone is occupied, it is 120 millions; for British India about the same. Well, of this 90 millions sterling of African commerce, only about 15 millions belongs to the whole of Central Africa, including that exuberant region of which we have spoken—about two-thirds of the continent. The total exports of the whole of Central Africa amount to only about 8 millions sterling. Out of the 90 millions, 40 millions must be credited to the States along the Mediterranean, covering only about 500,000 square miles, and much of that uncultivated; the remainder, about 35 millions, belongs to the countries at the other side of the continent, the Cape and the neighbouring territories. One great lesson to learn from this is that the mere collection of native animal and vegetable tropical products can never yield much to commerce; that intelligent human activity is necessary to the development of the most favoured country; that the introduction and cultivation of food products, the rearing of cattle and sheep, the establishment of manufactures, far outweigh all that nature in her most lavish moods can do for commerce; that, in short, Central Africa will never be of much commercial value until the natives learn not merely to collect native produce, but to make use of their rich soil for the purpose of rearing such commodities as can find markets in neighbouring countries or beyond the seas.

I have gone into these details with respect to Africa, to show how I think in the course of your ordinary teaching you may be able to bring out the practical bearings of the geographical facts with which you have to deal. Another method to follow, and a most profitable one from a practical point of view, is to take the leading commodities of commerce and work out the varying geographical conditions under which they are found, and the various circumstances which they must be subject to before brought to their final destination. Thus wheat and maize and rice and other food products can be treated most interestingly; wool, cotton, and other textiles; coal, iron, gold, and other minerals and metals; and even manufactured goods. In any complete course of commercial geography, this method must be used as supplemental to the other, in which you start with your geography and work your way out to your commodities. Both methods are very ably illustrated in Chisholm's "Text-Book of Commercial Geography." This special aspect of the subject can, of course, be easily illustrated by such special and simple maps as those before you.

I must conclude as I began, by saying that I cannot pretend to teach you how to teach. I have tried to show you that commercial geography is simply a practical application of geographical knowledge in its widest sense; and I have tried to illustrate the position by a few examples. I hope what I have said may prove of some little service to some of you in the arduous, and trying, and vastly important duties of your calling.

Mr. Langler said the lecturer had disclaimed any intention of pretending to instruct teachers in their art, but he believed that he expressed the opinion of the great majority of the teachers present when he said that the paper to which they had listened was full of suggestions of great practical value for purposes of teaching. He had himself read a paper before the members of the College on a similar subject some ten years ago, when he took occasion to protest against the imparting of much useless geographical knowledge in school lessons. But geographical teaching had made great progress since the time to which he alluded, and the publication of an entirely new kind of geographical text-books was the best evidence of the change. The old method presented dry facts, with little or no attempt to show their real meaning and their connexion with one another, and the result was a deplorable waste of the pupil's time, without any real educational advantage being derived from the study. They had only to look at the maps that were now brought out, and for which attention was claimed, not on account of their including every petty little detail, but rather on account of the less important matters being entirely omitted, so that the eye was not distracted, and the more important facts stood out in due relief. The main feature of the lecture appeared to him to be the exhibition of the true relationship between geographical facts, and the direct bearing of these varied facts on the industrial and commercial development of a country.

Mr. Brown was pleased to be able to add his testimony to that of the last speaker, not only in regard to the instruction conveyed in the paper, but as to its thoroughly interesting character. The old method of teaching geography was almost entirely topographical; while the method now generally adopted gave far greater prominence to its physiographical aspect. He would himself be inclined to recommend teachers, in their treatment of the subject, to get rid of text-books altogether, and to trust to good maps, and their own verbal explanations, for engaging the attention of their pupils. There was now no lack of good and cheap maps for the purpose; and teachers should also be practised in drawing their own rough maps in front of their class, limiting the sketch to such features as they wished at the moment to call attention to. But, while he considered that the greater part of geographical teaching should be through the eye, some caution was required, on the part of the teacher, as to the necessary qualifications of the superficial facts—*e.g.*, as the lecturer had pointed out, in regard to the capacities of the Congo as a highway of commerce, and the suitability of the region for the purposes of colonization. The subject, treated in the way that the lecturer had treated it, was, he thought, better adapted for the senior than the junior boys, and for the latter he would rather recommend proceeding by way of a series of reading-books, such as could now be obtained. He also thought that the earliest geographical teaching should still be mainly of a topographical character.

Mr. Linn remarked that art was long and life was short, and that, considering the great number of subjects that it was necessary to deal with in the school, and the early age at which too many of the pupils left for business, there was not much opportunity for treating them in the detail suggested by the lecturer.

Mr. Heppel referred to his own personal experience of the method generally adopted for imparting a knowledge of geography a good many years ago, and the wide difference between that method and the way in which the subject was treated according to modern ideas. Then geography was regarded as consisting of an immense number of isolated facts, chiefly topographical, and the chief apparatus of instruction consisted in a large outline map, on which a number of spots and circles indicated so many towns, &c., which the pupil was expected to name as the pointer was directed to them. Present utility had, he conceived, a good deal to do with clear notions of locality—just as he remembered to have heard a friend say that he formed no definite notion of the position of a man's house until he had dined there. It was once the practice to estimate the importance of places solely by the battles, sieges, revolutions, they had witnessed; the triumphs of industry were now rightly deemed worthy of at least as much consideration as the destructive agencies of war. But, after all, it could not be overlooked to how large an extent teachers were dependent on the requirements of examiners for the subject-matter of their teaching; and as long as the average examination paper consisted largely of topographical questions, it would be in vain for teachers to aim at such a treatment of the subject as had been indicated by the lecturer.

Mr. Farnsworth also complained of the tyranny of examiners, and of the restrictions which they imposed on teaching. He thought that the passion for collecting shown by very many children could be turned to good account for interesting them, by way of association of ideas, in geographical facts: for instance, the collection of various kinds of grain in reference to their habitat, &c.

The Chairman was convinced that geography, if taught in the way indicated by the lecturer, could not fail to prove a fascinating study to both teachers and pupils. In his opinion, the method suggested was more capable of practical application than it appeared to some of the speakers; it would require less attention to detail than was necessary under the older methods, and, consequently, teachers and learners would be more at liberty to direct their attention to the large facts of geography, which alone were of consequence in teaching the subject; the details being relegated to gazetteers and other books of reference. What was chiefly to be regarded in considering the place of the subject in the school curriculum, was, first, its capacities for mental training, and secondly the intrinsic value of the knowledge to be acquired from it. He fully agreed with the lecturer as to the material bearing that the rainfall of a country had upon its wealth and population. At the same time, he would warn teachers not to be led to make too hasty deductions from the facts presented to them: an excessive rainfall, for instance, might be found as detrimental as a deficiency of water.

Mr. Keltie having briefly replied to the remarks of the various speakers, a vote of thanks to the lecturer concluded the proceedings.

COMMERCIAL EDUCATION ABROAD.

II.

The distribution of time in the different Higher Commercial Colleges shows that a common scheme of examination for the diplomas is impossible. As a matter of fact, the final examinations have strict reference to the courses of studies, and each school grants its own diplomas. The mode of classification of the successful candidates is always based on the total marks, and a certain percentage of the possible total is necessary for passing. We give the tables of marks of the first and last of the successful candidates for diplomas at a recent examination at the Ecole supérieure de Commerce de Paris.

Table of Marks for the First of the Successful Candidates for the Diploma.

Subjects.	Marks.	Coefficients.	Products.
German	18	18	324
English	16	16	256
Arithmetic and Algebra	19	20	380
Chemistry	18	14	252
Accounts	19	18	342
Drawing	—	—	—
Commercial Law	20	16	320
Political Economy	20	14	280
Writing	—	—	—
Spanish or Italian	20 Italian	12	240
Commercial Geography	18·25	18	328·50
Commercial History	20	14	280
Raw Materials	19	16	304
Mechanics	16	10	160
Applied Physics	20	12	240
Technology	20	16	320
			4026·50

Table of Marks for the Last of the Successful Candidates.

Subjects.	Marks.	Coefficients.	Products.
German	—	18	—
English	14	16	224
Arithmetic and Algebra	17	20	340
Chemistry (Applied)	12	14	168
Accounts	15	18	270
Drawing	—	—	—
Commercial Law	12	16	192
Political Economy	12	14	168
Writing	—	—	—
Spanish or Italian	—	12	—
Commercial Geography	15	18	270
Commercial History	—	14	—
Raw Materials	12	16	192
Mechanics	—	10	—
Physics (Applied)	15	12	180
Technology	18	16	288
			2302

It is important to notice the criticisms which have been freely made on these programmes in France itself. The French are by no means satisfied with either the arrangements or the results. For example, while in all the commercial schools a more and more important place is given to Accounts, it is contended that the number of hours devoted to this subject is out of all proportion to the actual value of the teaching, as measured by its results. It is not, however, suggested that the hours devoted to this subject are to be reduced, but that the teaching should be modified and organized on a different and more rational basis. It is complained that at present professors base their lessons upon unsound theories and contradictory methods, and illustrate them by examples of simulated accounts. One of the most acceptable suggestions on this point is that of M. Eugène Léautey, who obtained the Gold Medal at the Paris Exhibition for his Report on Commercial Schools, that each school should have a museum of administrative materials which should be methodically co-ordinated by the professors, and be supplemented by short articles and by drawings accompanied by descriptions. The objects in this museum would form the subjects of the lessons on things administrative. In consequence of suggestions such as this, efforts have already been made for obtaining from industries, banks, commercial houses, agricultural boards, and the chief Government departments, such materials as would enable professors to bring their instruction to bear on practical matters without carrying the students beyond the school. All exercises would then deal with actual documents referring to accounts, &c. Another subject which French critics say is neglected is that of Commercial and Industrial Economy. They deem it right that schools should get to know the traditions of great business houses which are usually transmitted to successors without the participation of the outside world. A pupil should be taught how to become a good employé, a good buyer, a good salesman, a good cashier, and a good accountant. But they acknowledge that the art of buying and selling, of paying and receiving, and of registering these operations, do not constitute the whole science of commerce; for a good buyer, a good salesman, a good cashier, and a good accountant are not sufficient to ensure the success of an enterprise. The enterprise itself should be well organized and directed. These arts of organizing and of directing constitute the economic science which is a necessary complement of commercial and industrial science. Therefore, although the utility of the course of political economy is not contested, the critics would like to see in every commercial school a course of commercial economy. The teaching of arithmetic should, in the opinion of these critics, be still further developed, and more attention should be paid to mental and rapid calculations. They also attach high importance to good writing as being an absolute necessity in bookkeeping and correspondence; and, as the subject of shorthand seems to have been much neglected in France, we are not surprised to find that they advocate its inclusion in the programme of studies. Their remarks on the subject of Industrial and Commercial Geography are amusing. In a criticism of the English Reader, M. Thierry Mieg says: "Look at the English newspapers, they are essentially geographical chronicles. In every number it is a question of what is going on in the whole world. Why? Evidently because it interests the English reader; for all English readers are geographers." Here, too, we find the statement that a knowledge of geography tends to induce emigration, and that in Germany and Switzerland the sole object of secondary education is to prepare for emigration. They have caught the idea, too, that geography lessons should be illustrated by magic lantern, maps, pictures, photographs, &c. The studies of tariffs, industrial and commercial plant, commercial and industrial technology, raw material and manufactured goods, and the arts of buying and selling, or "commercial strategy and tactics," as they aptly phrase it, are also strongly advised by the critics. They admit that great attention should be paid to foreign languages; they are fully convinced, that while present methods of teaching prevail, the languages can only be thoroughly learnt by a residence abroad. They ascribe the present general deficiency in the knowledge of foreign languages in France to the fact that it is painful to parents to be separated from their children for any length of time. We might draw the attention of our readers to the fact that this is the chief reason which has compelled the Jesuit authorities to decide to dissolve their school at Canterbury this summer in proof of the correctness of the opinion of the critics on this point. As to the subject of Mechanics, they think that it should be kept on the syllabus, but that neither it nor the Physical and Natural Sciences should receive too great an amount of attention.

In a Report which has received the assent and approval of those in authority, we read as follows:—

"Every impartial observer may remark that, in France, commerce is repugnant to the upper classes; the middle classes only send their least intelligent and worst taught sons into trade, while the lower classes, who push their scholarship boys into the State schools, send them into business only for 'want of something better.' And when they do this, it is with the conviction that the career does not require any other preparation but that of practice. From the highest to the lowest rung of the social ladder there is the same infatuation for the liberal or bureaucratic professions, and for the classical baccalaureat which opens the door of these careers; the same conviction that trade does not require any special preparation, and that the time spent in commercial schools is wasted. How can commercial education prosper under such conditions?

"Commercial schools, disdained by the upper classes, considered as an objectionable excrescence by the middle and lower classes, are fatally condemned to remain as the pariahs of French education, and we can understand the reasons why at present, after a long and meritorious fight, they count, in the whole country, less than a thousand pupils, including foreigners, out of a population of thirty-eight millions.

"The principal obstacles to the development of commercial education are, first, a want of funds for their support and satisfactory development; and secondly, the insufficient recognition given to this teaching. For want of money the schools have subsisted scantily, and insufficiently equipped and furnished; for want of an accepted diploma giving real advantages to those who obtain it, they have failed to attract pupils. In fact, what value can the public attach to so-called superior schools, the certificates of which are not recognised by the State as registering sufficient merit even to excuse their possessors from the examination for partial exemption from military service?—an examination so simple, that all who fail in the secondary schools, and even the pupils of primary schools, pass successfully. Evidently a teaching so little encouraged, and so little considered by the State, could not enjoy any real prestige in the eyes of the public. Heads of families in France, who, in spite of the unfavourable conditions, have sent their sons to them, form rare exceptions. The only commercial school in France which has maintained itself by its own resources has only done so by the support of pupils from abroad."

C.—Auxiliary Institutions.

Although there are serious misgivings with regard to the higher schools for the few, there are no such doubts attaching to the more practical schools which provide educational help for the many. We have already referred to the commercial evening classes established in the different arrondissements of Paris,

The subjects taught in these classes are chiefly accounts, bookkeeping, commercial matters, and modern languages. Most of these classes are absolutely free, and, where a fee is charged, it is merely nominal. The classes are supported by various institutions, and are well distributed over Paris. From a table giving returns to the year 1888, we find that there are 6,179 male, and 2,478 female students on the registers of these classes. Of course, the number of actual attendances varies considerably from month to month. At certain seasons of the year, many of the pupils are detained in their offices, &c., and fall off in their attendance. Notwithstanding this cause of irregularity, and the many and varied temptations of pleasure in Paris, the classes are well attended and thoroughly appreciated. They have done excellent service for trade and commerce in Paris. The fact that the classes are free is, no doubt, one cause of their success. A young man in Paris who is determined to work can, by their aid, pursue his studies to the same degree as pupils in the secondary and higher schools, without any interruption of his daily occupation. In addition, he may acquire any special knowledge which he finds he may require in the commercial career before him.

The first of the evening classes supported by the Municipality of Paris for women and girls was opened in October, 1870, at the Town Hall of the 3rd Arrondissement, but was soon transferred to the Communal School in the Rue Volta. The number of pupils that flocked to the class, even from distant parts of Paris, showed the necessity and the utility of the undertaking. In France, as in England, the number of girls who find employment in business houses is on the increase. The class was opened mainly for instruction in bookkeeping and modern languages. This class became the model of all the others, and now forms, in addition, a kind of training school for teachers.

In 1874 the Chamber of Commerce, struck with the work done, and the number of pupils, resolved, in conjunction with the Municipality of Paris, to found other classes. Aided by funds from the 9th Arrondissement, they established classes in the Avenue Trudaine, held at their commercial school, to which we have already referred.

The success of the classes for women induced the Municipality of Paris to found similar ones for men. Other subjects more appropriate to men were added to the syllabus, and the whole of the classes were placed under the direction of M. Porcher, of the Ecole Turgot.

The decree of the Prefect of the Seine, which established these classes, appeared in October, 1881. It fixed the duration of the classes from the first Monday in October to the 30th of June. For girls the classes were to be held from 7.30 p.m. to 9.30 p.m.; and for men from 8 to 10 p.m. The following table shows the subjects and the time allotted to each:—

Elementary Stage.

1st Year.	Hours	2nd Year.	Hours
Writing ...	2	Writing ...	2
Arithmetic	2	Arithmetic	2
Bookkeeping	1	Bookkeeping	2
French ...	2	Geography	
Commercial Geography and French Colonies	1	Civil and Commercial Law	
Industrial and Commercial Technology	1	Industrial and Commercial Technology	1
Modern Languages	3	Modern Languages	3
	12		12

Higher Grade.

Arithmetic	2 hours.
Accounts and Bookkeeping	2 ,,
French (Commercial Correspondence)	1 ,,
Geography of World, except Europe	1 ,,
Political Economy (Elements)	1 ,,
Commercial Law	1 ,,
Modern Languages	4 ,,

In this course more time is devoted to accounts and bookkeeping than in that for women, and classes for commercial law and technology are added.

The latter class is particularly useful, and its practical results are all the greater where the pupils are directed to the study of the industries carried on in the different quarters. For example, the class held in the quarter of the Gobelins has its attention directed to the local industries—tanning, bleaching, and dyeing; in the Marais, towards bronze-working; in the Faubourg St. Antoine, to cabinetmaking, paperhanging; and in the central quarter, to the production of the so-called "articles de Paris."

At the end of each scholastic year an examination is held on all the subjects, and certificates are granted by the municipality. The examination is both written and oral, and lasts about six hours. The names of those who obtain certificates are published in the *Bulletin Municipal Officiel*, and the list is forwarded to the Chamber and Tribunal of Commerce, as well as to the banks and principal commercial houses. The number of full certificates given up to the present is 178 in the elementary stage, and eighteen in the higher; partial certificates are given in greater numbers.

Everybody admits that good work is being done by these classes, and great credit is due both to the Chamber of Commerce and the Municipality of Paris for the energy they have shown in founding and supporting them.

(2) *L'Association Philotechnique.*

This Association was founded in 1848, and aims at giving adults of both sexes gratuitous instruction in commercial subjects. Though founded in 1848, its great success dates from 1879, when commercial education was more generally taken up. It has established classes for commercial subjects, industries, and lectures on scientific and literary subjects. It distributes, every year, prizes, medals, and certificates to successful students. Its classes continue for six months at least, from the middle of October. It numbers nearly 1,300 pupils. The subjects of instruction are French, a modern language, history, and geography, bookkeeping, common law, mathematics, and political economy. The examination for certificates is rather difficult, and candidates must pass in at least four of these subjects. The following are the different certificates given:—

1. *Commercial Subjects.*—French, modern language (English, Spanish, German, Italian or Portuguese), history, commercial geography, bookkeeping, common law, mathematics, political economy.
2. *Industrial Arts.*—French, physics, chemistry, raw materials, drawing, hygiene, medicine, natural history.
3. *Mathematics.*—French, algebra, and arithmetic (second year), geometry, trigonometry, descriptive geometry, mechanics, and drawing.
4. *Building Construction, &c.*—French, practical construction, descriptive geometry, masonry and carpentry, land-surveying, drawing, hygiene, common law.
5. *Certificate for Adult Women.*—First year French, one modern language, arithmetic, accounts, &c., hygiene, history, and geography.
6. *Certificate for Adult Women.*—Second year, French (literature and history of literature), modern language, arithmetic, practical geometry bookkeeping, elements of physical science, commercial geography, and history.

The classes supported by the Society are seven in number, and are held from 8.30 p.m. to 10 p.m.

(3) *Society for the Professional Education of Women. Ecoles E. Lemonnier.*

These schools, four in number, are specially intended for the preparation of young girls for commerce and arts. Though the special classes continue till 6 p.m., they can scarcely be called evening classes. Neither are they gratuitous. They only receive day pupils above the age of twelve years. The classes are general and special; the general classes are held from 8 a.m. till 11 a.m.; the special classes from 1 till 6 p.m.

In the general classes instruction is given in the following subjects:—French, arithmetic, geometry, history, geography, science, applied to common usages of life, writing, needlework.

The special subjects are, commercial subjects (bookkeeping and English), drawing, wood engraving, painting on glass, painting on porcelain and china, embroidery, mercery and linen goods.

We may mention that, at the Health Exhibition of London in 1884, the Society obtained a gold medal for its exhibits.

(4) *Commercial Classes supported by the Grand Orient (Masonic Lodges) of France.*

These classes were founded by Masonic Lodges in 1871 for the study of German only, but soon classes were formed for English and Spanish, shorthand, bookkeeping, and commercial law. A small fee of two francs a year is charged, and this fee, small as it is, is sufficient to ensure a certain regularity of attendance, and even to secure a selection of pupils. The classes are assisted financially by the Municipality of Paris. The free classes of this association contain about a thousand pupils.

(5) *Polyglot Institute.*

Young men who have left the various commercial schools, and have entered situations, have not always the opportunity of

speaking the languages they have begun to learn. The Polyglot Institute provides such opportunity in the classes for the different languages.

(6) *Ecole Pratique de Commerce.*

Under this head must be mentioned the Ecole Pratique de Commerce et de Comptabilité, which has recently entered a new and capacious building in the Rue de Rivoli. This is now mainly supported by the Ministry of Commerce and the City of Paris. It is a house of business conducted as a school. We quote from the prospectus as follows:—

"Until lately an apprenticeship to business could only be served in a house of business. To-day, however, the *rôle* of teacher is incompatible with the varied and absorbing occupations of the head of a house. Schools of commerce ought, then, to have for their object the training of young persons until they are quite prepared to enter these houses and at once take their part. A schoolmaster of authority has said, 'When you wish to teach anything, commence by *showing* it to your pupils before *teaching* it.' In other words, do not talk to your pupils about things they do not see. M. Michael Bréal mentions, in one of his recent articles, the instance of a professor who had gone to Germany intending to learn the language of the country, and who, after three months consecrated to the study of grammar, could neither write nor speak German, while his servant, in the ordinary conversation of daily life, had acquired a vocabulary far superior to that of the professor, to whom he served as an interpreter. Strong in such evidence, the management does not hesitate to say, commercial education will only attain success when the school becomes really a house of business."

To show how ready our neighbours are to give information respecting their methods, we may mention that our inquiries respecting this school brought over a deputation of three of the staff to confer on the subject before us. Our space will not at present allow us to give in detail the unique mode of procedure in this interesting school.

Germany.

There are two points to take note of in connexion with German education which may be regarded as essential conditions of the German system.

1st. There is a wider difference in the courses of study in schools for different classes, or preparatory to different careers, than is the case in England. The business or profession towards which the young student is to aim, is settled very early in life, and the kind of school to be attended is regulated by the choice.

2nd. The educational system is intimately linked with the method of military conscription.

German educational organization can be imitated only where these two conditions exist. Nor can we fully understand one part of the system without considering its connexion with other parts. Hence, before proceeding to describe the commercial schools of Germany, it is necessary to sketch in outline the general system of education in that Empire.

In Germany, elementary education is absolutely obligatory; from the age of six to fourteen years all children must go to school, or be properly educated at home. The kindergarten schools prepare infants for the Volksschulen, the Freischulen, Elementarschulen, or the Bürgerschulen, that is, for the primary schools, to which every child who has attained his sixth year must go. Parents may send their children to private schools, or have them taught at home, provided they obtain the necessary authorization. But these exceptions are rare, and in the elementary schools children of the best families often mix with those of the poorest.

The Bürgerschulen (citizen schools) are a higher grade of elementary school; the Volksschulen a lower grade. The former have seven classes, the latter four, often with several parallel divisions of each.

The general rule with regard to school age is, that it begins with the school year succeeding that in which a child is six years old, and concludes at the close of that school year in which the child is fourteen years old. The school year commences about Easter. The limits of age at which children practically do attend school vary between about 5½ and 7. In Prussia, the legal school age commences earlier than in any other German State, but the law on the subject is not practically carried out. In some towns, such as Berlin, children are received twice a year—at Easter and at Michaelmas; in others, as at Weimar, only once a year—at Easter.*

Above the Volksschulen there are (1) the Höhere Bürgerschulen (Middle Class Schools); (2) the Realschulen; (3) the Gymnasien. The Höhere Bürgerschulen keep their scholars until fifteen or sixteen, unless they are destined for the Gymnasium or Realschule, in which case they may leave earlier, if they can prove by their examinations that they are sufficiently advanced to follow the course in these schools.

Children who on leaving the Volksschule enter the Bürgerschule are generally supposed not to wish to go, or not to be capable of going, beyond the primary instruction. The second and third of the kinds of school named above have so frequently been the subjects of comment here in England, that all know their distinctive characteristics. Boys who are destined for the liberal professions enter the Gymnasium when they are about nine or ten years old. These schools give a classical education, and correspond to the French Lycées. Pupils on leaving them proceed to the Universities. Those who are destined for business life, or for the Polytechnic schools, or for the different departments of the Government, rarely join a gymnasium: they enter either the Höhere Bürgerschulen or the Realschulen. There are again two grades of each of these schools, one comprising six classes and nine years' study, the other five classes and seven years' study.

The Realschulen are neither special nor preparatory for professions. The education is general, and is based on the study of modern languages in conjunction with natural and physical sciences; it excludes altogether the dead languages, and is more scientific than that of the Gymnasien.

Now the special colleges or schools for commercial education are developments or branches of the Realschulen and the Höhere Bürgenschulen. The Realschule almost necessarily gave rise to the Commercial School, because scientific instruction naturally leads up to the special professional instruction belonging to scientific trades, manufactures, and commerce. At present there are no less than eighty-five commercial schools in the different German States. Many of these have been founded since 1866, when a law was passed assimilating these schools to the Gymnasien and Realschulen, by allowing the certificate obtained on leaving to reduce the time of military service. So popular have these schools become, that even the Gymnasien and Realschulen have found it to their advantage to form classes for the study of commercial subjects.

Commercial schools in Germany may be divided into two groups—Higher Commercial Schools and Middle Commercial Schools. The first group comprises twenty-four schools, the latter sixty-one. The main feature which divides the first from the second is the right acquired under the law of 1866 referred to above.

Higher Commercial Schools.—Commercial schools are considered as high schools—

(1) If they comprise three classes of one year's course for each.

(2) If they insist that, for admission into the lowest class, the pupils are as advanced as those of the fourth class in the Realschulen.

(3) If they so organize their studies that, after the three years' course of study, the pupils have received an education equal to that of the pupils in the Gymnasien or Realschulen who have completed their second.

(4) If, at the end of the three years, they undergo an examination presided over by an inspector appointed by the Government.

On this examination depend the certificates which entitle the holders to partial exemption from military service.

With a view to secure this important privilege, German commercial schools were compelled to modify their instruction. More time had to be given to mathematics, physics, chemistry, German literature, French and English languages, &c. The necessity of passing the final examination compels the managers to give that amount and kind of education which, in the opinion of the Government, entitles a man to be considered "well educated," and hence time that was devoted to purely commercial subjects before the passing of the law had to be taken away from these subjects, so that purely commercial subjects, such as bookkeeping, technology, &c., are taught only *as much as possible.*

This has to be taken into account in estimating the relative value of the subjects of the programmes. Part of them are taken because they are needed in commerce, part because they constituted the military programme.

The military regulations account for the uniformity of the syllabus. This uniformity is not dictated by the needs of commerce. What an incentive to study must be the result of success in the examination—the being excused from two-thirds of an infliction which many regard as almost intolerable! Imagine how many would labour assiduously for the Commercial Certi-

* See "Reports on German Elementary Schools," by Charles Copland Perry, M.A. (Rivington & Co.)

ficate in England, if its possession would open the way to Sandhurst, or Woolwich, or the Naval College at Greenwich! How many schools in England would gladly accept, from an outside authority, a programme differing considerably from a simple preparation for peaceful business, if participation in such privileges necessarily resulted from the acceptance! We can now easily understand the comment in the French report quoted above.

Middle Commercial Schools.—With the exception of some few private establishments, these schools have been founded by corporations of merchants and Chambers of Commerce, which contribute sufficient funds towards their maintenance to reduce the fees to a very low figure. The pupils are generally received from the primary schools or the Höhere Bürgenschulen, where the rudiments of French and English have been taught. Many of the schools are devoted to the special requirements of apprentices to various trades, &c., and the pupils in such schools take their lessons either before their shops open in the morning or after closing in the evening. Regular day pupils, who can afford to continue their studies without troubling about business until the age of 17 or 18, as a rule choose the higher schools, because of the military exemption. But yet there are exceptions enough to supply day scholars for many, and some are attended part of the day by pupils of the Bürgerschulen or Realschulen. The "Fortbildungs-schulen," or perfecting schools, are institutions which give only twelve hours' instruction per week. These are common in several of the German States, particularly in Saxony, where the law compels boys who leave the primary schools to attend one of these perfecting schools for three years, that is, till they are seventeen years old. The law is very strict on this point. Employers and masters are bound to give their apprentices, clerks, and servants time to attend the school. The list of boys who leave the primary schools is regularly supplied to the managers of the Fortbildungs-schulen, who can thus control the attendance. Even foreign apprentices are obliged to leave their names with the Prefect of Police, who sees that the law is carried out. But, in fact, little trouble is required to enforce the rule; it has become a part of their national life, and no one thinks of trying to evade it. It must be remembered, however, that this law is confined to Saxony, and each State has full control over its own schools. It is believed, however, that the law will soon be applied more generally. To these numerous commercial schools must be added schools of a lower grade, for various industries and trades, and Sunday schools, &c., which have for object the perfecting of their pupils in some special subject or special trade, such as watchmaking, bookbinding, tailoring, &c.

In our next, we propose to give particular accounts of some typical schools, both high, middle, and lower.

We have sought to pierce below the surface in these matters, and, as our correspondence will ultimately show, we have not been altogether unsuccessful. For instance, the following letter, dated June 24th, 1890, was written in answer to our inquiries by an English lady of position and experience, who is resident in Leipzic:—

"This school is, like all German ones of the kind, a day school. Hours of attendance 7 to 9, or 8 to 12, and 2 to 4. On gymnastic days 2 to 5. There is, of course, an amount of home-work to be done which is not usually expected in England. In order clearly to understand the Report, you will please note that the first part refers to 'Abtheilung I.' (Lower Division). This is held in the early morning, from 7 to 9, and is intended for youths who are already going through the three years' apprenticeship in shops and houses of business of various kinds, and who can manage to get leave from their *chefs* to stay away from work until 9 o'clock. The object is, first, to continue and improve their education; and, secondly, in order to pass a certain examination by which the lucky ones escape the otherwise inevitable three years of military service, getting off with only one.

"For an English boy coming out here it is desirable that he should know something of German, practically, not merely in the way it is often taught in schools, where the education of the ear by dictation is neglected, since he will be expected not only to write a short account of his life, but to understand what is said to him in school. In the written account there must be no great mistakes. Idiomatic errors are expected and excused. Should he not be thus forewarned, two courses are open to him. The one is to get admitted at Easter with what little German he does know, and rub on as best he can, losing, of course, a little time until he has picked up more; the other, to enter, about Christmas time, a 'Pension' or boarding-house in a family, where he will soon learn to understand what is said, and to speak himself. He can also take private lessons. He will then be prepared to enter at Easter. He will be placed in the third (lowest), second, or first class of the Upper Division (II. Abtheilung), according to his age and attainments.

"It will be seen that the course of work is not only a more direct preparation for his future employments, but also a wider-reaching one than can be obtained in most English schools to which the embryo shopman or office clerk is sent, and that a boy can here fit himself for future posts of responsibility in the great commercial houses of the world. The earlier a boy comes, after fourteen, the better.

"The Commercial Schools, of course, being merely supplementary to general education, are not so severe as those for general education. I think, from your question as to the particular German course which I should choose for such a boy as mine, that you perhaps are not fully aware of the truth. If I mention the case of one boy only, well known to me, you will see at once that A. would long ago have been in his grave, or that his brain would have been weakened for life, if I had subjected him to such a course. Last week I said to a mother: 'How is little Felix?' (Felix has reached the mature age of ten years, but is so small and shadowy as to be scarcely visible to the naked eye.) 'Oh, thank you, he is tolerably well,' said the mother, 'and glad enough to run out; he has so little play-time, you know (it was between 11 and 2); but I have felt worried about him lately, he has several times brought his breakfast home again (2nd breakfast, No. 1 having been eaten at 6.30, in order to reach the school by 7) from having no appetite.' 'Oh,' I said, 'I am sorry; but when home-work is done, now the evenings are so fine and long, I hope he gets some play, or at least a run.' 'Very little of that, I assure you,' was the answer. 'You see, he gets the gymnastics; but by the time they are over, and he is home, it is 6.15, then he must have his supper, which brings it to 6.30; then Felix being a little behindhand with his Latin, his tutor comes, and when the tutor has done with him he must do all his home-work, that he has not done, *now*. And by the time that is over, it is so late, you see,' said his mother. 'Then the Wednesday and Saturday half-holidays are not much good, because the boys have so much home-work to do, you know, and often must continue to work at it also on Sundays; in fact, I think on Wednesday and Saturday I always feel the most worried about the child, because the morning hours on those days, being 7 to 12 instead of 7 to 11, it is such a long time at a stretch.' There would be humour in this were there not so much more pathos.

"It is a fact known not only to doctors, for whom it is a burning question, but to the general public, that diseases of the nerve and brain are extending themselves backwards, and affecting children of a much more early age than has ever been known in Germany before. More than one case of child suicide has lately occurred, and as to the lunatic asylums, the number of inmates is greatly on the increase, from the overwork of adults. Here I should also explain that the childish troubles of Felix are a mere nothing in comparison with what bigger boys have to go through. Last year a boy of 15, whom I knew, said to me at Frankfurt: 'I like your language, but I was forced to give it up, because the only time I have is from 1 to 2. After my home-work is done at midnight, I am sometimes rather tired.' The Secundaner boys, when preparing for Primaner examinations, often have to work till 3 o'clock in the morning."

(*To be continued.*)

EDUCATIONAL NOTES AND SUMMARY.

Prince Bismarck has been visited at Friedrichsruh by a correspondent of the *Daily Telegraph*, who reports his views on many subjects, education being one of them. According to this report of Bismarck's views—

"Over-education in Germany leads to much disappointment and dissatisfaction; in Russia, to disaffection and conspiracy. Ten times as many young people are educated there for the higher walks of life as there are places to give them, or opportunities for them, in the liberal professions, to earn a decent living, far less wealth and distinction. Perhaps it is not quite the right kind of learning, too. There are too many free scholarships and presentations by half, by appointment to which poor people's children are taught to be unhappy and useless. Priests' children, for instance, mostly get their high school and university education for nothing. What good does it do them? When they have gone through it, in nine cases out of ten, there is nothing for them to do, and their learning is worse than a superfluity to them, for it makes them discontented—nay, miserable. They have been painfully prepared to compete for greater prizes than life really offers, save to a very few, who rarely spring from their class. I have come across street watchmen in Russia who had studied in Universities, and taken bachelors' degrees. Could anything be more cruel, as well as absurd? Such people, filled with envy and hatred of all that is prosperous and high-placed, readily take to conspiracy and crime. They are not fit to construct, but know just enough to qualify them for destroying. It is much easier to damage than to redeem; so they do evil, and call it redemption. Their training is scholastic, pedantically administered to them; not political or even practical. Hence the difficulty of admitting them to any share in the management of public affairs."

These are curious views: curious in their misconception of education, curious in their mis-knowledge of the educational facts of Russia, and most curious of all in being those of a

German. But then Bismarck has always been mediæval in so many ways.

Another aged and renowned politician has also been holding forth on the subject of Education. Mr. Gladstone has appeared as the principal witness at an inquiry at Hawarden, instituted by the Flintshire County Council, into the claims of Hawarden to a school under the new Welsh Intermediate Education Act. Asked by the chairman whether he was in favour of the continuance of classical education in intermediate schools, Mr. Gladstone gave it as his opinion that everything that was worthy of the name of an intermediate school ought to have some department for classical education, although he thought that terrible errors have been committed in the past—and in the past he included the days of his own experience—in endeavouring to thrust the classics down the throats of everybody quite irrespective of capacity and circumstances. But Mr. Gladstone seemed to approve of every kind of education, technical and scientific, physical and corporal, of girls and of boys, of women and of men—modifying the approval, however, in a few cases, as, for instance, when he said in the higher schools too much consideration had been given to modern languages, and too little to make boys observers of nature. In his opinion—

"The main purpose of education is to deal with the mind, the youthful mind, not as a repository that is to be filled with goods like a shop, and then the goods to be taken out and handed over the counter, the shop remaining exactly as it was while the goods passed through it, but that the main purpose of education is to make the human mind a supple, effective, strong, available instrument for whatever purposes it may be required to be applied to."

We take the following description of a recent event at Cambride from the *Cambridge Review*:—

"It was generally expected that there would be no small amount of excitement over the Mathematical List of the year. Scarcely any one who was urged by interest or curiosity to go to the Senate House on Saturday morning was prepared for the crowd that was collected. All the body of the hall was absolutely crammed with men, so tightly packed as to be incapable of individual motion. At the further end of the Senate House and in the galleries sat numbers of ladies, the students of Newnham being there to a woman. When Mr. Rouse Ball began reading the list, in spite of the attention it was very difficult to hear in all parts of the room. Much laughter was provoked by Mr. Ball's slip of 'Cats,' and on his afterwards producing the orthodox denomination of the college, his abbreviation was shouted at him, accompanied by catcalls and 'miaows.' When the lists of Junior Ops. was finished, and the disappointment caused by the tie for the wooden spoon had quieted down, Mr. Ball announced 'Woman.' The chivalrous undergraduate corrected this to 'Ladies' and insisted on removal of hats. Then Mr. Ball began: 'Equal with the Senior Wrangler' some understood him to say; others heard 'bracketed with the Senior Wrangler,' but in point of fact he read 'above the Senior Wrangler.' There was no need for any more. Before Miss Fawcett's name was heard the whole Senate House burst into cheers which were continued for several minutes, the ladies in the gallery contributing to the noise by voice as well as hands. The cheering lasted some time, and even after the list was read, as it was known that Miss Fawcett was in the Senate House, numbers waited outside the door to give her another cheer. When she came down, accompanied by Miss Clough, there were more cheers and applause, and shouts of 'Miss Fawcett,' and it was some time before the excitement subsided. This was the first part of the demonstration. But the excitement of Act I. was completely eclipsed by Act II. Newnham felt that there was only one way to celebrate the occasion appropriately. Truly that way was not original, being often employed by men and consecrated by long use to Guy Fawkes. Still a bonfire was the thing. So it was lighted, and round and round it was Miss Fawcett carried by some of her excited and admiring fellow-students. The rest danced round it. All made as much noise as they could. Meanwhile the men of Selwyn, attracted by curiosity, came into the Newnham gardens, even breaking through the fence. They were discovered. 'The Philistines be upon us.' So the gardener was sent to turn them out. Yet did they plead to stay, promising to behave themselves. So, on the understanding that they were to be good boys, they were tolerated. And so the *corroboree* went on, until the men cried 'Speech, Speech,' as though they were in the theatre, and the ladies said 'Hush, Hush!' because strangers must not make their presence known. Whether the noise was greater, in proportion to the magnitude of the occasion and the numbers employed, at Newnham or Trinity Hall, it is impossible to say. But the men of Selwyn behaved in an orderly fashion, and were sent away ere it was too late."

Our contemporary goes on to remark that it is absurd to say that the University must now grant its degrees to women. This is quite true; there is no more reason now—and no less. "If it be not now, yet it will come: the readiness is all." And the triumphs of Miss Fawcett and others show that the "readiness" exists.

University College, London, is justifiably proud of its successes at Cambridge. Mr. Horsburgh, the secretary, writes that not only were Mr. Bennett, the Senior Wrangler, and Mr. Vaughan, Third Wrangler, pupils in the schools and afterwards students in the college, but they are entitled to claim some credit for Miss Fawcett's distinction, that lady having been a student for the best part of two academic years. It is interesting to note that these three distinguished mathematicians sat a few years ago in the same class-rooms and under the same teachers, and all three were close together in the University College prize list for 1886-7. Apropos of the Tripos, not the least honourable place is that of Mr. F. H. Warmington, twentieth Senior Optime, who, in gaining this position, has had to struggle with what would seem to most to be the almost insuperable difficulty of blindness. He was educated at the Blind College, Powyke, near Worcester.

We are coming to realize, says the *New York School Journal*, that a child is to be valued and so educated *as a child*; that he may become a proper child, and not that he may become a man. What the child needs to-day, is what the child must have. If a child is right to-day, he will be very likely to be right to-morrow. What he is to be ten years hence is of no immediate interest to us; but the thing that interests us is what he is now. The difficulty with much of the old education was that boys were trained so as to be able to do something when they should come upon the stage of action. Girls were educated to fit into the society into which they were to enter after they left school. The end was not in each day's work, but in future work. History was crammed into the memories, so that it might serve a good purpose in future time of need. All was in the future. "You must be fitted to enter life." "You must be prepared for the struggle for existence." Now this idea is changing. The things of to-day, the work of to-day, the life of to-day, this is what the best teachers are after. Arithmetic is applied now. Grammar and language find their use at once. Chemistry and physics are applied this week. It is right to be honest to-day, and it is wrong not to be honest to-day. We are given but one portion of time, and that is now. What is in store for us, we know not. Let that alone. The things of to-day are the things that we must attend to. The true teacher works for his pupils as they are, and makes them good as boys, and good as girls. Here is an important thought which we commend to the attention of our readers, especially those who are liable to worry about what is to come; here is the true philosophy of life—yes, the very essence and core of it.

We regret to announce the death of Dr. Leonard Schmitz, who sank under the effects of the severe accident he experienced eighteen months ago. Schmitz's name will be remembered in association with those of Zumpt and Niebuhr, with whose works and methods, in co-operation with Thirlwall and Cornwall Lewis, he made British scholars familiar. As Rector for more than twenty years of the Edinburgh High School he gained a reputation as an educationist which led to his appointment as tutor to the Prince of Wales, Prince Alfred, and to the French Princes during their residence in Edinburgh, and subsequently, in 1866, to the Headmastership of the International College, Spring Grove, which post he held for seven years.

The *New York School Journal* says:—

"An Act to promote the professional training of teachers in New York State passed the recent Legislature of the State of New York, and is now in the hands of the Governor for signature. It authorizes the Board of Education in any city to establish classes for professional training, and tax the people for their support. Members of these classes must be sixteen years old at least, and hold a first grade certificate. The city superintendent shall have general direction of these schools. The next provision of this Bill relates to the qualification of superintendents, and will mark an era in the progress of the teaching profession towards full professional standing, if it becomes a law. The text is as follows:—'After the first day of January, 1893, no teacher in any incorporated village or union free school district, which employs a competent person as superintendent, whose time is exclusively devoted to the supervision of the schools therein, shall be deemed a qualified teacher and eligible to appointment or employment as such, who, in addition to having passed an examination in scholarship equivalent at least to that required for a certificate of the second grade as defined and

established by the State superintendent of public instruction, shall not also have received special instruction and training in the principles of education and the art of teaching in some normal or training school or training class for teachers, for a period of at least thirty-two weeks, and have satisfactorily accomplished the course of study, instruction, and training prescribed for such period.' The next provision relates to the professional qualifications of teachers, and reads thus:—'After the first day of January, 1893, no teacher in any city of this State shall be deemed a qualified teacher and eligible to appointment or employment as such, who, in addition to having passed an examination in scholarship equivalent at least to that required under the provisions of Section 2 of this Act for admission to a training school or class, shall not also have received special instruction and training in the principles of education and the art of teaching in some normal or training school, or training-class for teachers, for a period of at least thirty-weeks, which must be attested by the certificate or diploma of such school or class in the form prescribed by the Board of Education thereof.' This all looks towards the more thorough professional qualification for teaching. In the near future we shall value teaching ability more, and less the possession of facts. If this Bill becomes a law it will insure the appointment of trained teachers in our public schools and exclude all others. In addition, it will strengthen every normal school, and city and village training school or class, throughout the State."

In concluding his letter to the *Times*, on "Assisted *versus* Free Education," Canon Daniel says:—

"What is it, then, that I have to propose? It is that assisted education should take the form of a uniform capitation grant sufficiently large to completely abolish fees in poor schools and to effect a sensible reduction in the fees of schools of a higher grade. If, for instance, the grant was fixed at 2*d*. per head, it would completely extinguish the fees in all schools charging 2*d*. or less (nearly 60 per cent. of the whole), and reduce by 2*d*. the fees in schools charging higher fees. The advantages of this mode of affording help would be the following: (1) All classes would be helped to some extent; (2) the help would be proportionate to the needs of the parents; (3) the present gradation of schools would be maintained; (4) parents who could afford to pay the present fee would be stimulated to send their children to schools of a higher grade; (5) the money saved by not freeing schools indiscriminately would be available for improving the quality of the education, whereas the two millions necessary to completely extinguish fees would not improve education itself; (6) the fiscal injustice would be avoided of relieving one parent to the extent of a penny a week, and another of a grade only slightly superior to the extent of 9*d*., and of helping least those schools whose managers have done most to keep the fees low. The scheme here advocated will seem, perhaps, lacking in the simplicity and completeness of universal free education; but those are qualities that may be dearly purchased. The uniformity involved in the complete abolition of fees is after all only a mechanical uniformity that takes no cognisance whatever of the very different grades of which the classes using elementary schools are made up. As regards the State, the plan here recommended is simplicity itself."

The Boston School Board (U.S.) is proposing to allow its teachers, after nine years of service, to take a year's leave of absence on half-pay, the other half going to provide a substitute.

A public meeting in aid of the Parents' National Education Union was held on Tuesday, June 3rd, at London House, St. James's Square, the Bishop of London presiding. The objects of the Union are—to assist parents of all classes to understand the best principles and methods of education in all its aspects, and especially as regards the formation of habits and character; to create a better public opinion with regard to the training of children; to afford parents opportunities for co-operation and consultation; to stimulate enthusiasm on the subject through members acting together; and to secure greater unity and continuity of education by harmonising home and school training. The Bishop of London expressed his approval of the object of the Union and the means adopted for its attainment, and observed that a great deal had yet to be learnt by parents as to the true method of bringing up their children so as to prepare them for the lives they would have to lead. On the motion of Canon Daniel, chairman of the executive committee, a resolution pledging the meeting to the support of the Union was adopted.

On Saturday, June 14th, the Annual Conference of Headmistresses of Endowed and Proprietary Schools was held at the High School, Clapham, by the kind invitation of Miss O'Connor. There were present—the President, Miss Buss, and seventy-one ladies, the number of girls under their charge amounting to 14,396. After the routine business was dispatched, Miss Jones (Notting Hill) and Miss Connolly (Hatcham), being respectively the representatives of the Association on the Councils of the Maria Grey Training College, London, and the Training College, Cambridge, reported most favourably on the work done during the past year. The Committee on Secondary Education continued its report from last year. Very valuable information had been tabulated, and a most interesting discussion took place, on the teaching of English. In the afternoon, Miss Johnson (Bolton) read a suggestive paper on the "Duties of Headmistresses towards their Assistants"; and Dr. Francis Warner, F.R.C.S., F.R.C.P., gave a lecture on the "Scientific Study of the Conditions of Pupils in Schools," especially with regard to the outward indications of nerve strain and imperfect formation of brain in children. Having accepted Miss Beale's invitation to Cheltenham for next year, the Conference closed with hearty thanks to Miss O'Connor for her hospitality.

In Frankfort-on-the-Main the school authorities have prohibited public school teachers from giving more than six private lessons per week, unless with special permission.

The late Lord Mayor of London, Sir James Whitehead, speaking recently, as an old commercial traveller, to the students at the Commercial Travellers' School, expressed the opinion that Spanish or Portuguese was, from a commercial point of view, a better language to learn than German. We have often reminded our readers of the great importance of Spanish and Portuguese, because of the immense amount of British capital invested in the Argentine Republic and Brazil, the one a Spanish-speaking country, the other Portuguese, and of our increasing trade with these countries. But from the following extract, which we take from Mr. Consul Walker's report to the Foreign Office upon the trade of Corunna and district, in 1889, it would appear that Spanish-speaking commercial travellers might be useful in Spain itself. Mr. Walker, speaking of a slight increase in the import of manufactured goods from Great Britain, since the recent treaty with Spain, goes on to say that he has—

"no doubt that it will be greater when the superior quality of British manufactured goods once becomes generally known in contrast to the goods of a similar class imported from France or Germany. The last imitates with wonderful ingenuity English goods, such as hose, drawers, undervests, cutlery, &c. Moreover, the German commercial traveller is constantly seen in every large and small town in the Spanish Peninsula, and thoroughly understands how to treat with the Spanish shopkeeper, quoting their prices f. o. b., with custom-house tariff included, and, besides, offers longer credit than his English competitors."

On Saturday, the 21st ult., the annual gathering of past and present pupils of Queen's College, Harley Street, was held at the College, the Principal, the Rev. Canon Elwyn, presiding. The chairman briefly referred to the new scheme which is about to be introduced for improving the educational system of the College, and Bishop Barry gave an address on education. The Bishop pointed out how the prejudices against the higher education of women had been removed, and said the time had now come when the inequalities under which women had been pursuing their studies should be redressed, and they should be admitted to the enjoyment of those privileges which were the rewards of high intellectual thought and study, namely, entrances to our great colleges. Queen's College was doing good work, and, founded as the institution was under the auspices of the late Professor Maurice, its work could not possibly fall away from the true principles of education. We trust the scheme referred to by the Principal of the College will have the desired effect, and that the College will renew its youth and keep abreast of the best educational methods of the age. The founders of the College were the pioneers of the great movement for women's education which has realized such remarkable results, none more remarkable than those of the present year.

The editors of the German periodical *Anglia* announce that the critical part of their quarterly is in future to be published monthly, with the title "Mitteilungen aus dem Gesammten Gebiete der Englischen Sprache und Litteratur," in order to assist in forwarding a constant literary intercourse between England, America, and Germany. One of the chief aims of this monthly report is to give an exhaustive account of English and American periodicals and novels. Mr. David Nutt is the London publisher of the paper.

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THE EDUCATIONAL TIMES.

LONDON, JULY 1, 1890.

IN the May number of *Education*, Mr. Eve opens up a subject which deserves to be fully and carefully discussed, if not in educational journals, at any rate amongst educational experts and teachers generally. His plea is boldly stated, and argued with great skill and convincing clearness. To quote his own words, his view is, that "probably the greatest obstacle to the extension of liberal education at present is the excessive importance attached to the study of Latin"—his plea is, that in the great majority of cases it would be wiser to substitute German for Latin. "Specialists," he says, "do, no doubt—particularly if by reason of much speaking they gain the ear of the public—press their own crotchets too far; but a good deal of positive knowledge, not dreamt of years ago, is really necessary to any one who wishes to move intelligently in the very complicated world of to-day. We cannot therefore select our subjects with an eye to discipline alone, unless the discipline is so transcendently good as to outweigh all other considerations. Geometry, arithmetic, the elements of physical science, are both disciplinary and immediately useful; the elements of Latin are disciplinary, but of very remote utility; modern languages are undoubtedly useful—how far do they supply the requisite discipline? If a modern language can give us, even tolerably, the discipline attributed to elementary Latin, we need not hesitate to gain time by throwing the Latin overboard." Mr. Eve then proceeds to discuss the disciplinary value of German; and to our mind he decidedly proves his case, that, in this respect, it is certainly not inferior to elementary Latin. We think, however, that he would have made his contention still stronger had he insisted on the fact that, at any rate during the greater part of school-life, discipline (we prefer the word *training*, as it avoids a possible misconception)—discipline is not a mysterious power resident in a subject itself, but depends almost entirely (especially in the case of younger boys) on the way the teacher deals with the subject. It is not every exercise, every activity, that affords discipline. Discipline, training, is a conscious directing of activity based on sound general principles, conducted by definite methods derived from those principles, and which advances in an orderly way to a definite preconceived result. Some subjects lend themselves more readily and more profitably than others to this treatment. But, in deciding on the disciplinary value of a subject, the subject itself is not the sole thing to consider—it is not even the *main* thing. We must rather consider whether the subject best lends itself to such a treatment that, *with the pupils in question*, it shall produce the desired result. It is quite possible for boys and girls to spend years over German or Latin, and to

get from either practically no discipline whatever. But—and here it is Mr. Eve's plea gains strong support—the danger of this waste of time is far greater (at least that is our view, based on some experience) in the case of Latin than in that of German, if for no other reason than this, that the subject-matter, and the mode of expressing it, naturally come more home to the young in the case of German than in that of Latin; while the difficulties of vocabulary and of the *first* initiation to accidence are about the same. Later on, Latin accidence and Latin syntax are decidedly the more difficult.

We have spoken of German, because that is the modern foreign language which Mr. Eve chooses. But, for our own part, we are much more strongly in favour of French. To students in certain departments, chiefly those of linguistics and archæology, German is, no doubt, much the more valuable; but to ordinary everyday persons who are not students—that is, to the great majority of us—French is far more useful. Nor do we, we must confess, value a language educationally in proportion to the intricacy and extent of its accidence. That idea seems to us a remnant of the iron—we mean the Latin age, when everything in study which adults found irksome was relegated to early life. French has quite a sufficient stock of fossil remains in its verbal forms, and quite a sufficient number of contrasts to English in its syntax and word-order, to satisfy us in the way of linguistic discipline for the young—to whom the observation and study of word-forms and grammaticalities must always be more or less unnatural and premature, and, in the main, an exercise in noting how to express that of which they know little or nothing. But we are getting perilously near giving utterance to what our readers will consider a rank heresy—that linguistics *per se* is not a fitting study for the young, and had better be reserved for the higher classes at school and for adults. So, instead of putting forth any view so dangerous, we shall conclude by quoting another point out of the many which Mr. Eve makes so well. After dealing effectively, but all too shortly (for our delight), with the *literature* side of the question, he thus finally drives home his argument: "Not only is its (German's) direct utility to be considered; we must also bear in mind that the lad who knows a little Latin has no inducement to go on with it after leaving school; the lad who knows the same amount of German, even if he does not require it for scientific or technical study, may easily be tempted to keep it up for the sake of higher literarature, for novel-reading, or for travel. German does, in fact, open a new world to him; Latin does not."

The Education Department has begun the work of administering the New Code by issuing a circular in reference to day students at training colleges. There can be no doubt that training colleges have, on the whole, answered their purpose in connexion with elementary schools. From various causes, however, some of the ablest of elementary teachers are now advocating a University training, in substitution for that given in the training college, either for the entire course or for the last year of the course. The training colleges are also viewed with disfavour by those who think that a national system of education ought not to take cognizance of any form of religion, but should be purely secular. Now nearly all the training colleges are denominational. Forty-four of these institutions receive annual grants from the State—thirty being of the Church of England, the remainder being under the control of the British, Roman Catholic, or Wesleyan School Committees. Their expenditure last year amounted to £170,814, and they received from the Department £117,000. They had in residence last year 3,277 students. Until the present Code came into operation, residence was absolutely essential to obtaining the grant from the Education Department. It is no longer so, and Queen's scholars may now attend as day students.

Day training colleges may also form a department of a residential normal school, or they may be attached to some University, or college of University rank. The circular to which we have referred prescribes the course of study, and sets out the preliminary questions which will have to be satisfactorily answered by the local committee of a day training college before it can be recognised by the Department. These questions have reference to the arrangements for the lodging, instruction, discipline, and moral supervision of the students, the constitution of the local committee or of the governing body of the University or college responsible for such discipline and moral supervision, and the regular attendance at professional or other lectures.

Some inducement is offered to a college of suitable status to constitute itself a day training college, so as to satisfy the requirements of the Education Department, as under article 127 of the Code—"A grant will be made annually, through the local committee, of £25 to each male and £20 to each female Queen's scholar, and a grant of £10 to the committee in respect of each Queen's scholar enrolled for continuous training throughout the year." It is to be borne in mind that day training colleges are an experiment, and an experiment on a limited scale, as only two hundred day students will be recognised at the same time by the Department. Still, the experiment is one of much interest. It ought to be especially interesting to those who desire to see training colleges for secondary teachers come into existence, and get themselves recognised by the heads of secondary schools. We are apparently about to see a far larger number of University men undertake teaching in elementary schools than has hitherto been possible, and the association of future elementary teachers with the other students of those colleges to which day students recognised by the Department are attached, will tend to draw some of those students into the ranks of elementary teachers. The salaries attached to masterships in Board schools are equal in many cases, and much higher in others, than those obtainable in a large number of secondary schools. There is another side to the experiment. We see no reason why men and women who intend to adopt the profession of teaching in secondary or higher schools, should not resort to these day training colleges for the professional training which is not to be had, at least at present, in institutions exclusively devoted to the training of teachers for secondary or higher schools. But in that case the strictly professional part of the training given will have to be very largely increased. At present in our colleges three-quarters of the time is taken up with the ordinary subjects of general education. While the class of students to whom we have referred would come for professional training only.

The new scheme for the re-organization and future administration of Christ's Hospital, now awaiting the approval of Parliament, has not attracted that amount of attention which is usually bestowed on schemes of less interest and importance. It has been long under discussion, and on its face bears the marks of compromise. In no part of the scheme is the compromising spirit more clearly revealed than in the constitution of the Governing Body. At present, Christ's Hospital is managed by a general Court of Governors, consisting partly of the Corporation of the City of London, and partly of persons who have contributed £500 to the funds of the Foundation, and hence are called Donation Governors. The powers of the general Court are exercised by a smaller body, called the Committee of Almoners, appointed by and from the whole body of Governors. Under the new scheme, the Governors are to consist of four classes, viz.: *ex-officio* Governors, Common Council Governors, Donation Governors and Governors by special vote, and, lastly, Governors by right of Almonership. The long-standing association of the Corporation of London with the old Foundation is preserved by making the Lord Mayor and Aldermen *ex-officio* Governors, and by conferring on the Common Council the right of electing twelve of their own number as Governors.

The functions of this unwieldy body, so constituted, are mainly to elect a President of the Foundation, appoint members of the Council of Almoners, elect Donation Governors and Governors by special vote, and to appoint auditors. The powers exercised by the existing Committee of Almoners will in future, under the new scheme, be exercised by a differently constituted body, called the Council of Almoners.

To the public, however, the most important part of the scheme is that which makes provision for the founding of five new schools for the education of 2,320 pupils—no insignificant addition to the public secondary schools in the neighbourhood of London. Three of these schools are to be "hospital" or boarding schools, and two day schools. Of the hospital schools, one is to be for boys, and suited at first for 700 boarders, to be increased afterwards to 850, if and when sufficient funds are available for the purpose; one for girls, capable of accommodating 350 boarders; and one a preparatory school for 120 boarders. The day schools are to be a boys' science school for 600 scholars, and a girls' school for 400 scholars; and it is provided that the science school shall include a chemical laboratory, and workshops fitted with appliances for working in wood and metal. The hospital schools are to be maintained within a convenient distance of the City of London, whilst the day schools are to be in the County of Middlesex, and at a distance of not more than three miles measured in a straight line from the Royal Exchange.

The scheme contains an important series of provisions for regulating the admission of children to these schools. The principle is laid down that the poverty of the parents or next friends of the children is to be a condition precedent to their sharing in the benefits of the Foundation. Degrees of poverty are, however, recognised; and where, in the opinion of the Council of Almoners, the parents or next friends of a child are not able to contribute substantially to his or her education and maintenance, such child shall be free of all charge. Where the parents or next friends of a child can contribute substantially towards his or her education, they are to pay to the general fund of the Foundation a yearly sum of not less than £10 or more than £20. This is an entirely new provision, as hitherto Christ's Hospital has been an absolutely free school, and, having regard to the peculiarities of English society, it is extremely doubtful if it will work satisfactorily.

The most important provision as to the day schools is that three hundred free places in the science school, and two hundred free places in the girls' day school, are to be allotted to boys and girls, respectively, who at the date of their application for admission to fill any of the said places are and have been for at least three years in any of the public elementary schools of the metropolis, and have passed the sixth standard. Not only are the children so admitted exempt from tuition fees, but there is further to be paid out of the income of the Foundation, to or on behalf of at least one-half the boys, and to at least one-half the girls, the yearly sum of £20. Such sum shall be awarded to such of the boys and girls as the Council of Almoners may judge most in need of assistance, towards their maintenance.

Such are the more prominent features of this comprehensive scheme, which it is safe to predict will come into operation as it now is. Many will regret the disappearance of the old historic school of Coleridge and Lamb, and other memorable men, a school which has done good work in the past, and still does good work; but few, we think, can doubt that the benefits of the Foundation will be very widely extended under the new scheme, and that, if all goes as is intended, these benefits will reach down to those who most need and deserve them. We hope the elaborate but somewhat clumsy machinery for carrying out the salutary provisions of the scheme will not so work as to frustrate the excellent intentions of its authors.

The year 1890 is, and will always be, a memorable one in the history of the higher education of women in England. Simultaneously, at Cambridge, women students of Newnham and Girton have distinguished themselves by coming out at the head of the Honour Lists in Mathematics and Classics. Miss Fawcett, of Newnham—in a year spoken of as particularly good—has been declared as above the Senior Wrangler in the first part of the Mathematical Tripos; and Miss Margaret Alford, of Girton (whose sister gained a first class in Natural Science in 1888), is bracketed with the Senior Classic in the first division of the first class in Part I. of the Classical Tripos. These performances alone, without any reference to the other distinctions gained last month by women at both Oxford and Cambridge, are enough to render the year notable, and to prove once more (and we hope finally) that women, when well educated, can meet men intellectually on their own ground, and equal or surpass them; while it will afford still further evidence that the early and prolonged specialization to which schoolboys are subjected—and from which schoolgirls suffer but little in comparison—is not by any means necessary for success in the class lists of the University. If women can prove this last contention to be generally correct—and they have gone a good way towards doing so—they will have added yet another to their many services to the cause of sound education. University College, London, is very justifiably proud of Miss Fawcett, and Maida Vale High School of Miss Margaret Alford (a niece of the well-known Dean); and which

of us, who have fought for the better education of women, is not ready to throw his cap in the air, or, like the Newnham students, dance round a bonfire, in delight at results which have proved that what were once regarded as merely pious opinions are incontrovertibly true as matters of fact? But, while we rejoice most heartily with Miss Fawcett and Miss Alford, and with their teachers and friends, we are not without a consciousness of certain new dangers which are beginning to make themselves felt in the education of women, and which, unless much wise caution be used, will be seriously increased by these very successes. We do not merely refer to what has been called the penalty of publicity, of public inquisitiveness and public comment,—which as new elements in the training of womanhood are, to say the least, of very questionable advantage,—but rather to the effects on the schools themselves which these triumphs may produce. Will girls' schools be strong enough to resist the temptation to look upon a few annual distinctions in honour lists as the be-all and the end-all in education? Or, in imitation of so many of our schools for boys, having hunted for and caught a small number of clever pupils, will they begin to sacrifice the welfare of the many to the triumphs of the few—or at least damage some of their best present results by a premature insistence on subjects which pay at the Universities? We believe that the great majority of headmistresses are alive to the danger, and have the best will in the world to resist the temptation. They know that their schools are good, not in proportion as they are copies of boys' schools, but in proportion as they are organized on sound educational principles. But, to make the resistance of the headmistresses successful, they must have the support of the public. Parents must not get into the way of judging of the merits of a girls' school—in the matter of boys' schools we fear they are past praying for—by the number of scholarships and University distinctions gained, which is never anything but a very narrow and fortuitous test. They must judge by the broader and more general results of the education given, and themselves make a stand against the tendency to turn schools into racing stables. Unless the public and governing bodies are firm in this matter, the hands of the headmistresses will be forced.

But, amidst so much rejoicing, too solemn a face is out of place; and indeed we cannot maintain it, for we ourselves very heartily rejoice in the Cambridge triumphs. And we believe that the victors themselves, and especially our Senior Wrangler, will (like her parents) be on our side in refusing to bow the knee to Juggernaut.

REVIEWS, NOTICES, &c.

A Primer of Spoken English. By Henry Sweet, M.A. (Clarendon Press.)

Now that we have decided that a knowledge of phonetics should form a part of the outfit of every teacher of languages, especially of modern foreign languages, it has become more than ever necessary that we should be provided with elementary treatises to show us how this knowledge may be acquired, and to give us the properly prepared material with which we may practise to best effect. A very little reflection will show that this material must be the mother-tongue—the language which we do, as a matter of fact, know how to use. It is not of primary importance whether our pronunciation is of the very best—is what is loosely spoken of as the "standard pronunciation," though no such standard really exists. The first thing we have to do is to learn—to observe, to see into, and to understand—how we ourselves do actually speak, what organs we use, how we use them, and with what results. This is the first step in the study of phonetics; and, though it does not present by any means insuperable difficulties, it is not quite so easy as some of us, who have not tried, are wont to imagine. The question as to how we *ought* to speak, though important (especially for the teacher of foreign languages), is another matter, and can only be adequately dealt with when we have gathered and studied a large number of true descriptions of actual pronunciations made by properly trained observers from their own observations. This, we say, is necessary before we have a right to speak of a standard pronunciation. Fortunately, teachers of a foreign language have not to wait for a standard pronunciation of the language with which they deal. If they can teach their pupils to speak like the first single well-educated native they meet, they will have done enough, and indeed far more than is usually accomplished. But to do this—to be able to deal properly with the sounds of speech and the methods of their production—they must themselves begin with observing how they themselves use their own native tongue, and from this proceed to the study of the phonetics of the foreign language in question—a consideration which, by the way, very strongly supports the opinion that, in the earlier stages at any rate, the teacher of a foreign language should have the same mother-tongue as the children.

Until Dr. Sweet published his "Elementarbuch des Gesprochenen Englisch," in 1886, there was no book in any language to help us to accomplish the first stage of which we have spoken. This book has been very successful abroad, and it is an English version of it whose name stands at the head of this article. The grammar is simply a translation of that in the "Elementarbuch," with a few additions; but the texts now given are entirely new. With regard to the pronunciation adopted, Dr. Sweet tells us that the object of his book "is to give a faithful picture—a phonetic photograph—of educated spoken English as distinguished from vulgar and provincial English, on the one hand, and literary English on the other." The particular English chosen is that of an educated Londoner, to wit, Dr. Sweet himself; and he adds: "Of course, every self-observer has his personal equation, which he is bound to eliminate cautiously; and this I have done to the best of my power." After what has been said above, no one will accuse Dr. Sweet of merely endeavouring to make other people pronounce as he does. He shows us how to observe and what to observe, gives us the means for recording our observations, and then supplies an example of what can be done by setting before us a record of his own case.

In all that concerns phonetics, Dr. Sweet is so universally acknowledged as one of our very highest authorities, that we may be excused from criticizing that part of the book before us. But Dr. Sweet applies phonetics to grammar; and as long as the phonetic element really enters into the matter, all that he has to tells us is highly instructive and very suggestive. We are not prepared, however, to follow him always in what he tells about descriptive grammar pure and simple. For instance, to us it seems only to add to our confusion to speak of a noun in English as having *gender*, because the pronoun referring to it indicates *sex*. To make this intelligible we should have to create a new idea of gender, making it depend on meaning and not on termination. Again, it is not, as a matter of fact, true that "only artificial objects are personified; the names of natural objects which cannot be directly employed as tools, &c., and of abstract ideas, are only referred to as *it*, such as sun, moon, sky, sea, England, courage, science." Surely half this very list are examples to the contrary! While, in particular, many abstract ideas (*e.g.*, "death") are quite as often as not personified, and that not in poetry. But we will not carp at a few details where all the rest is of so great value.

In conclusion, we would draw our readers' attention to the fact that Dr. Sweet takes the spoken sentence as his unit—by which we mean that he deals with pronunciation not as having to do with isolated single words, but with words as they are heard in sentences. It is the neglect of this that has hitherto created most of our confusion. And next, we would particularly refer to what is said about "stress"—both *composition-stress* and *sentence-stress*—*i.e.*, the stress laid on words as parts of compounds and as parts of a sentence; and, in addition to this, the suggestive remarks on "intonation." But, indeed, the whole book is full of interest and usefulness, for the student of English as well as for the phonetic specialist. And, as we counsel all such to get it, we may as well mention that its published price is three shillings and sixpence.

Schiller's Jungfrau von Orleans. Edited, with an Historical and Critical Introduction, a Complete Commentary, &c., by C. A. Buchheim, Ph.D., F.C.P., Professor of the German Language and Literature in King's College, London, Examiner to the University of London, &c. (*Clarendon Press.*)

In this, the tenth, volume of his series of German Classics, which has just been published by the Clarendon Press, Professor Buchheim has given us the most complete edition which has yet appeared outside of Germany of that play of which Schiller more than once said that he had written it from his heart of hearts. Indeed, the English student who possesses this work will have but little inducement to consult even the great editions of Vollmer, from whom Dr. Buchheim has drawn his text.

Schiller began this play a few days after he received the news of Napoleon's victory at Marengo; he worked at it through the following months, which covered the negotiations and treaty of Lunéville so humiliating for Germany; and he finished it in the spring of 1801, just after the left bank of the Rhine had been ceded to France. It is not strange, therefore, if we find throughout the play that spirit of patriotic detestation of the foreign invader, which the poet exerted himself to inspire into his countrymen in a still higher degree a few years later, when Germany was in a still more harassed position. It was, perhaps, owing to the opportune nature of the play, as well as to the ridicule which it was likely to excite (as Dr. Buchheim well points out) among those who were familiar with the mocking poem which is an eternal disgrace to Voltaire, that Duke Karl August, who had the first offer of it, refused for a time to have it played upon his stage at Weimar. Leipzig has the honour of having first produced it in August, 1801, when it was received with an enthusiasm which has never diminished, and when Schiller was treated to a touching and patriotic ovation. It was nearly two years later that it was first allowed to gain an electrical success (to use a phrase of the poet) at Weimar. There are few books, even among the great classics, that better repay careful study than this magnificent romantic tragedy. The poet has not only told a beautiful story, he has made it the vehicle of lofty and ennobling thought. Although it has always been a popular "acting play," yet its form is artistic and poetic in the highest degree, and the language, for which Schiller often sought models among the Greeks and in the Bible, is stately and pathetic. Some critics, who must gnaw at everything that is grand, have found fault with Schiller's facts, but Dr. Buchheim shows that the Jena Professor of History knew at least as much as those who censure him. Others have censured the poet's invention of Lionel's love, and the introduction of the Black Knight; but if supernatural agency was ever justifiable in any story it is certainly in the story of Joan of Arc, while, as to Lionel, Schiller was wise in adding human interest to his creation of the highest human purity. And we may safely agree with the opinions of Carlyle, who found Joan "the most noble being in tragedy," of Bulwer, who says that the play "most engrosses the heart and enlists the fancy," and of Goethe, who, in returning the MS. to its author, wrote, "it is so honest, so good, so beautiful, that I know nothing to compare with it."

Professor Buchheim's work is as thorough and as vigorous as that which he has bestowed on his previous editions of the Classics. The arguments which he prefixes to the acts of the play will be found of great help, especially to those who wish, or are obliged, to read carefully and slowly. His sixty pages of notes are just what a fair German scholar needs in the way of help in translation or comment; and they further contain a great deal in the way of comparison, of historical reference, and of explanation of allusions, that will be found valuable even by the learned. A list of Schiller's authorities is a specially interesting eature of the book, as enabling us in a measure to trace the line of the poet's thought. The index and the list of English translations of the play will also be found useful. It is, however, the ample Introduction which confers its great value on the edition. In the first part, Dr. Buchheim gives an excellent outline of the Hundred Years' War, and discusses fully the traditions as well as the history of the ill-fated *Pucelle*. The second part is still more important. It shows us Schiller at work on the play in extracts from his contemporaneous correspondence. It analyses the personages very fully, and brings out most clearly the action and the spirit of the drama. Lastly, it gives in the "general estimate" an epitome of the impression which it has made; and a very interesting criticism of the diction and metre. Dr. Buchheim is to be congratulated on having produced a commentary which, for its thoroughness, its accuracy, and its suggestiveness, is fully worthy to rank with the best work which he has hitherto done for the students of German in these islands, in our colonies, and in America.

We have omitted to notice a careful collection of the favourite quotations from the play with which Dr. Buchheim ends his notes, and for which we are under special obligation to him. We are ashamed to think how long, and in what absurdly wrong places, we have sought for the well-known line:

"Mit der Dummheit kämpfen die Götter selbst vergebens."

The Civilisation of the Renaissance in Italy. By Jacob Burckhardt Authorized Translation by S. G. C. Middlemore. (*Swan Sonnenschein & Co.*)

This translation is from the third edition of the work in German. It contains the notes, also translated, of Dr. Ludwig Geiger, of Berlin, together with some fresh matter communicated by Dr. Burckhardt to Professor Diego Valbusa, of Mantua, the Italian translator of the book. The volume is thus the result of work carefully gone over time after time, and is an excellent specimen of German workmanship at its best. It is not too much to say that we do not know of any book, within the same limits, which treats of the Renascence period with so much thoroughness of detail, with such tightness of grasp of the general principles for which the Renascence stood, and with such a wealth of illustration, as the volume before us. Dr. Burckhardt has managed to divide his subject into such suggestive divisions, that he deals with his enormous mass of details exactly under the aspect which gives the greatest interest and enlightenment. In fact, the internal order and arrangement of the material are almost a study in the disciplines of war, and Dr. Burckhardt is entitled to the honours which fall to the successful general—the recognition of his energy, his courage, his tact, and his indomitable patience. Having thus frankly acknowledged the ungrudging labour which has gone into this classical work on the Renascence, its instructive and suggestive generalizations, its clear and careful portraiture of the crowd of wonderful persons of the time, it may seem a paltry criticism to turn aside for a moment from the book to its title. But we think it is of some importance to inform possible readers that the contents of the book are far more valuable than the title might imply. In fact, what title could place a possible reader in a more combative attitude than the term "Civilisation"? What it means, we do not profess to know. We have on previous occasions inquired, but we found the answers so conflicting that we agreed, once for all, to use the word with caution in future. We may, too, take this opportunity of protesting against the practice of spelling the word "Renascence" as in the title of this book. The movement denoted by this name was not a distinctively French movement, and there is no reason why the English form derived from the Latin is not equally as good as the French.

Dr. Burckhardt divides his work into the following parts:—I. The State as a Work of Art; II. The Development of the Individual; III. The Revival of Antiquity; IV. The Discovery of the World and of Man; V. Society and Festivals; VI. Morality and Religion. Each part he subdivides into chapters, each of which is usually an able essay on its subject, often complete in itself, while taking its due position in the general fabric. For instance, Part III. treats of the Revival of Antiquity. There are chapters on Rome, the city of ruins, the old authors, Humanism in the Fourteenth Century, the Universities and Schools, the Furtherers of Humanism, the Reproduction of Antiquity, Latin Correspondence and Orations, Latin Treatises and History, General Latinization of Culture, Modern Latin Poetry, Fall of Humanists in the Sixteenth Century. The chapter on the Universities and Schools is not so full as we could have wished. Dr. Burckhardt, however, anticipates this want, and explains that, though the new learning had gained possession of the universities, this was by no means to the extent and with the results which might have been expected. Still, his short account has considerable interest. He shows that teachers in the universities only held their appointments for short periods; hence they had to live a wandering life, like actors. Of course, there was hope, with every change to get a better teacher than the last, and to enable the university to vie with some other university whose reputation was higher. The method of teaching was different from that which now holds, and perhaps in some points superior. "Personal intercourse," says Dr. Burckhardt, "between the teachers and the taught, public disputations, the constant use of Latin and often of Greek, the frequent changes of lecturers, and the scarcity of books, gave the studies of that time a colour which we cannot represent to ourselves without effort." Through-

out Italy schools were founded where Latin was the principal subject of instruction. These schools, Dr. Burckhardt is particular to state, did not depend upon the Church, but were usually connected with the municipality—a fact interesting to note in an age of School Boards. The most interesting portion of this chapter, perhaps, is that which tells the story of teaching at Courts. At the Court of Giovan Francesco Gonzaga, at Mantua, there was in the fifteenth century a remarkable teacher called Vittorino da Feltre. Vittorino taught the young princes and princesses. Gonzago endeavoured to make Mantua the chosen school of the aristocratic world. In addition, Vittorino drew into the same school "the gifted poor, often as many as seventy together, whom he supported in his house and educated, per l'amore di Dio." Another teacher of the same kind was at Ferrara about the same time. He was called Guarino, and came from Verona. He invited poor children to come and be educated with the princes, and many of his pupils he himself partly or wholly supported. Finally, in this chapter, Dr. Burckhardt refers to the treatises which teachers in Italy produced on the subject of the education of princes.

Part IV. is a particularly interesting section, under the heading, "The Discovery of the World and of Man." It deals with the journeys of the Italians, natural science, the discovery of natural beauty, the discovery of man, spiritual description in poetry, biography, the outward man, man in movement. It winds up with the famous speech of Pico della Mirandola on the dignity of man. As Dr. Burckhardt says, this speech "may justly be called one of the noblest bequests of that great age." We may, perhaps, quote a portion:—

"God," he tells us, "made man at the close of the creation, to know the laws of the universe, to love its beauty, to admire its greatness. He bound him to no fixed place, to no prescribed form of work, and by no iron necessity, but gave him freedom to will and to move. I have set thee, says the Creator to Adam, in the midst of the world, that thou mayst the more easily behold and see all that is therein. I created thee a being neither heavenly nor earthly, neither mortal nor immortal, only that thou mightest be free to shape and to overcome thyself. . . . To thee alone is given a growth and a development depending on thine own free will. Thou bearest in thee the germs of a universal life."

In conclusion, when we read such words as these, brimful of aspiration as characteristic of the best of men to-day as of the Renascence, distances of time and space disappear, and the human interest is held rivetted on the period which produced such men, or their doings, and their thoughts. As to Dr. Burckhardt's work, we do not hesitate to recommend it as the best all-round account we know of the period. We had almost forgotten the translator, for the volume does not itself remind you that it is a translation; but we hasten to add that Mr. Middlemore's heavy task is thereby shown to be very ably executed.

Lectures on Language and Linguistic Method in the School. By Prof. S. S. Laurie. (Cambridge University Press.)—These lectures, which were delivered before the University of Cambridge, and re-delivered before the College of Preceptors, were, as our readers will remember, printed at full length in our columns a short while ago. In putting them into book form, Prof. Laurie has only made a few verbal changes here and there in the body of the lectures themselves; but he has added, what many teachers will find highly suggestive and valuable, an Appendix on "Method; or, the Rules of the Art of Instruction," deduced from psychology as the science of education. This consists of a series of educational precepts with corollaries, and is, as we have said, of decided value. But there is just a little obscurity in one place which we should like to see removed. "All knowledge," says Prof. Laurie, "as it is acquired, should be exact," &c.; but, as a matter of fact, it never is, and never has been so, either in the individual or in the history of the race. By too much insistence on exactness at first, we may entirely destroy the child's callow interest in his subject. Moreover, the statement seems not quite consistent with what comes just before: "Mind grows by raising existing vague intuitions into clear distinct percepts and concepts." Prof. Laurie must have meant to say: "All knowledge, *when it is given*, should be exact." We may, and should, demand exactness from the *teacher*; but we can only gradually cultivate it in the child—and no doubt, until we have done so, the child will not possess a sound basis for further knowledge acquisition. This seems to us a direct hint from nature not to be premature in our attempt to impart knowledge. The corollary also seems to us a little doubtful as a guide: "Dwell long over the elements of a subject." Here we should prefer to read "rudiments" instead of "elements"—and we should explain *rudiments* to be that part of a subject which appeals to the learner, and with which the learner's mind is fitted to deal. *Elements* are the ultimate results of long and careful analysis—the end, not the beginning, of inquiry and study. Mankind has never begun with elements; and in some subjects we have not yet discovered what the elements are. Moreover, we are very doubtful as to the wisdom of lingering too long over the beginnings of subjects. We have found it better to keep moving, to go ahead; and, when some experience has been gained by the learner, to lead him back, from time to time, to the beginning, until it is made clear and definite, and as exact as the case allows. This said, we strongly recommend the Appendix to every teacher. With the lectures themselves our readers are already acquainted, and will prefer their own opinions to ours. Only on two points are we to any extent at variance with Professor Laurie: we do not set so high a value on Latin as he does, and we do not agree with him in his strictures on "paraphrase." But with this last we have already dealt; and it only remains for us to thank him for giving us a book which is essentially the work of a thinker, and of one learned and experienced in the science and art of teaching.

The Essentials of Method. By Charles De Garmo, Ph.D. (D. C. Heath & Co.)—Dr. De Garmo's book seeks to find the essential forms of methods of instruction, as determined by the general law of development in the mind of the child. He divides his book into three sections, dealing with (i.) the Psychological Basis of Knowledge. This he subdivides into chapters on the Individual Notion, the General Notion, and Apperception, or the Assimilation of Knowledge. (ii.) The Necessary Stages of Rational Methods. In this section the stages are developed by which the transitions from individual to general notions, and *vice-versâ*, are effected. Finally, in the third section, some valuable practical illustrations are given. Dr. De Garmo points out that there are two prominent analogical theories of mind, (1) that which regards the soul as a germ, containing by involution that which it is to become by evolution; (2) that which regards the mind at any given stage of its development as the resultant of the manifold forces of its environment. The writer gives to these two theories the names of the *germ* theory and the *architectural* theory. He points out that the two ways of regarding mental phenomena are not contradictory, but complementary. The author argues that the teacher may build up the content of the child's mind, but how that knowledge is to be acquired is predetermined by the conditions which we enunciate as the laws of psychology. In other words, in education we may consider the product, or the process, of the formation of knowledge. Dr. De Garmo elects to concern himself in this book with the *process*, and an interesting study of the subject is the result.

Plutarch's Lives of Galba and Otho. By E. S. Hardy, M.A. (Macmillan & Co.)—On turning over the leaves of this book we are struck with the disparity between the length of the text and the length of the commentary, the latter occupying about five times as many pages as the former; but the author pleads, in defence, that "my own method with a sixth form has always been to make an historical work a peg on which to hang as much historical teaching as possible." We think that he is justified in doing so, more especially in the case of the present book, dealing as it does with a short period of history, which is not infrequently left untouched even by sixth-form boys. To what extent Plutarch was indebted for information to Tacitus is thoroughly discussed by the author in the Introduction, which also contains an exhaustive sketch of the history of the two reigns, and closes with short notes on the MSS. and previous editions of the two Lives, and some ascertained dates in the reigns. In the text an abstract, of sufficient length to ensure clearness, precedes each chapter. Very little is omitted in the notes which a student is likely to require, but much is contained which we would prefer to see in smaller type, especially the extracts contained in explanatory notes. A discrimination might thus be made between parts of the same note differing vastly in importance.

OUR LIBRARY TABLE.

The English Historical Review. No. 18. (Longmans.)—The current number is, as usual, divided into (1) Articles; (2) Notes and Documents; (3) Reviews of Books. The regular reading of the "Reviews of Books" will keep all historical students abreast of the latest results and attempts in the direction of historical study. Although the articles and reviews are written in English, the editor keeps a very wide field of view before him, so that we can easily understand that the "English Historical

Review" is of the first value abroad as at home. It is right to notice that historians of the very first rank not only occasionally, but constantly, contribute to this Review. In this number there is an appreciative article on the late "Bishop Lightfoot as an Historian," by the Rev. Professor Sanday. Other articles are "The Provincial Concilia from Augustus to Diocletian," by E. G. Hardy; "The Relationship of the Patriarch Photius to the Empress Theodora," by J. B. Bury; "The Comparative History of England and France during the Middle Ages," by C. V. Langlois; "Frederick Henry, Prince of Orange, Part II.," by the Rev. George Edmundson; "Sir Richard Church, Part II.," by Stanley Lane-Poole; and "Wilhelm von Giesebrecht," by Lord Aston. The "Notes and Documents" range in scope from accounts of political poems in the twelfth century to Robert Aske's narrative of the Pilgrimage of Grace, from the history of Edward I.'s marriage to a comparison of two accounts of the Battle of Marston Moor.

(1) *Homeri Iliadis Carmina. Edidit Aloisius Rzach.* (*Cassell & Co.*) (2) *Horati Flacci Opera. Ediderunt O. Keller et I. Hacussner.* (Same publishers.)—The Homer is in two volumes; the Horace complete in one. The volumes are strongly bound, and the texts well printed on excellent paper with a wide expanse of margin. There is an argument in Latin of each book of the *Iliad*, and at the foot of every page the various readings of the manuscripts. At the end of the second volume there is an extensive and reliable *Index Nominum*. In the Horace, several pages are devoted to a *Conspectus Metrorum*, and at the end there is a Life of the poet, an index of the first few words of each *carmen*, *sermo*, &c., and an *Index Nominum et Rerum Memorabilium*.

Herodotus V. Terpsichore. By E. S. Shuckburgh, M.A. (*Cambridge Press.*)—The Pitt Press series contains so many admirable editions of the classics that a new volume is intently scanned to see if the high repute of the series is maintained in it. No one will deny that it is so in the case of the fifth book of the history of Herodotus. The Introduction is, of course, mainly historical, but closes with a few instructive paragraphs on the criticism of Book V. contained in Plutarch's Περὶ τῆς Ἡροδότου κακοηθείας. The text is clearly printed, and each chapter is headed by an abstract of its contents. There is much scope in the book for instructive notes, and Mr. Shuckburgh has availed himself of the opportunity to the full. There are also critical notes on the text, and an historical and geographical index.

(1) *Herodotus, Book VI. By W. F. Masom, B.A., and C. S. Fearenside, B.A.* (2) *Cicero de Finibus I. By S. Moses, M.A., and C. S. Fearenside, B.A.* (*W. B. Clive & Co.*)—These are complete editions, with text, notes, and translation, but the text with notes and the translation of each may be obtained separately. Both are crammed with matter relating to the texts. In the Introduction to the *Herodotus* there is a discussion of the origin of Greek history, a Life of the historian, and a summary of the book. After the text, there is a comparison of the Ionic dialect with the Attic, taken chiefly from Abicht's *Uebersicht über den Herodotischen Dialect*. The notes occupy about fifty pages, and are never lengthy. Then follow two series, each of fifteen Test Papers, on the book, an interleaved Vocabulary, and the Translation. The *Cicero* contains an Introduction dealing with the life of Cicero, sources of the treatise, and philosophy down to the time of Cicero. Notes, mainly explanatory, with occasional renderings of the Latin, an Index of Proper Names, and a translation.

The Standard Atlas (*Philip & Son*) is in four parts, each part being adapted to the requirements of the pupils in one of the Standards III.–VI. The maps are coloured and small, and considering that the price of a part ranges between 2*d.* and 4*d.*, we have no hesitation in saying that they are well worth the money, and will be much appreciated in elementary schools.

Twelve Years' Queen's Scholarship Questions, 1878–1889; *with Answers to Arithmetic, Algebra, and Mensuration.* (*Moffatt & Paige.*)—A book of 314 pages, 294 of which are taken up with the questions set at the examinations. Intending candidates will find the papers in a convenient form.

Science applied to Work. By John A. Bower. (*Cassells.*)—This book is written especially for the Artisan Section of the National Home Reading Union. It is a simple introduction to Mechanics—free from mathematical formulæ.

Questions and Exercises on English Composition. By J. Nichol, M.A., LL.D., and W. S. McCormick, M.A. (*Macmillan.*)—An excellent little manual arranged under the same heads as its companion, "The Primer of English Composition." The examples are designed to exemplify and elucidate the rules in the Primer. They are of various degrees of difficulty, beginning with simple points of grammar, and afterwards dealing with controverted delicacies of taste. The questions are intended to be answered by pupils at home; but those on punctuation may well be used in the class.

History of England for the Middle Forms of Schools. Part III. By T. F. Tout, M.A. (*Rivingtons.*)—The third part of this work covers the period of English history from William and Mary to the present time. The first part, by Mr. F. York Powell, was published in 1885, and has already established itself as one of the best books of its kind. The second part, by Professor Mackay, filling up the gap between 1509 and 1688, is not yet published. In this part it is particularly evident that the book is not merely a History of England, but of the whole British Empire, for one of its four divisions is devoted to the history of India from 1760, and of the new Colonial Empires from 1763, and throughout the history of Scotland and Ireland receives all due attention. In addition to the political and military history of the nation, its religious, moral, intellectual, and industrial life, and the manners and amusements of the people, are carefully treated. There are about fifteen genealogical tables, many of which are complete strangers to the ordinary school-book of history, and in addition twelve maps and plans.

Ovidii Metamorphoseon Book I. By the Rev. Edgar Sanderson, M.A. (*Parker & Co.*)—One of the Oxford Pocket Classics. In addition to a well-printed text, there is a list of the *Fasti Ovidiani*; an Introduction containing a short Life of the poet, an account of his works, a discussion of the Prosody, and a general argument of the *Metamorph. I.*; Notes, occupying about eighty pages, which leave little to be sought for elsewhere; and illustrations and parallel passages.

Le Français par le Français. Part II. By Léo Melliet, B.A., LL.B. (*James Thin.*)—Part II. of this work deals with the principles of construction and syntax. All the rules are in French, and the sentences in the exercises are extracts from well-known French and English writers. The latter fact in itself should ensure the adoption of the book in schools, since the exercises of so many French books still in use consist of trivial and frequently distorted remarks.

A Primer of Indian History. By J. Talboys Wheeler. (*Macmillan.*)—We characterised the "Short History of India," by the same author, as the best book of its kind. We may, with all fairness, apply the same remark to the Primer before us, which is evidently drawn from the larger work. It is written in small paragraphs, with the topic of each paragraph in large type at its head. The period of the book is from before the Mohammedan Conquest—*i.e.*, *ante* A.D. 1000—to the present year. It is succinctly yet clearly written, and is undoubtedly the book for giving a brief outline of an important dependency, of which so little is known by many people.

Souvestre's Le Mari de Madame de Solonge. Edited by O. B. Super, Ph.D. (*D. C. Heath & Co.*)—There is little more than the French text in this volume. A biographical sketch of Emile Souvestre occupies two and the notes on the text only two-and-a-half pages. The latter consist mainly of explanations of points of historical or geographical interest. The volume is neat, in a stiff paper cover, and its trifling cost ought to ensure its adoption in schools.

Natural Science Examination Papers. Part II. By R. Elliot Steel, M.A. (*Methuen & Co.*)—Part II. of the series of Science Examination Papers contains questions on physics (sound, heat, light, magnetism, and electricity). Under these headings, or under subdivisions of the several subjects where necessary, there are altogether about 600 questions. Then follow thirty-three general papers with, on the average, six questions each, and thirty-four special papers, taken from representative examinations. The questions extend over the whole range of the subject, and will be found of much value in class work.

John Hannah: A Clerical Study. By J. H. Overton. (*Rivingtons.*)—The Rev. Dr. Hannah is known best as Warden of Trinity College, Glenalmond, and as Vicar of Brighton. His character was a great one, as was also his mind; and the author of this biography has made quite a philosophical analysis of a peculiarly suitable subject.

(1) *The Alcestis of Euripides. By M. A. Bayfield, M.A.* (2) *Vergil, Æneid III. By T. E. Page, M.A.* (*Macmillan.*)—These editions belong to the series of Elementary Classics, and brings the number of volumes comprising this series up to well-nigh fifty. The introduction to the play is very short, only occupying about three pages with an account of the story, the structure of the play, and the parts of a tragedy as defined by Aristotle. There is no introduction to the Vergil; a map showing the wanderings of Æneas forming the frontispiece. The notes in each are of as elementary a nature as the texts will allow, and the two appendices to the *Alcestis* are good: one on the particles, the other on the conditional sentence. There is a vocabulary at the end of each book.

Shakspeare's Coriolanus. By H. C. Beeching, M.A. (*Rivingtons.*)—The spelling of the name of our greatest poet is an oft discussed point, but we decidedly object to two versions of it in one book. On the cover and title-page the name appears as at the head of this notice, but in the introduction it is repeatedly found as "Shakespeare." The Introduction is short, but the reader will soon feel that it is the work of the author of the masterly Introduction to the play of "Julius Cæsar" in the same series. After a discussion of the distinguishing characteristic of tragedy, the writer makes the "self-assertion" of the hero, "which passes readily into pride, and so into disdain of other men," the pivot of his subsequent actions. The other characters are more briefly dealt with, but all will agree with the writer's remarks on Marcius and Menenius. The notes are conspicuous for the absolute lack of padding which they contain. Little that is unnecessary is inserted, but at the same time little is missing that would tend to further enlighten the student. There is also a glossary, and some notes on scansion, with particular reference to the play.

Everybody's Scrap Book of Curious Facts, by Don Lemon (*Saxon & Co.*), is a little volume to be taken up at odd moments. It contains a mass of curious facts selected from books and periodicals.

The Illustrated Poetry Book for Young Readers. Third Edition. (*T. Fisher Unwin.*)—When a book of this kind is compiled on the principle of excluding from its pages all poems which, as far as can be ascertained, have already appeared in other collections, the result can be easily imagined—we have little or nothing but third-rate poetry. The world of poetry is always fresh and new to each succeeding generation; and

that we who are grown up are tired (if we are) of what is best, is no reason why the next generation should have what is not best. Here and there in the volume before us there are good things which are new. But the great bulk is poor in quality, and the illustrations are naught.

Notes on Shakespeare's Play of King John. By T. Duff Barnett, B.A. (*George Bell & Sons.*)—The plan of publishing notes to Shakespeare's Plays without the text is a good one, and we have often already spoken of Mr. Barnett's Notes with general approval. He would do better if he gave up endeavouring to explain words to school children or adults by giving derivations or parallels, especially when these are from Welsh, Icelandic, or Anglo-Saxon, and many of them very doubtful. We do not explain the partially known by the help of the wholly unknown. What we want are similar or parallel uses of the words in other sentences, to illustrate and make clear and memorable the particular use that puzzles us. Or we may give the meaning simply, and at once, without any display of learning. For the rest, the Notes will be found useful. But why does Mr. Barnett explain a *simile* as "a figure of speech expressing a similarity of relations between two things" (p. 63)? This has no meaning. He surely intends "two *pairs* of things," or "two *sets* of things." Nor do we think we are much helped by having a *metaphor* defined as "a suppressed *simile*." In books having to do with the teaching of literature, we cannot be too careful as to our mode of expression.

Easy French Passages for Unseen Translation. By A. M. M. Stedman, M.A. (*Methuen & Co.*)—The title of this book fairly explains its nature; and, we may add that the selection seems well made, and that there is some attempt at graduation. There are no notes of any kind.

Schoolboy Truth and Honour. By A. H. Biggs. (*Sonnenschein & Co.*)—This "story for boys" is Mr. Biggs' first, so we must not be too severe—though, like many of the earliest productions of nature, it is invertebrate; at least it seems so to us. The cricket match, however, and the football match are both well described, and here and there the dialogue has some resemblance to that used by boys. But the character-drawing and plot are weak; and it is rather too much to have one boy expelled for theft, and another expelled for a diabolical plot against a schoolfellow, in the space of two terms, and that in a small school—though the school is placed in some out-of-the-way part of Cumberland. With a wider and truer knowledge of schools and schoolboys, and a little less effort to point a moral, Mr. Biggs may some day give us a good story.

Le Fablier de la Jeunesse. By A. Eselangon. (*Griffith & Farran.*)—This "youth's own fable-book" is a selection of French fables in verse, drawn from a variety of sources. The fables are short and often interesting; and beneath the French words in the text are given their English equivalents in small type, so that boys and girls may readily translate at sight without the trouble of searching a dictionary. The pieces are meant to be learnt by heart, so that the learner may be familiarized with, and gain a large store of, idiomatic expressions. In wise hands the book should prove useful.

Moffatt's New Geography, written for the present time. Edited by T. Paige, and Revised by Rev. E. Hammonds, M.A. (*Moffatt & Paige.*)—This is a manual of geography, astronomical, physical, commercial, and political, and, we might add, statistical and encyclopædical, and many other such descriptive epithets, except economical, for it costs four shillings and sixpence. It is far too crammed with details and heterogeneous facts which are made no use of, and would be hard to use, to be recommended as a class-book for schools. But teachers will find it handy, and, as far we have been able to apply tests, accurate and fairly up to date. Evidently a great deal of pains has been taken to get information together; and the sections on "aids to trade and commerce" contain many points of interest. A very full Index is mercifully provided.

Latin Prose for Lower Forms. By M. A. Bayfield, M.A. (*Cassell & Co.*)—This is a set of grammatical exercises—short sentences of the familiar type relating to particular rules—intended to serve as an accompaniment to Professor Postgate's New and First Latin Primers. Those who believe in grammatical exercises, and in setting boys to do sentence after sentence all involving precisely the same point, will regard the book as valuable; those who do not, will not find much to help them in it. As a book for rapid oral work solely, a classical master of junior forms would probably find the book of use.

The Gospel History of Our Lord and Saviour Jesus Christ in a Connected Narrative in the words of the Revised Version. Arranged by C. C. James, M.A. (*C. J. Clay & Son.*)—This is a full history of our Lord, showing the testimony of all the holy witnesses combined into one narrative, and preserving every minute detail of their evidence. The clergy will find it an invaluable help in explaining such of our Saviour's actions as are recorded in more than one Evangelist. There are several useful tables for finding any passage and marginal references to both the New and Old Testament throughout.

The Old Documents and the New Bible. By J. Paterson Smyth, LL.B., B.D. (*Bagster & Sons.*)—This book is one of a projected series in answer to popular questionings on the genuineness, authenticity, inspiration, and correctness of transmission of the Bible. It is clearly and simply written, and is eminently the book for those Bible thinkers outside the circle of scholars and theologians. The plan of the book is admirable. It consists of three parts. The first deals with the Old Hebrew Documents and the question of their correctness; the second tells of the other old documents and their use in testing and correcting the Hebrew; while the third part is a series of easy illustrations to show how this testing and correcting is done.

Practical Lessons in French Composition. By F. Julien. (*Hachette & Cie.*)—A useful book divided into three parts. The first part consists of a hundred rules of grammar for reference, with sentences based on these rules. The rules are clear, and illustrated by many examples. This part is followed by a copious vocabulary of the words used in the exercises. The second and third parts consist of short passages for translation. The passages appear to be well graduated, and each has a specially prepared vocabulary, with figures indicating the grammatical rule to be followed, so that little difficulty is experienced by the pupil. The book is well calculated to extend the vocabulary of young students of French.

Mind: a Quarterly Review of Psychology and Philosophy. April, 1890.—The current number of *Mind* has little bearing directly on the subject of education. There are two interesting general articles, one on "Lotze's Moral Idealism," by G. Santavana, and one on "The Progress of Philosophy," by James Ward. Dr. Ward urges: "We cannot insist on omniscience as essential to a perfect philosophy, but that it is essential that such a philosophy should satisfy our moral and religious nature. We may even go further, and say that, were our moral reason satisfied, we could acquiesce in a finite knowledge, which would not satisfy our merely intellectual nature, abstractly considered." There is an article on "The Cerebral Cortex and its Work," by Dr. Maudsley.

The State and Federal Government of the United States. A Brief Manual for Schools and Colleges. By Woodrow Wilson. (*Boston: D. C. Heath & Co.*)—This is a reprint from Dr. Wilson's larger work, "Historical and Practical Politics," of the portion referring to the United States. It is an admirable short constitutional history of the United States.

How to Make Common Things: a Handy Book for Girls. By Dora de Blaquière and others. Edited by Charles Peters. (*Religious Tract Society.*)—This is a book of directions for girls in plain and fancy work. It is easily understood, and is well illustrated. It is one of the best books of the kind which we have seen.

Night and Morning: a Collection of Extracts from Foreign and Ancient literature, with translations by John W. Millett, B.A. (*Gilbert & Rivington.*)—The subjects are "Creation and Nature," "Night and Morning." "Night" has such sub-headings as Moonlight, Sleep, Dreamland, and the Watchman. "Morning" includes Sunrise, Early-rising, Light, and Music. The book contains some hundreds of extracts in German, French, Italian, and Spanish; when the extracts are poetical, the translations are generally also metrical. Many of these preserve something of the spirit and style of the original. On the front face of each book are the Hebrew words of Genesis i., "And the evening and the morning."

New Arithmetics, Mental and Practical, in Seven Books. (*Longmans.*)—Six of the seven books are now published, in stout paper covers. The earlier stages contain thirty-two pages, the later forty-eight. With the exception of Book VI., which costs 3d., the price of each is 2d. The answers are published in separate books, similar in appearance to the examples, and cost 3d. each.

NEW EDITIONS.

The School Manual of Geology. By J. Beete Jukes, M.A., F.R.S. (*A. & C. Black.*)—To this the fifth edition many illustrations have been added. The chapters on Igneous and Metamorphic Rocks and Crustaceous and Tertiary Rocks have been rewritten. The whole work is now well up to date.

The Photographic Quarterly, No. 3 (*Hazell, Watson, & Viney*), contains clearly written articles on matters of interest to all workers in photography. Amongst others there is one by Captain Abney on "Photography of the Sky at Night." Mr. George Davison, the Hon. Secretary of the Camera Club, discusses "The Limits and Possibilities of Art Photography," and is the subject of one of the two illustrations. The frontispiece of this number is a perfect picture, "He never told his Love."

The Journal of the Royal Agricultural Society of England (*John Murray*) contains ten articles of interest to Agriculturalists, Official Reports, Notes, Communications, and Reviews. The frontispiece is a photogravure of an old picture, "A Scene at Wiseton."

Anglo-American Art of Reckoning. By C. Frusher Howard. (*Cassell & Co.*)—The four hundredth thousand of this work is now announced.

Picturesque Wales. By Godfrey Turner. (*W. J. Adams & Sons.*)—This is a revised and enlarged edition of a handbook of scenery accessible from the Cambrian Railways, officially published; pp. 8–25 contain additional views and description of the Mid-Wales portion of the line.

A Complete Guide to the Improvement of Memory Simplified. By the Rev. J. H. Bacon. (*Isaac Pitman.*)—We have already fully described the lines on which the author has based the Guide. The publication of a third edition fully testifies to the welcome it has received.

The Elements of Machine Design, Part I.: General Principles, Fastenings, and Transmissive Machinery. By W. Cawthorne Unwin, F.R.S. New (Eleventh) Edition. (*Longmans.*)—This well-known and excellent work is now divided into two parts. The first part is before us, and contains the first twelve chapters of the previous editions, except Chapter VI., which is now placed in Part II. In revising, many unimportant discussions are omitted, others abbreviated, and thus room has been found for considerable additions to almost every chapter. The plan of the book remains the same.

(1) *Elementary Statics;* (2) *Dynamics for Beginners. By the Rev. J. B. Lock, M.A.* (*Macmillan.*)—A second edition of the former and a third edition of the latter are now published. With regard to the Statics, the

general character of the work is unchanged, but its scope is enlarged by the insertion of some illustrative problems worked out and a graduated set of examples for exercise. The number of the miscellaneous examples at the end of the book has also been increased. A few corrections have been made in the Dynamics, and a collection of over 200 miscellaneous problems has been added.

The Myths and Legends of Ancient Greece. By E. M. Berens. (*Blackie.*) —This is a new edition of a popular account of Greek and Roman Mythology. A Pronouncing Index has been appended.

We have received from the *National Society's Depository* a large and varied collection of School Certificates. The collection is sure to satisfy all tastes. The Certificates are artistic in design, and neat in execution, and, while some are plain in their subdued colours, others are of more noticeable tints.

We have also received:—

The Cornhill Magazine; The Newbery House Magazine; The English Illustrated Magazine; The Girl's and Boy's Own Papers; the Summer Number of *The Girl's Own Paper*, entitled "Gilliflowers"; the Summer Number of *The Boy's Own Paper*, containing "A Couple of Crusoes," and other stories; *Westward Ho; Vanity Fair;* and *Lippincott's Magazine* (Messrs. Ward, Lock & Co). The complete story in the number for June of the last-mentioned was "Circumstantial Evidence"; that for July is a story by Mr. Oscar Wilde, entitled "The Picture of Dorian Gray." The anonymous work—"A Dead Man's Diary, written after his Decease"—which has been appearing monthly in the English edition of *Lippincott's Magazine*, will be published immediately in one volume, with additional chapters, by Messrs. Ward, Lock & Co. The "Diary" is by a writer of poems, essays, and short stories in magazines. A false claimant to the authorship (says *The Athenæum*) has already appeared, and on the strength of his assertion obtained acceptance for a kindred narrative by a firm of publishers, who, on learning that his claim was baseless, have withdrawn from the arrangement, after having incurred considerable expense.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending June 30th, 1890.

Baumann: Geschichte der Philosophie, 7m.
Bax's (E. B.) Story of the French Revolution, cr. 8vo, 2s. 6d. cl.
Beauregard (C. de): La Guerre de la Vendée, 1793-6, Mémoires de la Ctesse. de la Bouere, 7fr. 50.
Berleux (J.): La Caricature Politique en France, 1870-71, 25fr.
Bodington's (A.) Studies in Evolution and Biology, 5s. cl.
Boye's (J. F.) The Men of the Time Birthday Book, 2s. 6d. cl.
Breton (J.): La Vie d'un Artiste, 3fr. 50.
Brunetière (F.): L'Évolution des Genres dans l'Histoire de la Littérature, Vol. 1, 3fr. 50.
Carlos (Marquise de San): Les Américains chez Eux, 3fr. 50.
Child's (G. W.) Church and State under the Tudors, 8vo, 15s.
Christian Bible Readings (The): Genesis, Exodus, &c., 2s. 6d.
Croiset (A. et M.): Histoire de la Littérature Grecque, Vol. 2, 8fr.
Day's (M. F.) The Thirty-nine Articles of Religion Explained, &c., cr. 8vo, 5s. cl.
Dobson's (G.) Russia's Railway Advance into Central Asia, cr. 8vo, 7s. 6d. cl.
Eggleston's (E.) First Book in American History, 4s. 6d. cl.
Forster's (J.) Four Great Teachers, Ruskin, Carlyle, Emerson, Browning, cr. 8vo, 2s. 6d. cl.
Gambetta (Léon), Life of, by F. T. Marzials, cr. 8vo, 2s. 6d. cl. (Statesman Series.)
Gibbon's (Rev. J. M.) Eternal Life, Notes of Expository Sermons, cr. 8vo, 4s. 6d. cl.
Gilbert (O.): Die Stadt Rom im Altertum, Part 3, 10m.
Gillespie's (J.) The Triumph of Philosophy, roy. 16mo. 2s. 6d.
Gosse's (E.) Robert Browning's Personalia, 12mo, 4s. 6d. cl.
Hasluck's (P. N.) Wood and Metal Turning, cr. 8vo, 3s. 6d. cl.
Ibsen's Prose Dramas, Vol. 3, 12mo. 3s. 6d.
Innes (A. T.) Church and State, cr. 8vo, 3s. cl. (Handbook for Bible Classes.)
Junker's (Dr. W.) Travels in Africa during 1875-8, translated by A. H. Keane, 8vo, 21s. cl.
Leclerc (M.): Lettres du Brésil, 3fr. 50.
Lives of English Authors, a Biographical History of English Literature, cr. 8vo, 2s. 6d. cl.
Livy, Book 1, and Horace's Odes, Books 1 and 2, interlinearly translated by J. Gibson, 8vo, 2s. 6d. swd.
Merivale's (Rev. C.) Romans under the Empire, cheap edition, Vols. 1 and 2, 3s. 6d. each.
Molesworth's (Mrs.) Twelve Tiny Tales, imp. 16mo, 2s. 6d. cl.
Morals and Manners of the Seventeenth Century, being the Characters of La Bruyère, translated by H. Stott, 2s. 6d. cl.
Naden's (C. C. W.) Induction and Deduction, edited by R. Lewins, 8vo, 7s. 6d. cl.
Oliver's (J.) Models for Latin Prose Composition, cr. 8vo, 3s. 6d.
Robiquet (P.): Le Personnel Municipal de Paris pendant la Révolution, 7fr. 50.
Schaible (K. H.): Die Juden in England vom 8 Jahrh., 2m.
Schultz (H.): Grundriss der Evangelischen Dogmatik, 1m. 60.
Svoronos (J. N.): Numismatique de la Crète Ancienne, Part 1, 80fr.
Vaughan's (Rev. C. J.) Epistle to the Hebrews, with Notes, cr. 8vo, 7s. 6d. cl.
Weber (H.): Quæstiones Catullianæ, 4m.
Wetz (W.): Shakespeare vom Standpunkte der Vergleichenden Litteraturgeschichte, 7m. 20.
Xenophontis Historia Græca, rec. O. Keller, 10m.
Zahn (A.): Das Deuteronomium, 1m. 60.

CORRESPONDENCE.

STARLAND.

To the Editor of the Educational Times.

Dear Sir,—I shall certainly amend the paragraph in "Starland" to which your correspondent "M." has drawn attention in your last issue but one. I do so all the more gladly because he has been kind enough to add—

"This, however, is the only adverse criticism which I have to make on one of the most delightful books which have appeared for a long time on any scientific subject. Let teachers of all kinds make acquaintance with it, and get their pupils to do the same."

I am naturally much gratified by the whole tone of your correspondent's letter. It corroborates the testimony which flows in upon me daily from various quarters, that this little book of "Talks with Young People about the Wonders of the Heavens" is fulfilling the object with which it was written.—Yours truly,

Observatory, Co. Dublin, Robert S. Ball.
9th June, 1890.

PICTURESQUE SCIENCE.

To the Editor of the Educational Times.

Sir,—Your correspondent "Sc." is amusing. He rebukes me for quoting a passage and then "re-stating the matter of it" in an altered form (one, however, in which I venture to maintain it would be understood by the vast majority of the young readers for whom it was intended), and pointing out the mistaken ideas which would result from its being accepted in the sense suggested. He does not observe that, in his defence of the passage, he does the very thing for which he rebukes me. He also "relates the matter" of the passage in a different form, and then assumes that the scientific accuracy (?) of the altered form belongs to the original.

Let me assure "Sc." that it was not reserved for him to direct my ignorance for the first time to "the theory of energy." However, as he knows all about the matter, he will do a kindness to one erring fellow-creature, at all events, if he will show either that oxygen and the chemical affinity between oxygen and carbon have nothing to do with "the energy radiant from a coal fire," or that the oxygen and the affinity in question "had their remoter source in the sun."—Yours obediently, M.

SECONDARY TRAINING COLLEGES.

To the Editor of the Educational Times.

Sir,—I find in the *Educational Times* for June a statement to the effect that, "while we are awaiting means of establishing training colleges for secondary teachers, the number of good schools prepared to take *student-teachers* is increasing." Two schools are then cited as thus receiving "student-teachers," one of them being the Datchelor School for Girls, over which I have the happiness to preside.

Will you kindly allow me to correct a slight error here, and to state that what we have recently done is not to make arrangements for receiving student-teachers, but to open in connexion with our large school (which affords such excellent scope as a practising school) a recognised secondary *training college?* We have *no student-teachers*, but we have a dozen *students* who are being trained to teach, and are preparing for the Cambridge Teaching Diploma.

Our college has been approved and formally recognised by the Cambridge Syndicate; it has been twice examined by Mr. Oakeley, and our candidates have hitherto been thoroughly successful in both the practical and theoretical part of the examination of the syndicate. I am, Sir, yours faithfully,

C. E. Rigg.

Datchelor Training College, Camberwell,
June 4th, 1890.

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

The M.A., D.Sc., and Matriculation Examinations have been held during June; but only the reports on the first and second branches of the M.A. have yet appeared. In Branch I. (Classics) twelve candidates have passed. The first three in order of merit are ladies—Miss Violet Selby, of Bedford and University Colleges; Miss Edith Johns, of Girton; and Miss Marian Sherratt, of Girton and University College, Liverpool; the fifth candidate is also a lady—Miss M. E. Pearson, of University College, Cardiff. It would thus seem that in London, as

well as at Cambridge, the other sex must, temporarily at least, content themselves with back seats. In Branch II. only one candidate has passed—Mr. W. Crofton, of Stonyhurst; and it may be added that neither in this branch nor in Branch I. is the gold medal awarded.

At the Matriculation Examination it is said that more than 1,600 candidates appeared. Above 700 of these were examined in the provinces at 22 different centres; and in London a large detachment had to be accommodated outside the University. Owing to a vexatious mistake on the part of the Government Office of Works, all the candidates in this detachment were originally directed to present themselves at South Kensington. Within three days of the examination it was found that the rooms there were not available, and the examination had to be transferred to the Westminster Town-Hall. This caused great inconvenience to some of the candidates, especially to a few whom the second notice did not reach. The announcement, therefore, made in Convocation in May, that the University building is about to be enlarged, is a piece of good news for all concerned in the Matriculation and other large examinations.

Convocation held a special meeting, on June 24th, for the purpose of nominating three candidates for the chair in the Senate vacated by Mr. Thiselton Dyer. Four were actually proposed—A. W. Bennett, M.A., B.Sc.; J. S. Bristowe, M.D., F.R.S.; Sir Philip Magnus, B.A., B.Sc.; and M. F. O'Reilly, D.Sc., Principal of the new Roman Catholic College at Tooting. From the agenda-paper it appeared that Sir Philip Magnus was the favourite by a long way, the names of his nominators occupying nearly 16 columns of small print. Next came Dr. Bristowe, with above nine columns of names. The other two candidates were nowhere, and probably came forward as "dummies," so that Convocation might be able to send up to the Crown the requisite number of nominees. The actual distribution of votes was:—for Sir Philip Magnus, 990; Dr. Bristowe, 626; Mr. Bennett, 274; and Dr. O'Reilly, 180. It is to be assumed, therefore, that Sir Philip Magnus will be appointed to the vacant seat; and the appointment will be a just recognition of the active and leading part that Sir Philip has long taken in the proceedings of Convocation, especially in those relating to the proposed re-organization of the University.

Oxford.

The Trustees of the Canon Hall Greek Testament Prizes, on the recommendation of the examiners, have awarded presents of books to Mr. A. S. Peake, B.A., St. John's College, and Mr. W. C. Allen, Exeter College, on account of the excellence of their work in the recent examinations for the Senior and Junior Greek Testament Prizes respectively.

The Prize for the Stanhope Essay has been awarded to D. W. Rannie, Oriel College. Honourably mentioned:—H. M. Smith, Trinity College; P. F. Rowland, Hertford College.

The Judges have announced to the Vice-Chancellor that they award the Prize for the English Poem on a Sacred Subject to Charles R. Moore, M.A., Corpus Christi College.

The subject for 1893 will be "Ruth."

In Convocation, on June 17th, a statute admitting women to the examinations for the Medical Degree was carried by a majority of 75 to 58.

The Green Prize, for a dissertation on some specified subject in Moral Philosophy, has been awarded to Mr. C. Wallack, of Balliol.

Cambridge.

The Master of Trinity and the Master of Christ's were nominated for the office of Vice-Chancellor during the ensuing year. Dr. Butler was elected.

The Special Board for Biology and Geology have nominated Miss L. Ackroyd, Newnham College, to occupy the University table at the Laboratory of the Marine Biological Association for one month during the year 1890.

The Mason Prize for Biblical Hebrew has been awarded to J. H. Burrow, B.A., Selwyn College.

The Whewell Scholarships for International Law have been awarded, the first to W. J. Whittaker, B.A. LL.B., non-collegiate; the second to George Charles Smith, B.A., LL.B., Trinity Hall.

J. H. Barrow, Selwyn College, and W. E. Waddington, Emmanuel College, have been adjudged equal in the competition for the Tyrwhitt Scholarship.

The George Long Prize for this year has been awarded to W. H. Moore, King's, Senior in the Law Tripos, A. H. Chaytor, Clare, being highly recommended.

The Hopkins Prize, for the period 1883–1885, has been awarded to Mr. H. W. Hicks for his memoir upon "The Theory of Vortex Rings," and his other earlier memoirs upon related subjects; and the prize for the period 1886–1888 to Mr. Horace Lamb for his paper on "Ellipsoidal Current-Sheets," and his numerous other papers on mathematical subjects.

The Registrary calls formal attention to the fact that by the recent admission of six unattached students the total number of persons matriculated during the present academical year amounts to 1,027, being the highest number on record.

Prof. Roy and Dr. Macalister have been appointed to represent the University at the Tenth International Medical Congress, to be held at Berlin, in August.

Dr. Henry Barclay Swete has been elected to the Regius Professorship of Divinity, vacant by the resignation of Bishop Westcott.

The Harkness Scholarship has been awarded to Henry Wood, Scholar of St. John's College.

The following are some of the most marked distinctions gained by women in the June Tripos lists:—Mathematical Tripos, Part I.: P. Fawcett (Newnham), above the Senior Wrangler, F. A. Field (Girton), 21st, and M. Lea (Girton), 27th Wrangler. Classical Tripos, Part I., M. Alford, first division, first class. Natural Science Tripos, Part I.: in the first class are E. Dale (Girton), H. M. Martyn (Newnham), and M. C. Tebb (Girton) ditto, Part II., in the first class (Botany), L. Martin-Leake (Girton), and M. O. Mitchell (Newnham). Historical Tripos in the first class, H. Stevenson (Girton).

Other Universities, Colleges, and Schools.

Mr. T. Thistle, assistant-master of Ripon Grammar School, has been appointed Headmaster of Hereford Grammar School.

Mr. F. W. Hill, assistant mathematical master of Fettes School, Edinburgh, has been elected Head Mathematical Master of the City of London School.

Miss Mary Elizabeth Pearson, who took the 5th place in order of merit in Branch I. (Classics) of the London M.A., as mentioned above, received her early training at the North London Collegiate School for Girls, under Miss Buss. She entered University College, Cardiff, in October, 1887, and at the same time became a resident of Aberdare Hall.

Bombay University has recently made important changes in its Arts curriculum. The collegiate course has been extended from three to four years, and the change, though likely to operate harshly on the poorer students, has been supported by the native members of the Senate. In future, each undergraduate will be required to pass annually a test examination in English composition. The history of England and India and political economy are made compulsory subjects for the third and fourth years of the University course. Some of the native members proposed to make the vernacular languages part of the University curriculum, but the proposal was negatived. We would be glad to see the like good sense shown at home; to make Welsh, Gaelic, or Irish, subjects of University teaching or examination seems to us to have less reason on its side than that for the rejected proposal of the native members of Bombay University.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A meeting of the Council was held on the 14th of June. Present:—Dr. Wormell, Vice-President, in the chair; Miss Bailey, Mr. Baumann, Mr. Bidlake, Mr. Bowen, Mr. Brown, Mrs. Bryant, Dr. Buchheim, Mr. Chettle, Rev. Dr. Conder, Mr. Eve, Rev. Dr. Frost, Mr. Kimber, Sir Philip Magnus, Mr. Maxwell, Mr. Milne, Mr. Ogle, Mr. Pinches, Mr. Reynolds, Mr. Robinson, Mr. Rule, Rev. Dr. Scott, Mr. Southee, Mr. Stewart, Mr. Stièvenard, and Mr. Storr.

The minutes of the last meeting were read and confirmed.

The Secretary reported an increase of about 450 in the number of candidates entered for the Midsummer Certificate Examination, as compared with the last Examination held at the same period of the year.

He called attention to modifications recently made by the Medical Council in regard to the subjects required for the preliminary examination of intending medical students.

He reported that Mr. Arthur Sidgwick, M.A., had undertaken to deliver at the College a Course of three Lectures on Elementary Language Teaching in November next.

The Diploma of Licentiate was granted to Mr. A. J. H. Brown, who had passed the required examination.

The Rev. Canon Daniel was appointed to deliver a Course of twelve Lectures on the Practice of Education, to commence on the 2nd of October.

The Report of a Special Committee appointed to consider the Scheme of Studies and of Examinations published by the London Chamber of Commerce was discussed, and adopted with slight modifications.

The Draft Report of the Council to the General Meeting was considered, and referred to the President, Vice-Presidents, and Dean for final revision.

The following persons were elected members of the College:—

Mr. C.W. Bourne, M.A. Camb., King's College School, Strand, W.C.
Mr. E. Germain, B.-ès-L. Paris, 26 West Hill, Brighton.
Mr. L. Herzberg, 11 Grosvenor Road, Canonbury, N.
Mr. G. T. Moody, D.Sc. Lond., 148 Wood Vale, Honor Oak, S.E.
Mrs. West, F.C.P., Parkfield, Stracey Road, Stourbridge.

The following books had been presented to the Library since the last Meeting of the Council:—

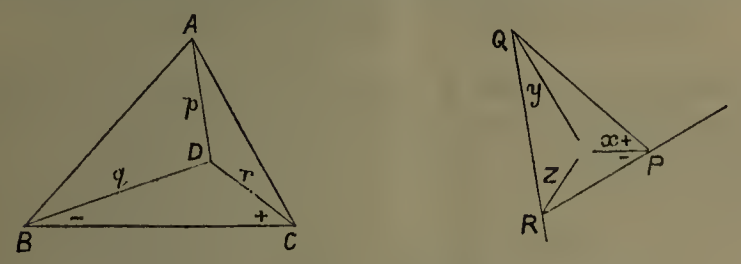
Laurie.—W. M. Williams' Shorthand for Everybody.
Macmillan.—J. R. Green's Short History of the English People, with Analysis by C. W. A. Tait, Part III. and Part IV.
By the Authors.—J. H. Cowham's Graphic Lessons in Physical and Astronomical Geography, The Principles of Oral Teaching and Mental Training, Mulhauser's Manual of Writing, Drawing Cards for Infant Schools, 1st Series; Dr. K. H. Schaible's Die Juden in England.

MATHEMATICS.

10556. (Professor Neuberg.)—Quatre forces parallèles, dont les points d'application sont situés dans un même plan, se font équilibre. On applique chacune d'elles au centre du cercle passant par les points d'application des trois autres. La direction des quatre forces restant la même, démontrer que l'équilibre existe également dans la nouvelle position.

Solution by Professors Genese, Anderson, *and others.*

Let p, q, r be the distances of the point D from A, B, C. Let PQR be a triangle with its sides parallel to p, q, r; and from PQR let x, y, z be drawn parallel to BC, CA, AB. Then the six angles at P, Q, R are seen to be equal to those at A, B, C in the same cyclical order, but not



correspondingly situated. Thus x, y, z cointersect, at O say.

[The rest in Volume.]

10447. (Professor de Longchamps.)—Soient une circonférence Δ et deux diamètres rectangulaires Δ', Δ''. D'un point M, de Δ, on abaisse des perpendiculaires MP′, MP″ sur ces diamètres : soient P le pôle de la droite P′P″ par rapport à Δ; Q, R, ses projections sur Δ', Δ''. Démontrer que QR est tangente à Δ.

Solution by D. Biddle; G. G. Morrice, M.B.; *and others.*

Let $\angle MOQ \equiv \alpha$; then $OP' = \cos\alpha$,

$\angle OP'P'' = \alpha$, $OI = \sin\alpha\cos\alpha$;

Again, $\angle ROP = \alpha$,

and $OP = 1/(\sin\alpha \,.\, \cos\alpha)$,

the reciprocal of OI. Also,

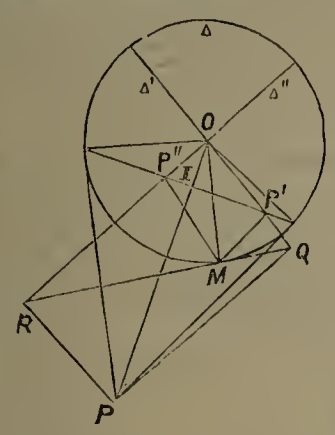
$OR = OP \,.\, \cos\alpha = \operatorname{cosec}\alpha$.

Similarly, $OQ = \sec\alpha$;

and $RQ = OP = 1/(\sin\alpha \,.\, \cos\alpha)$

$= \tan\alpha + \cot\alpha$;

therefore QR is tangential to Δ in M.



[PQ is evidently the polar of P″, and PR of P′; hence Q, R are, respectively, the poles of P″M, P′M; consequently QR is the polar of M, or, in other words, the tangent at M.]

10459. (J. J. Barniville.)—A number of round bodies of four dimensions are piled up so as to form a regular figure bounded by 5 pyramids; if the base be composed of 10 bodies, prove that (1) the whole figure will contain 15; (2) in a pile of r dimensions, if the base be composed of $\frac{1}{n!} \cdot \frac{(n+r-1)!}{(r-1)!}$, the pile will contain $\frac{1}{n!} \cdot \frac{(n+r)!}{r!}$.

Solution by Professors Anderson, Sarkar, *and others.*

1. Let L, M, N be the middle points of the sides and points of contact of the ellipse, and let F be a focus. Draw CK parallel to AF, meeting the circle in K, and join B, K intersecting AH in the point S.

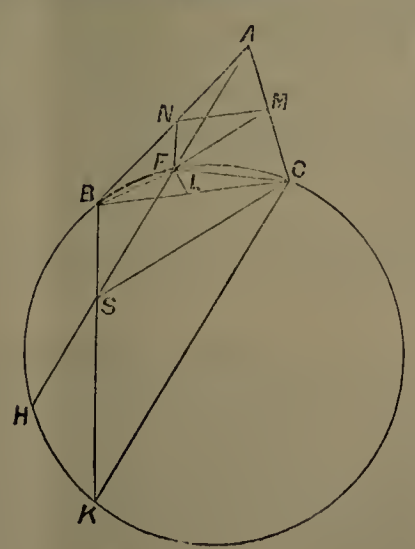
Denote $z_1 - z$ by α, $z_2 - z$ by β, and $z_3 - z$ by γ. Then the point M referred to F as origin will be $\frac{1}{2}(\alpha+\gamma)$, and the point N, $\frac{1}{2}(\alpha+\beta)$.

Since $\angle MFA = AFN$, we have

$$\frac{FN}{FA}\alpha^2 = \frac{1}{4}\frac{FA}{FM}(\alpha+\beta)(\alpha+\gamma),$$

or

$$\frac{4FN \,.\, FM - (FA)^2}{(FA)^2}\alpha^2 = \alpha\beta + \beta\gamma + \gamma\alpha.$$



[The rest in Volume.]

4160. (C. H. Hinton, M.A.)—If there be two circles cut by a straight line, and the points where each circle is cut be joined to its centre and the joining line produced,—(1) show that the four triangles thus formed on portions of the straight line as bases have their sides all in the same ratio; (2) how must the straight line move that the triangles thus formed have their sides in the same ratio for every position.

Solution by D. Biddle *and* Morgan Brierley.

There are two cases under this question, viz., where the given line intersects the junction of the centres at a point P between them (Fig. 1),

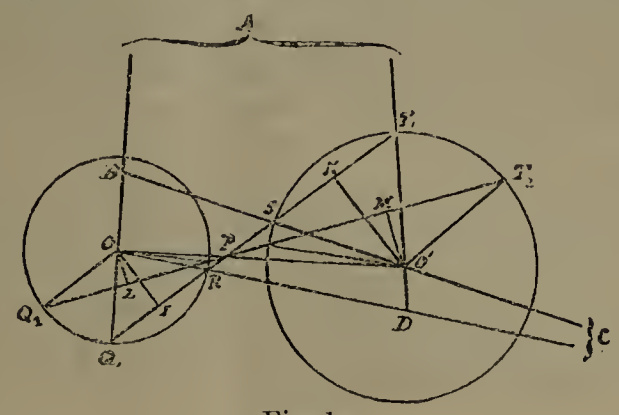


Fig. 1.

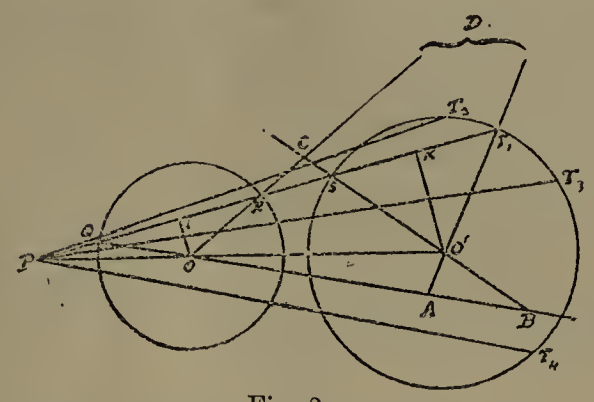


Fig. 2.

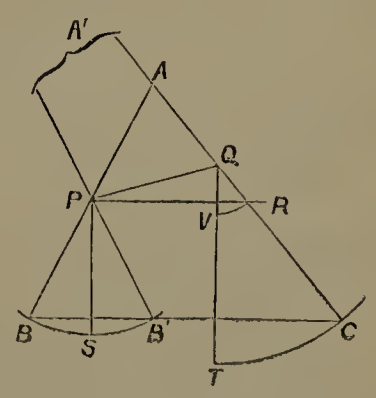
and where it intersects it at a point P beyond (Fig. 2). In either case the four triangles are QTA, QSB, RSC, RTD.

[The rest in Volume.]

4112. (C. H. Hinton, M.A.)—Given two points, one on each side of a triangle, the distances of each from the base-vertex of that side, the angle at which the line joining these points cuts the base, and the ratio of the sides: construct the triangle.

Solution by D. Biddle *and* Morgan Brierley.

Let P, Q be the given points, QPR = the given angle, PS, QT = the given distances, and PS : TV = the given ratio. Describe the arcs VR, TC, SB; through R draw QC, and draw CB parallel to PR. Then it is clear that we have two triangles fulfilling the conditions, viz., ABC and A′B′C; and this is always the case; but, when TV < PS, the alternative sides pass through Q, instead of P.



10176. (B. F. Finkel, B.Sc.)—Inscribe a regular 17-gon in a circle.

Solution by J. J. Barniville; Professor Ignacio Beyens; *and others.*

Analysis.—Let A, A_1, A_2, &c. be the angular points, AO the diameter. Produce OA_3 to M and OA_2 to P, making $A_3M = OA_5$, and $A_2P = OA_8$. Again, cut off $A_6N = OA_7$, and $A_1Q = OA_4$. Lastly, cut off OR = ON, and OS = OQ.

Then $\rho_1\rho_4 = R(\rho_3 + \rho_5) = R \,.\, OM$,

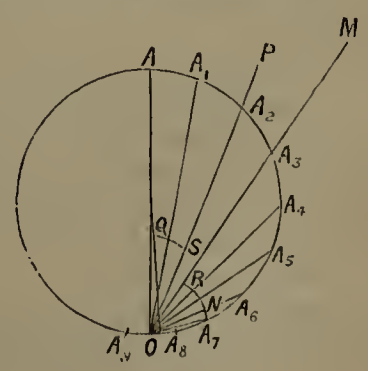
$\rho_2\rho_6 = R(\rho_6 - \rho_7) = R \,.\, ON$.

Denoting the supplementary chords of ρ_1, &c. by r_1, &c., we have

$r_1\rho_1 = Rr_2$, $r_2\rho_2 = Rr_4$, &c.;

hence $\rho_1\rho_2\rho_4\rho_8 = R^4$, and $OM \,.\, ON = R^2$.

In like manner, $OP \,.\, OQ = R^2$. Again,



[The rest in Volume.]

9031. (Professor Pramathanath Dather, M.A.)—Trace the curve $xy^2 + x^3 + ay^2 = 0$, and find its first negative pedal with respect to the origin.

Solution by Professor SCHOUTE.

When the x is taken with opposite sign, the equation is $y^2(a-x)-x^3=0$, and the curve the Cissoid in the ordinary position (*Leçons de géométrie analytique*, Briot et Bouquet, 13me édition, page 15).

We put $y=\mu x$, and find x and y expressed in μ by the formulas

$$x=\frac{a\mu^2}{1+\mu^2},\quad y=\frac{a\mu^3}{1+\mu^2}.$$ [The rest in Volume.]

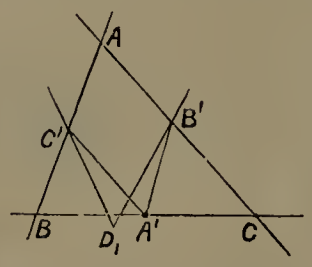
10492. (Professor NEUBERG.) — Cinq forces parallèles se faisant équilibre, on transporte chacune d'elles au centre de la sphère passant par les quatre autres points d'application. Démontrer que l'équilibre existe encore, pourvu que les forces restent parallèles entre elles.

Solution by Professors ANDERSON, MUKHOPÂDHYÂY, *and others.*

Let A, B, C, D, E be the points of application of the five forces, and a, b, c, d, e the centres of spheres circumscribing the tetrahedra BCDE, CDEA, DEAB, EABC, ABCD. Let EB meet the plane ADC in the point N, and join AN. Also let eb meet the plane ade in n, and through the point n draw a plane perpendicular to ed, meeting this line in k, and intersecting the planes edc, bde in the lines lk, mk. Lastly, through be draw a plane parallel to the line cd, meeting the lines lk, mk in the points l and m. [The rest in Volume.]

10211. (E. LEMOINE.)—Par les milieux A′, B′, C′ des côtés d'un triangle quelconque ABC, on mène les symétriques de BC, CA, AB par rapport à une direction donnée. Ces trois droites concourent en un point du cercle des neuf points du triangle ABC.

Solution by J. J. BARNIVILLE; Professor ARMENANTE; *and others.*

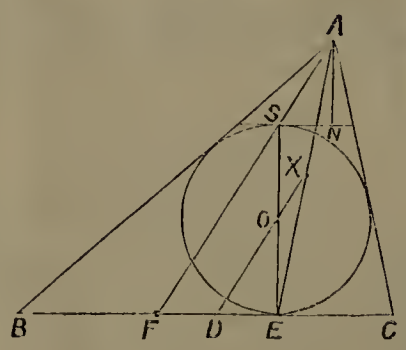


Let D_1, D_2, D_3 be the intersections; then angle $C'D_1B'=C'AB'=C'A'B'$, therefore D_1 lies on the circle A′B′C′. And, since D_2 lies on the line $C'D_1$ and on the circle A′B′C′, it evidently coincides with D_1; so also for D_3.

10466. (R. H. W. WHAPHAM, B.A.)—The two tangents from $x'y'$ to $x^2/a^2+y^2/b^2=1$ form with $lx+my+n=0$ a triangle circumscribing an ellipse; show that, if ξ, η is the middle point of $lx+my+n=0$, we have

$$\xi : nx'-la^2=\eta : ny'-mb^2=-1 : lx'+my'-n.$$

Solution by Professors ANDERSON, AIYAR, *and others.*



Draw the inscribed circle of the triangle ABC, and join the middle point of the base D to X the middle point of AE. Then it is easily proved that DX passes through O the centre of the circle. Also, if EO meet the circle again on S, AS is parallel to DX and equal to 2 . OX.

Hence, if AN be drawn perpendicular to the tangent at S,

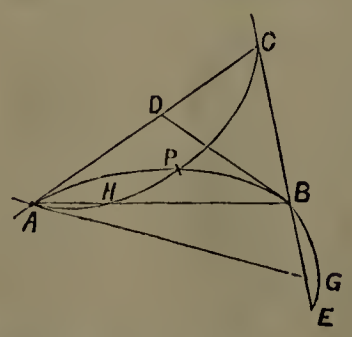
AN : OE :: 2 . OX : OD.

The result in the question may be obtained by projection from these.

[The rest in Volume.]

10436. (Professor DELAHAYE.)—Mener par les sommets d'un triangle trois droites concourantes déterminant sur les côtés trois segments non consécutifs égaux entre aux.

Solution by Prof. ANDERSON, M.A.; H. J. WOODALL; *and others.*



The length of the segment can, of course, be found by the solution of the equation

$$(a-x)(b-x)(c-x)-x^3=0,$$

a, b, c being the sides of the triangle.

If $a>b>c$, there is only one real root which is positive and $<c$. Hence there is always one, and only one, point satisfying the required condition, and it lies inside the triangle.

[The rest in Volume.]

10543. (R. TUCKER, M.A.)—Eliminate t from the equations

$$(2t^4-t^2+1)x+(2t^5-2t^3+t)y=4at^4,\quad (t^4-t^2+2)tx-(t^4-2t^2+2)y=4at.$$

Solution by the PROPOSER.

(i.) + t (ii.) gives $ty(t^2-1)+x(t^4+1)=4at^2$.....(iii.),

t (i.) − (ii.) gives $y(2t^4-3t^2+2)+tx(t^2-1)=4at(t^2-1)$.....(iv.).

Eliminating x and y from (iii.), (iv.), we have

$$y(t^4-t^2+1)=2at(t^2-1),\quad x(t^4-t^2+1)=2at^2 \text{ ..... (v., vi.)},$$

whence $y/x=(t^2-1)/t=t-1/t=z$.

Now (v.) and (vi.) may be written $y(z^2+1)=2az$, $x(z^2+1)=2a$, whence (vii.) $x^2+y^2=2ax$.

[The rest in Volume.]

10095. (Rev. J. J. MILNE, M.A.)—If G is the centroid of any triangle, prove that (1)

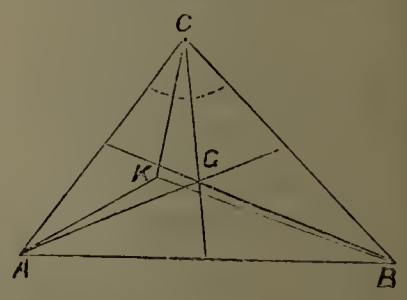
$$\cot GAB+\cot GBC+\cot GCA=3\cot\omega=\cot ABG+\cot BCG+\cot CAG,$$

$$\cot AGB+\cot BGC+\cot GCA+\cot\omega=0,\quad \cot\omega=\cot A+\cot B+\cot C;$$

(2) if K be the symmedian point, that is, a point within the triangle such that $\angle KAC=\angle GAB$, and two similar relations, then

$$\cot AKB+\cot BKC+\cot CKA+\tfrac{1}{2}\cot\omega+\tfrac{3}{2}\tan\omega=0.$$

Solution by R. KNOWLES, B.A.; Rev. J. L. KITCHIN; *and others.*



The coordinates of G are proportional to $\frac{1}{3}a$, &c., and

$GA=\frac{1}{3}(2b^2+2c^2-a^2)^{\frac{1}{2}}$, &c.;

$\cot GAB=(3c^2+b^2-a^2)/4\Delta$, &c.;

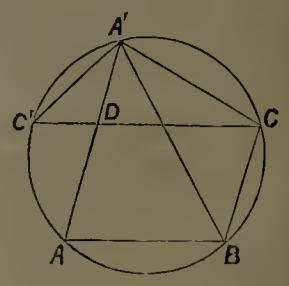
$\therefore \cot GAB+\cot GBC+\cot GCA$

$=3(a^2+b^2+c^2)/4\Delta=3\cot\omega$

$=\cot ABG+\cot BCG+\cot CAG$.

[The rest in Volume.]

10505. (R. KNOWLES, B.A. Suggested by 10385.)—A, B, C, D, taken in order, are the angular points of a parallelogram; the circle ABC cuts AD in A′, and DC in C′; prove that A′D : A′C′ = A′C : A′B.



Solution by Professor ZERR; Rev. J. L. KITCHIN, M.A.; *and others.*

$\angle A'C'C=A'BC$, $\angle C'A'A=BA'C$;

hence the triangles A′C′D, A′BC are similar;

therefore A′D : A′C′ = A′C : A′B.

10276. (Rev. T. R. TERRY, M.A., F.R.A.S.)—If $gh=V^2\cot^2\alpha\log\sec\alpha$, where V, g, and α are constants, and $p=2gxV^{-2}\tan^2\alpha$, find the value of the integrals

$$I=\frac{\sin\alpha}{V}\int_0^h\frac{dx}{\sqrt{e^{-p}-\cos^2\alpha}}\text{ and }I'=\frac{\sin\alpha}{V\cos^2\alpha}\int_0^h\frac{dx}{\sqrt{\sec^2\alpha-e^p}}.$$

Solution by the PROPOSER.

Changing the variable from x to p, we have

$$I=\frac{V\cos^2\alpha}{2g\sin\alpha}\int\frac{dp}{\sqrt{e^{-p}-\cos^2\alpha}}\text{ and }I'=\frac{V}{2g\sin\alpha}\int\frac{dp}{\sqrt{\sec^2\alpha-e^p}},$$

the limits being 0 to $\log\sec^2\alpha$.

[The rest in Volume.]

10002. (ARTEMAS MARTIN, LL.D.)—A speaks the truth x times out of y. We do not know the values of either x or y, but x may be 0, 1, 2, 3, 4, 5, ... y; and y may be 1, 2, 3, 4, ... n. A asserts the occurrence of an event about which we know nothing; find the probability of the truth of A's statement.

Solution by D. BIDDLE.

Under the conditions, we have no more ground for believing, than for disbelieving, A's statement. Thus, let X = the mean value of x, in terms of y; then, since 0 lies at the beginning of every series of values, we have

$$X=\frac{1}{y+1}\cdot\frac{y(y+1)}{2}=\frac{y}{2},$$

and (whatever n and y may be) $P=X/y=\frac{1}{2}$.

NOTE ON QUESTIONS **9812, 9813.** *By* Professor LAMPE, LL.D.

The equivalent developments may be found in SCHELLBACH's *Die Lehre von den Elliptischen Integralen und den Thetafunctionen* (Berlin, Georg Reimer, 1864, § 36, &c., p. 53, &c.). Compare also FAÀ DE BRUNO, in *American Journal*, V., pp. 1–25. I hinted at these expressions in a note, inserted in the *Verhandlungen* of the Physical Society of Berlin, Vol. VII., p. 47–52 (1888), where I added several problems of the Analytical Mechanics to be solved by these formulæ. [For these Questions, see Appendix II. to Vol. XLIX.]

QUESTIONS FOR SOLUTION.

10621. (Professor SYLVESTER.)—The points of a system containing $2m$ points H and n points O are to be connected together either by single or double bonds, in such a manner that two bonds shall pass through each O, and one through each H. Find the number of distinct species of graphs that can be formed subject to this condition. *Ex.*—Let a, b, c, d and α, β, γ, δ, ϵ be the points H, O; then, denoting any two points x, y with a single bond between them by xy, and with a double bond by $(xy)^2$, we have the following systems of conjunction (11 distinct graphs in all):—

$ab,\ cd,\ \alpha\beta,\ \beta\gamma,\ \gamma\delta,\ \delta\epsilon,\ \epsilon\alpha$	$ab,\ c\alpha,\ d\beta,\ \alpha\gamma,\ \beta\gamma,\ (\delta\epsilon)^2$
$ab,\ cd,\ \alpha\beta,\ \beta\gamma,\ \gamma\alpha,\ (\delta\epsilon)^2$	$a\alpha,\ b\alpha,\ c\beta,\ d\beta,\ \gamma\delta,\ \delta\epsilon,\ \epsilon\gamma$
$ab,\ c\alpha,\ d\alpha,\ \beta\gamma,\ \gamma\delta,\ \delta\epsilon,\ \epsilon\beta$	$a\alpha,\ b\alpha,\ c\beta,\ d\gamma,\ \gamma\delta,\ \delta\epsilon,\ \epsilon\beta$
$ab,\ c\alpha,\ d\alpha,\ (\beta\gamma)^2,\ (\delta\epsilon)^2$	$a\alpha,\ b\alpha,\ c\beta,\ d\gamma,\ \beta\gamma,\ (\delta\epsilon)^2$
$ab,\ c\alpha,\ d\beta,\ \alpha\beta,\ \gamma\delta,\ \delta\epsilon,\ \epsilon\gamma$	$a\alpha,\ b\beta,\ c\gamma,\ d\delta,\ \alpha\beta,\ \gamma\epsilon,\ \epsilon\delta$
$ab,\ c\alpha,\ d\beta,\ \alpha\gamma,\ \gamma\delta,\ \delta\epsilon,\ \epsilon\beta$	

—**622.** (Professor NEUBERG.)—Soit K le point de Lemoine du triangle ABC, et soient O, O_a, O_b, O_c les centres des cercles circonscrits aux triangles ABC, KBC, KCA, KAB. Démontrer: (1) que O et K sont les foyers de l'ellipse qui touche les côtés du triangle $O_aO_bO_c$ en leurs milieux; (2) que les quadrilatères OBO_aC, OCO_bA, OAO_cB ont même surface.

—**623.** (Professor LAMPE, LL.D.)—Solve, in positive integers,

$$(x-y)^4 = x^3+y^3.$$

—**624.** (Professor MORLEY.)—Prove that parallels to the sides of a triangle through its Symmedian point meet any cubic of which these sides are asymptotes in six concyclic points.

—**625.** (Professor CATALAN.)—Si a, b, c sont les longueurs des côtés d'un triangle rectiligne, démontrer qu'on a

$$a^2b\,(a-b)+b^2c\,(b-c)+c^2a\,(c-a) \overset{=}{>} 0,\quad ab^2(b-a)+bc^2(c-b)+ca^2(a-c) \overset{=}{>} 0.$$

—**626.** (Prof. WOLSTENHOLME, Sc.D.)—A circle has double contact with one of a system of confocal conics and passes through one of the foci; prove that (1) the envelope of the tangents at the points of contact is a circle whose centre is the other focus; and (2) the locus of the points of contact is a pedal of a parabola with respect to a point on the axis at which the parabola subtends an angle of 60°.

—**627.** (Professor ZERR, M.A.)—A tube of uniform cross section, small compared with its length, is bent into the form of a cycloid, its open ends lying at the cusps, and this cycloid is placed with its axis vertical and its vertex downwards. If n fluids are poured in, whose specific gravities are σ_1, σ_2, σ_3, ... σ_n, the arcs occupied by the respective fluids l_1, l_2, l_3, ... l_n, and no fluid overflowing; and if x is the distance of the free surface of the first fluid from the vertex (measured along the cycloidal arc), prove that

$$4x\,(\sigma_1l_1+\sigma_2l_2+\sigma_3l_3+\ \dots\ +\sigma_nl_n) = \sigma_1l_1^2+\sigma_2\,(l_2^2+2l_1l_2)+\sigma_3\,(l_3^2+2l_1l_3+2l_2l_3)$$
$$+\ \dots\ +\sigma_n\,(l_n^2+2l_1l_n+2l_2l_n+\ \dots\ +2l_{n-1}l_n).$$

—**628.** (Professor DE LONGCHAMPS.)—On décrit les deux cercles Δ_a, Δ'_a qui touchent les côtés AB, AC d'un triangle, et ont, le premier un contact intérieur en V_a, le second un contact extérieur en V'_a avec le cercle circonscrit à ABC. Démontrer que (1) les polaires de A par rapport à Δ_a, Δ'_a passent, respectivement, par le centre I du cercle inscrit à ABC et par le centre I_a du cercle exinscrit, opposé à A; (2) les droites AV'_a, BV'_b, CV'_c concourent au point inverse du point de Nagel de ABC; (3) les droites AV'_a, BV'_b, CV'_c concourent au point inverse du point de Gorgonne de ABC.

—**629.** (Professor GOT.)—Trouver dans l'espace le lieu des points également éclairés par deux points lumineux A et B dont les intensités sont mesurées par les nombres a^2 et b^2. Le point A restant fixe, on propose de déterminer la position du point B sur une circonférence donnée de façon que le lieu géométrique trouvé embrasse un espace maximum.

—**630.** (Professor TARRY.)—On donne une conique et deux points A, B pris sur la courbe. Démontrer qu'il existe deux points qui jouissent de la propriété suivante. Une droite quelconque menée par l'un ou l'autre de ces points rencontre la conique en deux points P, Q tels que la somme des angles APB et AQB est constante. Ces deux points sont le pôle et le milieu de la corde EF qui est vue, des points A et B, sous des angles droites.

—**631.** (Professor CURTIS, M.A. Suggested by 10497.)—If $S_1=0$, $S_2=0$, $S_3=0$ are three conics having two common points P, Q, the equation of any conic passing through the same two points and touching the three conics is $\{(23)\,S_1\}^{\frac12}\pm\{(31)\,S_2\}^{\frac12}\pm\{(12)\,S_3\}^{\frac12}=0$,

where (23) is found thus:—A common tangent is drawn to S_2 and S_3. The points of contact are joined to P and Q, and the area of the triangle formed by the tangent and the two joining lines is divided by the product of the three perpendiculars dropped from the three vertices to the line PQ. The quotient is (23).

10632. (Professor SCHOUTE.) — Dans un plan on donne quatre ponctuelles projectives, dont P_1, P_2, P_3, P_4 représentent un quadruple quelconque de points correspondants. Démontrer qu'il y a trois quadruples de points T_1, T_2, T_3, T_4 pour lesquels les droites T_1P_1, T_2P_2, T_3P_3, T_4P_4 concourent en un même point variable, si l'on remplace successivement P_1, P_2, P_3, P_4 par tous les quadruples de points correspondants des quatre ponctuelles projectives données.

—**633.** (Professor EMMERICH.)—Construire un triangle connaissant (1) deux côtés $AB=c$, $AC=b$, et deux droites isogonales appartenant à l'angle A; (2) la symédiane issue de A et ses distances perpendiculaires aux points B et C; (3) le centre de gravité, le point de Lemoine, et (a) le milieu d'une hauteur, (b) le pied d'une hauteur; (4) deux côtés et l'angle de Brocard; (5) l'angle de Brocard et l'angle sous lequel la base est vue du centre de gravité.

—**634.** (Prof. RUSSO.)—Sur chaque côté d'un triangle, comme diamètre, on décrit une circonférence; on mène les tangentes communes à ces circonférences prises deux à deux et on les limite à leurs points de contact. Démontrer que le produit de ces trois tangentes est égal à $(p-a)(p-b)(p-c)$, a, b, c désignant les côtés du triangle, p son demi-périmètre.

—**635.** (The EDITOR.)—Through a given point draw a chord of (1) a circle, (2) a conic, such that the straight lines that join its ends to two other given points shall be parallel.

—**636.** (D. BIDDLE.)—A hollow cylinder, of radius R, revolves about its (vertical) axis with a uniform angular velocity v, and there radiate from the axis, at uniform distances d, n thin laminæ, each forming a sector of the horizontal circle bounded by the cylinder, and each one-nth of the circle in extent. They are placed in uniform spiral fashion, so that they completely obstruct vision through the cylinder, when this is viewed parallel to its axis. From a height ($=d$) above the first sector, a sphere, of radius r, is allowed to fall, vertically but at random, over the cylinder. Assuming $g=32{\cdot}1$, and disregarding the resistance of the air, find the probability that the sphere misses all the sectors.

—**637.** (Major-General P. O'CONNELL.)—Solve the equation

$$x^6+378x^5+38189x^4+492368x^3-572544x^2+213720x-26352=0.$$

[This equation is taken from the *Mathematician*, Vol. I., p. 165. It is the last of three equations said to have been given by Mr. LOCKHART for solution by British students in 1841. Several of its roots coincide to some places of decimals. Mr. LOCKHART's method of forming numerical equations having nearly equal roots is stated in the article from which this equation is taken. It will be found, however, that this equation can be transformed into another, the solution of which only demands that of one cubic and three quadratics. The roots can be given in the form of surds, and the solution suggests a somewhat different method of forming equations having nearly equal roots from Mr. LOCKHART's. It leads, in fact, to expressions for the coefficients of such equations.]

—**938.** (J. GRIFFITHS, M.A.)—If a, b, c, k be all real quantities, and k not greater than unity, prove that $(a+b-2kc)^2>4\,(1-k^2)(ab-c^2)$.

—**639.** (H. W. SEGAR.)—Prove that, if

$$K(r)=\frac{1}{r}-\frac{1}{r+2}+\frac{1}{r+4}-\dots,\quad F(r)=1-\frac{1}{3}+\frac{1}{5}-\dots(-1)^{\frac12(r-1)}\frac{1}{r},$$

$$\frac{K(3)}{1\,.\,2}-\frac{K(5)}{3\,.\,4}+\frac{K(7)}{5\,.\,6}-\dots=0,\quad \frac{F(1)}{1\,.\,2}+\frac{F(3)}{3\,.\,4}+\frac{F(5)}{5\,.\,6}+\dots=\frac{\pi}{4}\log 2.$$

—**640.** (ROBERT BRYANT, D.Sc., B.A.)—The perpendiculars from the foci of an ellipse upon a tangent to the auxiliary circle cut the ellipse in two points on the same side of the axis major. Find geometrically the locus of the intersection of this chord with the aforenamed tangent.

—**641.** (MORGAN BRIERLEY.)—A boy's top of given dimensions is set spinning at such a rate that it stands perfectly upright, and, what boys say, "sleeps." Supposing it to be an indefinitely small weight, heavier on one side than on the other, what will be its rate of speed when it begins to oscillate in its revolution?

—**642.** (W. J. C. SHARP, M.A.)—If V be the volume of the tetrahedron of reference; Δ_1, Δ_2, Δ_3, Δ_4 the areas of its faces; A′, B′, C′, D′ the projections of a point P, the tetrahedral content coordinates of which are λ', μ', ν', π', upon the faces; show that (1) the content of the tetrahedron PB′C′D′ is $\dfrac{3^4}{2^2}\cdot\dfrac{\mu'\nu'\pi'}{\Delta_1^2\,.\,\Delta_2^2\,.\,\Delta_3^2}V^2$; and hence (2) the points A′, B′, C′, D′ all lie in the same plane, if

$$\frac{\Delta_1^2}{\lambda'}+\frac{\Delta_2^2}{\mu'}+\frac{\Delta_3^2}{\nu'}+\frac{\Delta_4^2}{\pi'}=0.$$

—**643.** (S. TEBAY, B.A.)—There are innumerable pairs of right-angled triangles having the same hypothenuse (c), and such that the differences between the hypothenuse and the sides are a square and twice a square. If (α^2, $2\beta^2$) and (α'^2, $2\beta'^2$) be the differences, show (1) that

$$c=(\alpha+\beta)^2+\beta^2=(\alpha'+\beta')^2+\beta'^2;$$

find (2) the sides in integers; and (3) investigate general formulæ for the xth pair of triangles of the species in which $\alpha=\beta'=1$.

10644. (W. J. Greenstreet, M.A.)—A particle projected in any direction from a point P on a curve returns after two reflections to the point P. Find the curve.

—645. (J. O'Byrne Croke, M.A.)—The semi-traces of planes through the axes of x and y of an ellipsoid on the planes of yz, xz, respectively, are r_1 and r_2; if $f_1^2 = a^2 - r_1^2$, $f_2^2 = b^2 - r_2^2$, $F_1^2 = a^2 - c^2$, $F_2^2 = b^2 - c^2$; prove that the length of the radius vector, which is half the diameter in which they intersect, is given by

$$\rho^2 = \left\{a^2F_1^2/f_1^2 + b^2F_2^2/f_2^2 - (a^2+b^2-c^2)\right\} / \left\{F_1^2/f_1^2 + F_2^2/f_2^2 - 1\right\}.$$

—646. (R. Tucker, M.A.)—If tangents KP, KQ are drawn to a parabola from any point K on the latus rectum, prove geometrically that the orthocentre of the triangle PKQ lies on a straight line parallel to the directrix.

—647. (J. J. Barniville.)—P, Q are the mid-points of the sides BC, CD of a square ABCD; in AP, AM is taken = AB; AQ, MD meet in N: prove that $DN^2 = \frac{4}{9}MN^2$. In AC, AR is taken = AB; DR meets AQ in S: prove that $DS^2 = 2RS^2$. Prove also that, if U, V be the mid-points of AB, AD, then AP and AQ are each mutually trisected by UV and BD; and that consequently (1) UC, BD, PA, and (2) VC, BD, QA, are respectively concurrent.

—648. (H. Brocard.)—Les rayons vecteurs MF, MF′ d'un point d'une ellipse rencontrent la courbe in P, P′; trouver le lieu (1) du pôle de PP′, et du point de rencontre (2) de PP′ avec la tangente menée en M, (3) des perpendiculaires élevées on F sur FM, et en F′ sur F′M.

—649. (H. Galopeau.)—Trouver l'enveloppe des circonférences qui passent par un point fixe et coupent un cercle fixe sous un angle constant.

—650. (R. Knowles, B.A.)—If the three diagonals of a hexagon, inscribed in a conic, pass through the same point G; prove that the points of intersection of its opposite sides are on the polar of G.

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THE

EDUCATIONAL TIMES,

AND

Journal of the College of Preceptors.

Vol. XLIII.] New Series, No. 352. AUGUST 1, 1890. { Registered for Transmission Abroad } *Price to Non-Members, 6d. By Post, 7d.*

COLLEGE OF PRECEPTORS.—

EXAMINATIONS FOR 1890.

1. DIPLOMAS.—The Midsummer Examination of Teachers for the Diplomas of the College will commence on the 1st of July, and the Christmas Examination on the 30th of December.

2. CERTIFICATE EXAMINATIONS.—The Christmas Examination for Certificates will commence on the 9th of December.

N.B.—The Higher Certificates of the College are recognised by Her Majesty's Judges, and by the General Medical Council, as guarantees of good general education; and consequently the holders of them, who may be intended for the Legal and Medical Professions, are exempted from the necessity of submitting to the Preliminary Literary Examinations held by the Incorporated Law Society, and by the various Medical Corporations of the United Kingdom. The Lords of the Committee of Council on Education admit the holders of the same Certificates, without further examination, to the Competition for allowances granted to Students of the Junior Training Class of the National Art Training School. All the College Certificates above the Third Class, the holders of which have passed an Examination in Latin, are also recognised by the Pharmaceutical Society and the Royal Veterinary College.

3. EXAMINATIONS FOR CERTIFICATES OF PROFICIENCY IN MERCANTILE SUBJECTS.—The next Examination will take place on the 8th of December.

4. PROFESSIONAL PRELIMINARY EXAMINATIONS.—These Examinations are held in March and September. The next Examination will commence on the 9th of September.

5. INSPECTION OF SCHOOLS.—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

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The Regulations of the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

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Examination Fee, 25s.

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(*b*) At any school of established reputation, approved by the Council, which is prepared to offer such facilities for training as may be satisfactory to the Council; it being open to the Council to require the attendance of the scholar at such lectures on the Theory and Practice of Education, and to require him or her to pass such examinations in the Science and Art of Teaching, as the Council may determine.

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Communications regarding Examinations, Attendance, and University business generally, should be addressed, The REGISTRAR, Victoria University, Manchester.

The Calendar (price 1s.), containing the Regulations, Copies of Examination Papers, Lists of Graduates, &c., is published by Mr. J. E. CORNISH, Manchester, and by Messrs. MACMILLAN & Co., London.

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TRAINING COLLEGES.

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DATCHELOR TRAINING COLLEGE.
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For particulars of the above, see next page.

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Latin	E. V. Arnold, M.A., late Fellow of Trinity College, Cambridge.
French and German.	Frederic Spencer, M.A. (Camb.), Phil. Doc. (Leipzig).
English	The Principal.
Philosophy	Henry Jones, M.A., late Clark Fellow of Glasgow University.
Mathematics	G. B. Mathews, M.A., Fellow of St. John's College, Cambridge.
Welsh	Lecturer—J. Morris Jones, B.A., late Scholar of Jesus Coll., Oxford.

II. *Science.*

Physics	Andrew Gray, M.A., F.R.S.E.
Chemistry	J. J. Dobbie, M.A., D.Sc., late Clark Fellow of Glasgow University.
Biology	R. W. Phillips, M.A. (Camb.), B.Sc. (Lond.), late Scholar of St. John's College, Cambridge.
Zoology	Lecturer—Philip J. White, M.B. (Edin.).
Agriculture	Lecturer—Douglas A. Gilchrist, B.Sc. (Edin.).

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The College Courses include the Subjects for Degrees of London University in Arts and Science. The Chemistry, Botany, and Zoology Courses are recognised for Medical Graduation in the Universities of Edinburgh and Glasgow, and Students can make one Annus Medicus at this College. The Science Courses are recognised for two years of the three years' degree course of the University of Edinburgh.

The average cost of living (including College tuition fees) at Bangor for the Session (33 weeks) is from £30 to £40. A list of registered Lodging-houses is kept at the College. A Hall of Residence for Women was opened in October, 1888. For detailed information as to Courses, Entrance and other Scholarships, &c., apply to the Registrar, W. CADWALADR DAVIES.

Bangor, June 1, 1890.

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H. CALDERWOOD, LL.D., } *Joint*
S. S. LAURIE, LL.D., } *Secretaries.*
W. MITCHELL, M.A., *Assist. Secretary.*

Edinburgh University, August, 1890.

SOCIETY OF APOTHECARIES OF LONDON.

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This Examination will qualify candidates for Registration as Medical Students.

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An Examination in Arts will again be held on the 5th and 6th of December, 1890.

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LONDON UNIVERSITY EXAMINATIONS.

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MATRICULATION, JUNE, 1891.

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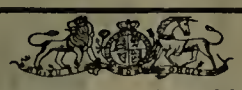
Gold Medals,  Paris, 1878: 1889.

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The Educational Times.

COLLEGE OF PRECEPTORS.—HALF-YEARLY GENERAL MEETING.

The Half-yearly General Meeting of the members of the Corporation was held at the College, Bloomsbury Square, on Saturday, the 26th July.

The Secretary having read the advertisement convening the meeting, Dr. Wormell, Vice-President, was appointed Chairman.

The Report of the Council was laid before the meeting, and was taken as read, a copy having been sent to every member. It was as follows:—

Report of the Council.

The Council beg to lay the following Report of the proceedings of the past half-year before the Members of the Corporation:—

1. In their last Report they were able to announce a small increase in the number of candidates entered for the Christmas Examination for Certificates, and they have much satisfaction in reporting that the number of candidates (5676) entered for the forthcoming Midsummer Examination is 463 in excess of the number entered for the corresponding Examination last year, and is greater than at any previous Examination conducted by the College at the same period of the year. This increase would appear to indicate that the crusade against examinations, which attracted a good deal of attention during the past year, has had little or no effect on better informed public opinion, and on the action of heads of schools, who are best able to form a correct estimate of the advantages and disadvantages of the system attacked. The date of the Examination having been fixed later than usual in order to suit the convenience of schools, and certain modifications in the scheme intended to give a larger freedom in the choice of subjects in the First Class, have probably not been without effect in increasing the popularity of the Examination; and the Council believe that the extension of a similar liberty of choice to the Second and Third Classes, which they propose to make next year, will be acceptable to the great majority of teachers, and tend to remove objections which are frequently urged against what some consider a too rigid system. The Public Distribution of Prizes and Certificates to the successful candidates at the last Christmas Examination took place at the College on the 28th of February, when the Chair was taken by the Right Hon. Sir M. E. Grant Duff. Due notice will be given of the time and place of the forthcoming distribution.

2. The Council are happy to report that the number of candidates who have availed themselves of the opportunity, now for the first time afforded them, of showing their ability, not only to read and translate French and German, but also to use those languages for conversational purposes, shows that this extension of the Examination by the addition of an oral test has met a want, and is likely to exercise a sensible influence on the way in which modern foreign languages are taught in schools. Nearly a fourth of the First Class candidates have on this occasion submitted themselves to the oral test, and it is not too much to expect that abstention from this part of the Examination will soon become the exception rather than the rule.

3. In addition to the above general Examination for Certificates, the Professional Preliminary Examination, for intending medical students and others, was held in the second week in March last, and was attended by 238 candidates.

4. The first Examination conducted by the College on behalf of the London Chamber of Commerce was held in the early part of March last. The number of candidates was 65, and a full Report of the results of the Examination, together with the Papers set, has been published by the Chamber of Commerce. The Scheme of Studies for Commercial Education issued by the Chamber, as well as the conditions of the Examination itself, has been the subject of considerable discussion, and the opinion of the scholastic profession has declared itself with great unanimity against the imposition of any hard and fast scheme of studies and of time-tables, and also in favour of some considerable modification of the conditions of the Examination. At the request of the Chamber of Commerce, the Council have constituted a Special Committee, consisting of members of their body, in conjunction with the headmasters of some of the most important London public schools that were not already represented on the Council, for the purpose of considering the Scheme and framing suggestions for its amendment. The Report embodying the opinion of this Committee has been adopted by the Council, and it is hoped, that, when this Report has been submitted to the Chamber, it will result in such modification of the Scheme of Examination as will not only make it acceptable to the great majority of the schools in which most of the future business men of London are educated, but will afford a valuable stimulus to commercial education in all parts of the country.

5. For the Midsummer Examination of Teachers for the College Diplomas, 71 candidates have entered their names. The Examination will be held in London and at local centres at Birmingham, Bristol, Leeds, and Manchester.

6. In addition to the above Examinations, and the examination of a number of entire schools by visiting examiners, the Council have conducted, as usual, during the past half-year, the Preliminary Examinations of the Royal Veterinary College and of the Pharmaceutical Society of Great Britain.

7. The Seventeenth Annual Series of Lectures to Teachers on the Science and Art of Education commenced on the 13th of February with a Course of Twelve Lectures on "The Theory of Education," by Dr. James Sully, M.A.; and a Course of Twelve Lectures on "The Practice of Education," by the Rev. Canon Daniel, M.A., will be delivered in the autumn. In addition to these Lectures on the Science of Education, a Special Course of Three Lectures on "The Teaching of History," by the Rev. A. B. Beavan, M.A., was delivered at the College in the month of May. The Council have arranged for the delivery of a similar short Course of Lectures on "Elementary Language Teaching," by Mr. Arthur Sidgwick, M.A., after the long vacation.

8. The usual Monthly Evening Meeting of the Members have been held, at which the following Papers have been read:—

February 19th.—"On Educational Metaphors," by the Rev. Canon Daniel, M.A.

March 19th.—"On Commercial Education, with special reference to the Scheme of the Chamber of Commerce," by Dr. R. Wormell, M.A.

April 23rd.—"On the Advantages of Ling's Swedish System of Gymnastics for Educational Purposes," by G. L. Mélio, Esq.

May 14th.—"On Connectedness in Teaching; or, The School Curriculum as one Organic Whole," by H. Courthorpe Bowen, M.A.

June 25th.—"On the Teaching of Geography, with special regard to Commerce and Industry," by J. Scott Keltie, Esq.

The Papers, and the discussions on them, have been reported, as usual, in the *Educational Times*.

9. In their last Report the Council informed the members of the steps they had taken for re-introducing the Bill for the Organization and Registration of Teachers, which was brought in for the first time ten years ago. The Bill was accordingly introduced in the House of Commons by Sir Richard Temple, strongly backed by members sitting on both sides of the House, on the 10th of March last. They regret that the measure has not been fortunate enough to secure a discussion on the second reading; but it has, at any rate, been brought prominently before the public, and it is hoped that substantial progress will be made with it in the course of the next Session.

10. During the past half-year the Diploma of Fellow has been conferred on one candidate, that of Licentiate on two candidates, and that of Associate on thirty-eight, who had passed the required Examinations. Thirty-one new members have been elected, while notice has been received of the withdrawal of eight. The Council regret to have to report the death of the following members:—Mr. R. Henson, Dr. J. N. Langley, Dr. E. S. Nunn, Dr. L. Schmitz, and Mr. R. Tapson.

Mr. Heppel, in reference to paragraph 1, thought that the remarks as to the crusade against examinations were scarcely appropriate to the circumstances of the case, seeing that the attacks referred to had been exclusively directed against the system of competitive examinations, and did not really touch pass examinations like those of the College, in which the competitive element entered to but a very small extent.

In reply to an inquiry by one of the members present with reference to paragraph 4, the DEAN stated that the Chamber of Commerce had adopted the recommendations of the Special Committee with regard to the grouping of certain subjects, viz., commercial history and geography, and the three mathematical subjects—algebra, Euclid, and elementary mechanics; though they had not deemed it advisable to make mechanics entirely optional. They had agreed to allow Latin, of a fairly advanced kind, to be taken as an additional optional subject. The Chamber had also put formally on record their desire that the Scheme of studies and of time-tables should be regarded as suggestive of the way in which commercial education might, in their opinion, be provided for in a special class of schools, rather than as a hard and fast scheme to be imposed on all schools that had to do with the preparation of boys for commercial life.

Mr. WILSON, in reference to paragraph 9, expressed his opinion that the Registration Bill would have a better chance of success if its scope were enlarged so as to include all classes of teachers and schools, and urged the Council to reconsider the details of the measure, and to take steps for securing the co-operation of other bodies in promoting it.

The Report of the Council was then adopted.

The DEAN presented his Report, which had been printed and distributed among the members present, and which was as follows:—

THE DEAN'S REPORT.

IN addition to the general statement of the Examination work of the College during the past half-year, which has been embodied in the Report of the Council, I have now to submit to you, in detail, the statistics and results of the various Examinations.

The Midsummer Examination of Candidates for Certificates took place on the 17th to 20th of June, at 57 Local Centres and 97 Schools in all parts of the country. The total number of Candidates examined was 5,594, of whom 1,626 sat at the London Centres, 2,247 at Provincial Centres, and 1,721 were examined at their own Schools. The Local Centres, besides London (where there were 9 Sub-centres), were Barnstaple, Belfast, Birmingham, Blackpool, Bournemouth, Brighton, Bristol, Broxbourne, Cardiff, Carmarthen, Cheltenham, Durham, Eastbourne, Exeter, Exmouth, Eye, Fowey, Gainsborough, Hastings, Haverfordwest, Hereford, Huddersfield, Hull, Jersey, Leamington, Leeds, Leicester, Liverpool, Manchester, Margate, Newcastle-on-Tyne, Norwich, Nottingham, Oswestry, Peterborough, Plymouth, Portsea, Rochester, Salisbury, Sheffield, Southampton, Southend, Southport, St. Asaph, Stroud, Sunderland, Taunton, Thirsk, Torquay, Truro, Tunbridge Wells, Warminster, Weston (Bath), Whitchurch, Windsor, Yeovil, and York.

Of the 5,594 Candidates examined, 3,439 were boys and 2,155 were girls. Of these there were examined:—

	Boys.	Girls.
At the London Centres	844	782
At Provincial Centres	1,244	1,003
At their own Schools	1,351	370
Total	3,439	2,155

Taking the Midsummer and Christmas Examinations together, the total number of Candidates examined during the year ending Midsummer 1890 (not including those who attended the Supplementary Examinations in March and September) has been 15,107.

The following table shows the number of Candidates presented at the Pupils' Examinations during the past five years, with the proportion of those who obtained Certificates:—

Year ending	Candidates entered.	Candidates passed.	Percentage.
Midsummer, 1886	13,996	10,834	77·6
,, 1887	14,671	11,477	79·6
,, 1888	14,932	11,225	75·2
,, 1889	14,566	11,165	76·7
,, 1890	15,107	11,571	76·7

The number of passes in the above table includes a considerable number of Candidates who failed to pass in the Class for which they were entered, but who, under our rules, are entitled to receive Certificates of a lower class. The following table shows the proportion of the Candidates at the recent Midsummer Examination who passed in the class for which each candidate was entered:—

		Passed.	Percentage.
Entered for 1st Class ...	435	222	51·0
Entered for 2nd Class ...	2,093	1,204	57·6
Entered for 3rd Class ...	3,066	2,167	70·7

At this Examination candidates taking 1st Class papers in French or German were, for the first time, allowed to offer themselves for oral examination (viz., dictation and conversation) in those subjects. 78 Candidates entered for the Oral Examination in French, of whom 51 passed; and 42 entered for the Oral Examination in German, of whom 31 passed.

At the Professional Preliminary Examination for First and Second Class Certificates, which was held on the 5th to 7th of March, in London and at four Provincial Centres, viz., Birmingham, Bristol, Leeds, and Liverpool, 235 Candidates presented themselves, of whom 64 obtained Certificates qualifying for registration as medical students.

The Examination of Teachers for the College Diplomas took place on the 3rd of July and three following days in London and at the following Local Centres—Birmingham, Bristol, Leeds, and Manchester. It was attended by 64 Candidates, of whom 38 were men and 26 women. The subjects of Examination included the Theory and Practice of Education, Scripture History, English Language, English History, Geography, Arithmetic, Algebra, Euclid, Trigonometry, Latin, Greek, French, German, Italian, Spanish, Animal Physiology, Botany, Geology, Chemistry, Drawing, and Music. On the results of this Examination, 2 Candidates have obtained the Diploma of Licentiate, and 15 that of Associate.

The first Examination for the Certificates of the London Chamber of Commerce was held on the 10th to 14th of March, and was attended by 65 candidates, of whom 17 obtained certificates.

The Preliminary Literary Examinations of the Royal Veterinary College and of the Pharmaceutical Society have been held, as usual, at the times appointed by those bodies. For the Royal Veterinary College 6 Candidates have been examined during the past half-year; and for the Pharmaceutical Society, 725.

In presenting the Report, the DEAN called attention to a new departure, in respect of the oral examination in modern foreign languages, and gave an explanation of the method adopted in conducting it, for the purpose of counteracting the effects of nervousness, and of giving candidates every opportunity of doing themselves justice.

Mr. STEWART thought the method adopted an excellent one He believed that the oral examination would rapidly extend, and that it would be proved that foreign languages could be taught conversationally without the necessity of sending pupils abroad for this purpose.

Mr. BAUMANN expressed his gratification that, by the introduction of the oral test, modern foreign languages had now been placed on an equal footing with Latin, in regard to marks. He had himself, long ago, advocated the practice of oral in addition to written examinations, though his views at that time met with little or no support. He hoped soon to see the oral test made a necessary part of the examination for First Class candidates, and that it might even be found practicable to extend the system to the Second Class.

Dr. CONDER thought that schoolmasters and the public at large were greatly indebted to the College for the step it had taken in the initiation of these oral examinations. An erroneous idea prevailed that if boys were sent to the Continent they must necessarily learn to speak French or German; but this was far from being the case, as frequently the schools to which they were sent were crowded with English and American pupils, among whom the native element was hardly represented. On the other hand, where the conditions for learning the foreign language were favourable, it was inevitable that the education of the pupils in other departments should suffer proportionately. If the same time were given to the acquisition of foreign languages in schools in this country, he was convinced that equal results would be attained. But the question of time was complicated by the present requirements of the examinations, and he hoped that it would not be long before the widest liberty of choice of subjects would be allowed to teachers, and that they would no longer be compelled to devote a large portion of the school time to grinding at such a mere memory subject as history, to the detriment of subjects of far greater importance for the pupil's mental development.

Dr. ROBSON remarked that the Civil Service Commissioners had deprecated the sending of boys abroad, and had reduced the proportion of marks obtainable for mere colloquial facility in foreign languages, considering it more desirable that the student should be trained continuously in good schools in this country.

The Report of the DEAN was then adopted.

Before proceeding to the next business on the agenda, Mr. WILSON desired to have the Chairman's ruling as to whether the resolution, "That a grant of £25 be made by the College to the Dr. Henry Barnard Fund," was in order and could be discussed, seeing that the surplus funds had been already allocated by resolutions passed at previous general meetings of the members. He also demurred to the form of the resolution, which proposed that a sum of money should be voted direct without the intervention of the executive.

The TREASURER quoted from the Charter to show that, though the wording of the resolution might not be strictly formal, yet the intention of the Charter clearly was that the direction as to expenditure of money should come from the general body, and

that the carrying out of the instruction so given should be left to the Council as the executive.

The CHAIRMAN said that, according to his view of the wording of the Charter, the motion might be discussed. A motion to a similar effect might come from the Council to the General Body for confirmation, or it might come from the General Body to the Council for execution. He held that the informality in the darfting of the resolution should not have the effect of withdrawing it from the consideration of the meeting.

The DEAN then, in the absence of the proposers of the resolution, formally moved it, explaining at the same time that the matter had, in fact, been brought before the Council by one of the proposers, but that it was thought that a proposal of this kind could not be entertained without a special direction from the general body, who alone could dispose of the surplus funds by way of gift. He was given to understand that Dr. Barnard had spent a large fortune in the publication of a series of important educational works, and was now, in his declining years, in distressed circumstances. A fund was being collected in his own country for his relief, and it was thought by some of their body that the College might very well devote a portion of its surplus funds to this object.

Mr. ORCHARD was sorry to be obliged to oppose the resolution. He did not think that the Dean had made out a very strong case on general grounds, seeing that little was known of Dr. Barnard's works in this country, however highly they might be esteemed and widely circulated in America. He was not a member of the College, nor a former benefactor, nor could it be affirmed that the purpose for which the grant was to be made was in any direct way related to the purposes indicated in the Charter. It was, in fact, on the ground of common sympathy alone that the proposal was made; but he thought that, in such a matter, mere sentiment should not be allowed to influence their judgment as to what was right and expedient. To act otherwise than according to the manner prescribed by the Charter would, he held, be to establish a dangerous precedent, and they could not say where it might end.

Miss CROMBIE said she had read several of Dr. Barnard's works, which were most valuable aids to education. He had spent a fortune in bringing out these works, and he was now over eighty years of age. She hoped that the grant would be made.

Mr. NASMITH remarked that, if Dr. Barnard had done good service to the cause of education, he was entitled to the sympathy of all educators, whether in this country or in his native land. But this did not give the members of the College a right to deal with the funds of the institution in any other way than those prescribed by the Charter.

Dr. CONDER said that the only fund from which such a grant could be made was the Benevolent Fund, but claims upon this fund were strictly limited to members of the College and the widows and orphans of deceased members.

The TREASURER said he had come to the meeting with an open mind, but anxious to know what arguments could be advanced by the movers of the resolution in favour of the proposal. As he read clause 28 of the Charter, it did appear to him to put a strain upon its meaning to make it cover such a proposal, and only circumstances of the most exceptional character could justify it being brought forward. He was not prepared to say that such a case had been made out.

The CHAIRMAN, on a show of hands being taken, declared the motion to be lost.

Mr. BROOKE then moved a resolution to the effect that the number of possible and actual attendances of the outgoing members of the Council be stated on the agenda paper of the meeting at which their names were brought forward for re-election. He said that such information was, it was true, given by the Secretary, on demand, at the meeting; but he thought that it would be preferable that it should be given on the agenda paper itself, so that those who came to the meeting might be in a position to make up their minds beforehand as to those to whom they ought to give their votes.

Messrs. ORCHARD, HEPPEL, STEWART, BROWN, and WILSON spoke in favour of the motion; Mr. NASMITH expressed an adverse opinion; and the TREASURER, while approving of the substance of the resolution, regretted that the mover had not thought proper to include the attendances on Committee as well as at Council meetings.

The motion, on a show of hands being taken, was declared to be lost.

A vote of thanks to the Chairman concluded the proceedings.

ADJOURNED MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

AN adjourned meeting of the Council was held at the College on Saturday, the 26th ult. Present—Dr. R. Wormell, Vice-President, in the chair; Rev. J. O. Bevan, Mr. Bidlake, Mr. Brown, Mr. Charles, Dr. Dillon, Mr. Eve, Mr. Kimber, Mr. Pinches, Rev. Dr. Robson, and Mr. Stewart.

Diplomas were granted to the following, who had completed their subjects at the Midsummer Examination of Teachers:—Licentiateship—D. D. Stormont, C. L. M. Pietroni; Associateship—Miss A. A. Blizard, Miss C. J. Blizard, C. F. Buckham, E. J. Dixon, A. Douthwaite, K. G. Fagg, Miss J. Jones, A. Keeble, G. Millership, Miss I. C. Mills, Miss E. Mushet, L. Oakley, C. D. O'Donoghue, Miss C. Trüdinger, Miss E. G. Warne. The prize of £10 for Theory and Practice of Education was awarded to Mr. D. D. Stormont.

TEACHERS' DIPLOMA EXAMINATION.—PASS LIST.

JULY, 1890.

Theory and Practice of Education.

LICENTIATESHIP.

Pietroni, C. L.
Stormont, D.D.

ASSOCIATESHIP.

Atkin, Miss F. E. R. W.
Brotherton, R.
Buckham, C. F.
Dixon, E. G.
Fagg, K. G.
Finlayson, Miss C.
Gibson, G. F.
Hearn, J. N.
Jones, Miss J.
Keeble, A.
Millership, G.
Mills, Miss I. C.
Oakley, L.
O'Donoghue, C. D.
Oldham, F.
Pope, E. J.
Raymer, R. R.
Trüdinger, Miss C. (*hon.*)
Warne, Miss E. G.
Williams, J. E.

Scripture.

Stormont, D. D. (*hon.*)
Desai, U. L.
Hay, Miss A. M.
Mushet, Miss E.

English Language.

Bruton, A. F.
Burgess, A.
Bygrave, Miss K. S.
Camps, Miss M. E.
Desai, U. L.
Dobbins, H. W. H.
Ellis, J.
Hay, Miss A. M.
Hearn, J. N.
Morris, Miss M.
Pope, E. J.
Swann, Miss M. A. E.
Swift, J. A.
Walker, G. A.
Willis, Miss S. A.

English History.

Bruton, A. F. (*hon.*)
Camps, Miss M. E.
Child, Miss J. C.
Dobbins, H. W. H.
Ellis, J.
Hay, Miss A. M.
Hearn, J. N.
Huck, J.
Morris, Miss M.
Pope, E. J.
Swann, Miss M. A. E.
Swift, J. A.
Walker, G. A.

Geography.

Bruton, A. F. (*hon.*)
Burgess, A.
Camps, Miss M. E.
Desai, U. L.
Ellis, J.
Hay, Miss A. M. (*hon.*)
Hearn, J. N.
Heath, C.
Huck, J.
Kempster, J. C.
Leaver, Miss A.
Morris, Miss M.
Norris, Miss A. M.
Pope, E. J.
Swann, Miss M. A. E.
Swift, J. A.
Walker, G. A. (*hon.*)
Warne, Miss E. G. (*hon.*)
Willis, Miss S. A.

Arithmetic.

Blizard, Miss A. A.
Blizard, Miss C. J.
Bruton, A. F. (*hon.*)
Camps, Miss M. E.

Arithmetic—continued.

Child, Miss J. C.
Desai, U. L.
Dobbins, H. W. H. (*hon.*)
Duchesne, E. C. (*hon.*)
Ellis, J.
Greaves, Miss J. L.
Hay, Miss A. M. (*hon.*)
Hendry, Miss M. H.
Huck, J.
Kempster, J. C.
Mushet, Miss E.
Swann, Miss M. A. E.
Walker, G. A.

Algebra. LICENTIATESHIP.

Wild, M. H.

ASSOCIATESHIP.

Camps, Miss M. E.
Duchesne, E. C. (*hon.*)
Ellis, J.
Hearn, J. N.
Huck, J.
Kempster, J. C.

Euclid. LICENTIATESHIP.

Dobbins, H. W. H.
Wild, M. H. (*hon.*)

ASSOCIATESHIP.

Camps, Miss M. E.
Douthwaite, A.
Duchesne, E. C. (*hon.*)
Ellis, J.
Hearn, J. N.
Kempster, J. C.
Swann, Miss M. A. E.

Trigonometry.

LICENTIATESHIP.

Dobbins, H. W. H.
Wild, M. H.

French. LICENTIATESHIP.

Wild, M. H.

ASSOCIATESHIP.

Bygrave, Miss K. S.
Hay, Miss A. M.
Heath, C.
Pope, E. J.
Swift, J. A.
Willis, Miss S. A.

German. ASSOCIATESHIP.

Hay, Miss A. M.
Swift, J. A. (*hon.*)

Italian. ASSOCIATESHIP.

Desai, U. L.

Spanish. ASSOCIATESHIP.

Swift, J. A.

Latin. LICENTIATESHIP.

Dobbins, H. W. H.
Wild, M. H.

ASSOCIATESHIP.

Bruton, A. F.
Duchesne, E. C.
Hearn, J. N.

Greek. LICENTIATESHIP.

Dobbins, H. W. H.

ASSOCIATESHIP.

Bruton, A. F.

Chemistry.

ASSOCIATESHIP.

Desai, U. L.

Physiology.

ASSOCIATESHIP.

Desai, U. L.

Botany. LICENTIATESHIP.

Shaw, Miss K. M.

Drawing.

Shaw, Miss K. M. (*hon.*)
Ritchie, F.

COMMERCIAL EDUCATION ABROAD.

III.

German Commercial Schools.

(1) *Public Institute of Commerce at Leipzig.*

This is the most celebrated institution for commercial education in Germany. It owes its origin to the Corporation of Merchants at Leipzig, a corporation which existed as far back as 1479, and resembles a London Livery Company. The numerous commercial privileges of this Corporation came to an end with the introduction of industrial liberty into the kingdom of Saxony in 1861. In 1867 the Corporation was organized as a free society, and a ministerial decree established Chambers of Commerce to represent commercial interests. Saxony has now five of these Chambers of Commerce—at Dresden, Leipzig, Chemnitz, Plauen, and Zittau. After their establishment there remained to the ancient Corporation of Merchants of Leipzig no other interests to look after than those of the Commercial School, and of some almshouses for necessitous tradesmen. To these objects it still devotes itself. But, as it can no longer admit any new members, its extinction is only a question of time. Nevertheless its large endowments, being inalienable, will always be devoted to the maintenance of the school and other works of public utility. The honour of having induced the Corporation of Merchants to found a school of commerce, at the same time both theoretical and practical, belongs to Charles Lebrecht Hammer, a partner in the banking firm of Hammer Schmidt. His proposal for the establishment of the Leipzig Institute for the purpose of specializing the education of young men intended for commerce was at once warmly taken up by the Saxon Government. King Anthony regarded the enterprise with favour, and assisted it from his own purse. The Chambers voted an annual grant of 1,500 thalers, and they have continued to pay this grant up to the present time. The school was particularly fortunate in its first master, David August Schiebe. He was a man of great knowledge, experience, and energy. His organization of the school, the strict discipline enforced, and the success attained by his pupils, soon established the prestige of the school. The Commercial Institute of Leipzig is, then, the property of the Corporation of Merchants, from whose funds it is chiefly maintained. It is assisted by the Chambers of Commerce and the State. The Corporation directs the management by means of a school committee, consisting of three *masters* of the Corporation, six ordinary members of the same, and the headmaster. It comprises three divisions—1st, the Higher Division; 2nd, the Professional Division; and 3rd, the Division for Apprentices.

(*a*) The higher division has three classes of one year each. The following is the programme of this division, published in English:—

"The work of each class consists of a yearly course, lasting from Easter to Easter. The school-year begins on the Monday after Easter.

"In these classes a systematic course of instruction, combined with practical work, is given according to the following scheme:—

	Class I. 1st year.	Class II. 2nd year.	Class III. 3rd year.
German	4	3	3
English	5	4	4
French	5	4	4
Mathematics	3	3	3
Mercantile Accounts	5	3	2
Physics	3	2	—
Mechanical Technology	—	—	2
Chemistry	—	2	2
Practical Acquaintance with articles of Commerce	—	—	1
Geography	2	2	2
History	2	2	2
Commercial Science, including Commercial Law	—	2	2
Shopkeeping	—	2	—
Correspondence	—	—	2
Bookkeeping	—	—	2
Political Economy	—	—	2
Caligraphy	3	2	—
Drawing	2	2	2
Gymnastics	2	2	2
	36	35	37
Extra Subjects:—			
Italian and Spanish	—	2	2
Shorthand writing	2	1	1

"Each pupil, on applying for admission, has to produce certificates showing—

(1) That he has passed his fourteenth year, and, in the event of his being placed in the third (*i.e.*, the lowest) class, has not exceeded his sixteenth year; in the second class, his seventeenth year; in the first class, his eighteenth year;
(2) That he has been vaccinated;
(3) The school he last attended, his attainments there, and the circumstances under which he left this school.

"Foreigners must be provided with a passport, also a certificate of birth and baptism.

"All school fees are to be paid half-yearly, and in advance.

"Pupils who are not subjects of the German Empire are required to appoint a surety residing in Leipzig, who will guarantee the regular payment of the school fees; where this is not possible, the school fees must always be paid in advance for the whole year.

"The regular date fixed for the admission of pupils is Easter. Admission at any other time can be granted only if the candidate can show in his entrance-examination that his attainments are such as shall directly qualify him to take part with advantage in the instruction of the class in which he wishes to be placed."

(*b*) *Professional Division.*—This division only admits those who possess the certificate which entitles the holder to partial exemption from military service. The course is for one year, and is confined to instruction in the principal branches of commerce, and practice in office work, wholesale trade, manufactures, and banking. Foreigners may be admitted, provided their attainments are on a level with the German pupils. The division now comprises a class of pupils having thirty-two lessons per week, and a class for apprentices having ten lessons per week. The fees for this division are 240 marks a year for German pupils, and 360 marks for foreign pupils, with an additional entrance fee of 10 marks.

(*c*) *Division for Apprentices.*—This is a "finishing school" for apprentices in commercial firms at Leipzig. Its object is to extend the general knowledge of the pupils, and to instruct them in the subjects connected with their trade. Every apprentice who, by his knowledge, is capable of following the class, is eligible for admission on examination. To enter the third class he must have completed his studies at a primary elementary school. This written examination in German and arithmetic must show a knowledge equal to that possessed by pupils who have passed through the first or highest class in the primary schools. To enter the second class, the candidate must pass an examination such as would be given to pupils who have left the third class. The lessons (ten hours per week) are given from seven to nine in the morning, or from two to four in the afternoon, to suit the convenience of the employer. Pupils may commence the course at the age of fourteen years, having therefore previously had eight years at a primary school, or some years in the lower classes of a Realschule. Before 1873, employers were inclined to throw obstacles in the way of these "finishing schools," but the schools soon proved themselves of great benefit to those who used them, and have been generally accepted accordingly.

The following table shows the time devoted to the different subjects:—

	3rd Class.	2nd Class.	1st Class.
German	2 hours.	1 hour.	1 hour.
English	—	2 ,,	2 ,,
French	2 hours.	2 ,,	2 ,,
Commercial Arithmetic	3 ,,	2 ,,	2 ,,
Commercial Sciences	—	1 ,,	1 ,,
Practical Work	—	1 ,, or	1 ,,
Bookkeeping	—	—	2 ,,
Geography	1 hour.	1 hour.	—
Writing	2 ,,	—	—
	10 hours.	10 hours.	10 hours.

In many businesses even this programme is more than is required. The business of the small tradesman does not require such an extensive knowledge as that of the great merchant. For instance, the small tradesman, in his limited sphere of action, may not require a knowledge of foreign languages, algebra, &c. On the other hand, a knowledge of the goods in which he trades, mental arithmetic, accounts, &c. are always useful to him. Hence the Leipzig School has established an elementary course of study, as well as a more fully developed one in each division. Moreover, we learn from the latest prospectus that, as the number of pupils increases, the establishment of more parallel classes is adopted, with differences of breadth or

depth in the curricula, to suit differences of requirements or attainments on the part of the pupils.

On casting up the numbers of pupils attending each division for the past ten years, we find that by far the majority have belonged to classes other than those of the division (*a*).

It is instructive to consider the growth of the programme of this and similar institutions, so as to distinguish what part of it is the result of mercantile experience, and is worthy of imitation, and what part has been forced on the institution for reasons not connected with commerce, and would be out of place in a country where these reasons have no existence.

In this, as in all the successful commercial colleges with which we are acquainted, the directors have been constantly urged to provide courses for those whose educational needs are more limited in range than the full programme. This pressure has been opposed in Germany, sometimes by the higher powers, sometimes by the worshippers of the "University Classicism": the former because all men at a certain age are required to serve, and it is convenient, therefore, that up to that age all should, year by year, be moving in parallel or converging lines; the latter for reasons which we may briefly describe as "pharisaical." It will not be necessary to enter into all the different modifications which were made in the Leipzig School prior to 1868. Such modifications all tended in one direction, and were such as experience taught them would be for the good of the school, looked at simply in connexion with the purpose for which it was founded. During the whole of the period the aims and the methods remained as they were established by Schiebe. It was only when educational reform became general in Germany (1868-71), that the school was compelled to follow the movement under penalty of renouncing its claim to be considered a High School. The law relating to military service in Saxony, to which we have so frequently referred, conceded to three commercial schools—viz., Dresden, Chemnitz and Leipzig—the right of giving certificates of partial exemption from military service; but, to secure this distinction, it became necessary to take steps to conform to the requirements of the law. For two years the Leipzig Institute resisted the temptation, and continued on its old lines, but at last it was compelled to yield. Then the purely commercial instruction of the earlier days had to give way, to a great extent, to the established University notions. In the commercial schools, therefore, the syllabus had to be remodelled from beginning to end. More time had to be given to mathematics, physical and natural science, geography, history, and literature. Of course, this could only be done by sacrificing a considerable portion of the time hitherto devoted to purely commercial subjects and mercantile exercises.

This change in the syllabus led to others, having for their object the enlargement of the sphere of action of the school, while at the same time trying to preserve its early professional character.

It was remarked that a certain number of pupils from the Realschulen, who already held the certificate of partial exemption from military service, entered business houses as soon as possible, so as to utilise the few years which intervened between the time of leaving school and the time of entering the army.

These young men, sixteen or seventeen years of age, had received a good general education in modern languages, mathematics, and sciences, but were totally ignorant of commercial sciences, and without special knowledge and practice in commercial subjects. Here, then, was a work which the commercial schools could undertake without being hampered by the military curriculum, namely, the formation of a special course for young men holding the certificate of exemption from military service. Hence was founded the professional division to which we have referred. The success of this effort was not, however, so great as was hoped for.

Three years later (1879), another attempt was made in the same direction. Side by side with the professional course, which consisted of ten lessons a week, another course was founded of thirty-two lessons a week. This course was intended for the same class of youths as the former, but for such as had not yet gone into business, and for such as consequently could devote a whole year to preparing themselves for a commercial career. Although this was received, like the former scheme, with no very great favour at first, it is making steady progress, and is on a fair way to become one of the most useful parts of the Institute. Beginning with sixteen pupils, the class now numbers over forty. This result, satisfactory as it is considered, shows that, in Germany as in other countries, public opinion has been very slow and reserved on the subject of commercial education. This is the opinion of the present celebrated director of the Leipzig school, M. Carl Wolfram.

"It is thought," says he, "that with us business practice in all cases renders theoretical knowledge unnecessary. It is, however, quite true that he who has mastered the theory gains, in a given time, more from experience than the mere empiric will. Moreover, the former will also be superior to the latter when it is a question of judgment, or of intelligently carrying out an order, or acting with resolution in a difficult crisis." "But," continues he, "it will be many years before the good of our professional technical teaching will be better appreciated, and that the number of pupils will increase in proportion to the advantage that the technical studies confer on those who follow them assiduously." Many men of business have, however, borne testimony to the fact that, through the specialisation of studies, pupils from the higher commercial schools possess a knowledge which is of far greater practical utility than that possessed by those who leave the Gymnasium and the Realschule.

Examinations.—Two examinations are held each year, at Midsummer and Easter. That at Easter is the more important, as on that depends promotion and the much coveted certificate, entitling the holder to only one year's military service. The examination of the first class is presided over by a Royal Commissioner. The examinations are both oral and written on the subjects taught in the year. In modern languages candidates are required to write an essay on some given subject, as well as a commercial letter based on an outline dictated by the master. The oral examination lasts one or more days, according to the number of candidates. It is stated that, in the written examination in modern languages, the essay must be free from grammatical as well as orthographical errors. The examination finished, the masters consult with the Commissioner, and determine to whom certificates shall be given.

A similar examination takes place at the end of the scholastic year for the division of apprentices. In this case, however, it is an invariable rule that those who are "plucked" must go through the course again and again until they pass.

We cannot pass from the Leipzig Institute without quoting the views of the director, Mr. Carl Wolfram, on the general question of Commercial Education:—

"If the methods of instruction adopted in our various commercial schools be examined, it will be found that we do not seek to base the instruction on a servile imitation of practical business, but on explanations relating to things connected with commercial life. It has been very difficult to determine, with precision, the measure to be followed in dealing with these practical exercises. It is admitted on all sides that we cannot replace them by a course of instruction completely theoretical, because practice alone can teach the proper style, and can give rapidity and certainty in execution. It is also admitted that a pupil stands a far better chance of being called to a position of importance in an office if he has the ability to get through his work quickly and correctly, the two qualities which are most insisted upon in the commercial world. Our commercial schools, therefore, have recourse to practical exercises, less with a view of making the subjects better understood than with the view of developing a suitable style. All kinds of practical exercises, in book-keeping, correspondence, drawing up of documents, &c., is therefore preceded by detailed explanation of these different exercises, as well as the obligations and rights of persons concerned in them.

"The Commercial School has to teach young men *what will be required of them in a commercial career;* for this purpose explanations are more important than an uninterrupted course of exercises. *No model school can, as regards practice, render such services as a business office.* The most powerful motive for a pupil, *the feeling of responsibility* will always be wanting in an artificial imitation of commercial life. Consequently we do not make the practical work consist in a painful observation of outside details.

"During the second year the pupils study and compare among themselves the different specialities—brokerage, commission, speculation, banking, insurance, &c. Afterwards each one represents a business house or some industry; they transact, among themselves, business of all kinds by means of correspondence in different languages."

He goes on to speak of the difficulties to be overcome:—

"Prejudice and narrow egotism are stumbling-blocks in the way of the development of commercial instruction. But the good exercised by commercial schools has become evident to all impartial minds. Their adversaries must therefore diminish in time, and it is therefore permitted to us to hope that the cause we advocate will finally triumph. Commerce is cosmopolitan in its essence; it seizes its advantages wherever it finds them, without troubling about the modes of their production. Hence, different countries will finally appreciate commercial schools at their value, and make them serve their interests, taking into consideration, of course, their distinctive national peculiarities."

(2) *School of Commerce of Munich.*

We extract the following particulars from the prospectus :—

"The Municipal School of Commerce of Munich is a public High School, giving a higher general education for life and a special preparation for business. The school comprises six consecutive classes or annual courses. The two lowest classes contain not more than fifty pupils each ; the other classes not more than forty pupils each. Parallel classes are established where this number is exceeded."

TIME TABLE.

	I.	II.	III.	IV.	V.	VI.	Total
Religious	2	2	1	1	1	1	8
German	6	6	4	4	4	4	28
French	6	6	5	5	5	5	32
English	—	—	5	4	4	4	17
Arithmetic	6	6	6	7	6	6	37
Mathematics, including Commercial Arithmetic; Geography, including Commerce; History, including History of Commerce	3	3	4	4	4	4	22
Science	2	2	3	4	5	5	21
Bookkeeping and Correspondence	—	—	—	—	4	4	8
Writing	2	2	2	1	—	—	7
Drawing	2	2	2	2	—	—	8
Drilling	2	2	2	2	2	2	12

The following extract describes the nature and extent of the education aimed at in French and English :—

"Correct pronunciation, intimate acquaintance with the grammatical forms and rules. Acquaintance with the more important works of literature and with the history of literature. Grammatical correctness in the use of the language, both by word of mouth and in writing, in a simple form but in the spirit of the foreign idiom, on subjects within the sphere of observation of the pupils.

"On leaving the highest class the pupil should be able to translate into German fluently, correctly, and, as a rule, without using a dictionary, French or English authors who do not offer any particular difficulties, especially works of a descriptive or historical character, as well as easy pieces of poetry. He should also be able to make himself understood in the foreign tongue without any notable difficulties.

"Italian and shorthand are optional subjects, taught in two courses extending over two years each (two lessons a week), shorthand being, as a rule, intended for pupils of the third and fourth class, Italian for the pupils of the fifth and sixth. Pupils of the two latter classes, however, may join the shorthand classes.

"No boy can join the classes for optional subjects without the permission of the council of teachers.

"Admission to the first (lowest) class is only granted to boys of the age of not less than ten and not more than twelve years, who have passed the fourth standard of the *Volksschule* of Munich.

"A relatively higher age, and the acquaintance with the standard for the class immediately below, are the necessary conditions for admission to the higher classes."

The prospectus further tells us that "formerly only such pupils were admitted into the institution as took part in all the lessons of their respective classes," but that it was not found possible to maintain this rule.

"It often happened that pupils, for having failed in one or two subjects, were refused admission into certain classes for which both their age and general education would otherwise have fitted them. This was particularly the case with boys who had frequented schools pursuing different aims. In 1877 the committee, on the suggestion of the council of teachers, approved of the admission of special students on the supposition of their being able to successfully follow the majority of the class-subjects, and of their requiring exemption from a few subjects only. This arrangement has proved to be a great success, and has added much to the general success of the school."

Complaints of overpressure have forced upon the committee the necessity for other modifications, and probably account for the following paragraph of the prospectus :—

"The private instruction which pupils of the Mittelschulen receive, as an addition to the instruction given to them at school, is not unfrequently the cause of complaints against overworking the pupils, and is besides a source of embarrassment in other respects, influencing pupils disadvantageously. By a ministerial decree of 24th February, 1874, only such pupils of this institution are allowed to take private lessons as have received the permission of the Rector, or have been recommended by him to do so, and then only of private teachers, whose capability in this respect is beyond doubt.

"Frequent personal intercourse between those acknowledged private teachers and the Rector, or the respective special masters of the school, will serve to bring about the greatest possible uniformity between the private instruction and the instruction given at school, as far as object and method were concerned.

"The home-work, as well as the class-work, is done according to a fixed plan carefully laid out beforehand. The plan in question has been worked out so as to go hand in hand with the time-table of the different classes. It is revised at the beginning of each half-year (term), and submitted to the school committee for approval. The plan for the home-work is explained to the pupils, and a copy of the plan is put up in each class-room. Parents are particularly requested to give this plan their careful attention during the school year, as a strict adherence to it will enable them to supervise the pupils' home-work. This plan, while regulating and suitably distributing the pupils' time at home, is at the same time a protection to the pupils against overwork.

"Besides the work mentioned in that plan, the Arithmetic pupils of the classes I., II., and III. have to do for the next lesson two short exercises a week, which must not require more than half-an-hour each.

"Classes IV., V., and VI. may have for each lesson short exercises in Algebra and Euclid, not requiring more than three-quarters of an hour's work. The correction of these exercises is made in class; such short exercises, however, must not be given on days when the more important home-work mentioned on the plan is given in these subjects.

"Besides the larger essays, Classes IV., V., and VI. may be required to do shorter exercises in connexion with the rules and theoretical explanations given in class. These exercises must not require more than one hour's work a week.

"Besides the work mentioned in the plan Classes I., II., and III. may be required to do one or two short exercises a week, to be corrected in class, and not to require more than half-an-hour's work. Classes IV., V., and VI. are not to do more than one exercise a week.

We have received the following letter (date July 19th) from one of our correspondents :—

"I feel a little uneasy lest any impression conveyed through the report which I sent you as to the undoubted intellectual and practical superiority of the education in Germany may lead any parents to send their children out here. One has to admit many things to the credit of the Germans. For instance, we foreigners resident in Germany must acknowledge the kindness and ready sympathy shown to us. I often think, too, how little people at home realize what an earnest, thriving, and energetic nation it is whose young men are sometimes so lamentably preferred before our own in English houses of business. Here the streets are alive at an hour when, if one ventured out at home, it would only be to find oneself alone with the milkman. If one has business to settle here, it can be settled long before breakfast would be over at home. A man who wants to study a foreign language thinks nothing of asking to have the lessons at 6.30 a.m. They often remind me of the ants in those mighty ant-hills one has seen in the Berkshire woods : they are always thronging after business or pleasure. Nevertheless this is not the place to send English boys or girls for the purposes of education, especially children at an age when principles are as yet unformed. You have so much to do with parents and with children ; I should like to tell you, therefore, a few of the reasons which exist against such a course.

"'Mein Lehrer ist mein Feind.' This is a fixed idea with all ages, and any boys who attempt to treat the master with the smallest degree of consideration, or even of respect, beyond the mere outward show of it enforced in class, are accused by the others of wanting to creep up his sleeve ; so that there is a barrier between teachers and taught, and that the master should exercise any real influence on their characters is impossible. The rules are such as lead to all manner of deceit. When a boy wants a half-holiday, he must bring a note from the parents stating the reason. Generally a reason is invented, not by the boy, but by his parents. Delicate boys may absent themselves only when actually in bed, and under a doctor's care, and must send a medical certificate.

"Swearing is here not confined to any class or age, or to one sex. The name of God is introduced into the commonest conversation. This often with the addition of the 'Du,' and the familiar diminutive 'chen.' One overhears well-dressed little girls, sitting on seats in the great parks in the summer and skating in winter, bringing it every minute into their chatter. As to the interjections, a plate of soup too hot or too cold is sufficient to call forth a cry of the Holy Name ; and a candle suddenly going out, an exclamation derived from the Sacrament. A particularly wild Irish boy of seventeen said to me : 'I say, What do you think of these people, and the way they swear ? I'm no saint, but the first time I heard *that* it made my blood curdle.'

"Then the lying is shocking to the English mind—it must be experienced to be believed in. Lying is thought nothing of. One evening, in society, I heard a young lady say to her mother, loud enough to be heard by all those near her, 'Mama, du lügst.'

"I could give you many such reasons why young English boys and girls should not be sent over here to attend a public school.

"Even the Germans themselves admit that our national character and business faculties are not inferior to their own, and I am sure that all that is necessary is that our young people shall be armed with a more practical education. That education must, however, be provided at home. Those who come out here for it will probably lose, as regards qualities of character, that for which the acquisition of a foreign language will be a poor equivalent."

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

From the remaining M.A. Reports it appears that four candidates have passed in Branch III. (Mental and Moral Science, &c.), of whom one is a lady; and nine have passed in Branch IV. (Modern and Oriental Languages); at the head of the list stands Mr. Walter Rippmann, of Caius College, Cambridge, who recently passed with great distinction in the Modern and Mediæval Languages Tripos.

No candidate has passed the D.Sc. Examination, although it is known that at least half-a-dozen presented themselves. It would seem, from the examiners' point of view, that the exaction of a Thesis, which appears at first sight to be so much in favour of the candidate, does not bring out work of the high quality expected.

At the Matriculation Examination 1,614 candidates appeared, against 1,546 last year: 849 have passed (*i.e.*, 54·9 per cent., against 59 per cent. last year)—27 in the honours division, 600 in the first, and 222 in the third. 326 of the candidates were women, against 280 last year; and 185 (or 56·7 per cent.) have passed, against 164 last year (58·6 per cent.); 3 of these are in honours, 142 in the first division, and 40 in the second. Of the women in honours, the highest is Miss A. W. Aldis, of the Highbury and Islington High School, who stands third, and is disqualified by age from receiving the third exhibition; the other two stand, respectively, eleventh *æq.* and twenty-seventh. The first exhibition goes to the first candidate, Mr. J. G. Leathem, of Queen's College, Belfast; the second to the second candidate, Mr. J. B. Dale, of the Liverpool Institute; and the third to the fifth candidate, Mr. Hugh Player, of Amersham Hall School; the first prize goes to the sixth candidate, Mr. G. C. Bailey, of St. Mary's College, Woolhampton; the second to the seventh candidate, Mr. A. J. Rodocanachi, of University College School; and the third prize to the eighth (*æq.*) candidate, Mr. George Watson, of the Wyggeston Schools, Leicester; the fourth and seventh candidates, like the third, were too old for an exhibition or a prize.

Oxford.

Professor E. Ray Lankester, M.A., Honorary Fellow of Exeter College (formerly Fellow), has been elected Deputy Linacre Professor of Human and Comparative Anatomy.

There will be an election at St. John's College in October next to three open classical scholarships, one of the value of £100 and the others of £80 yearly. The examination will begin on Tuesday, September 30th.

Mr. J. U. Powell, B.A., has been appointed Classical Lecturer at St. John's College.

The third summer meeting of University Extension and other students will be held at Oxford in August next. The meeting will be divided into two parts. The first part of the meeting will begin with an inaugural address by Prof. Max Müller at 8.30 p.m. on Friday, August 1st, and will end on Tuesday evening, August 12th. The second part of the meeting will begin on Wednesday morning, August 13th, and end on Tuesday evening, September 2nd. This period will be devoted to quiet study. The courses of lectures will be longer than those delivered during the first part of the meeting, and will deal in greater detail with the subjects then introduced.

Cambridge.

At Queens' College there will be an examination on Thursday, September 25th, for an exhibition of the value of £40, open to all persons under 19 years of age, who shall not have commenced residence in the University. The exhibition will be awarded for proficiency in Hebrew. Particulars may be obtained on application to the Rev. Dr. Campion, or the Rev. A. Wright, Tutors of the College.

There will be an election to the John Lucas Walker Studentship in Pathology about August 26th. The studentship is of the annual value of £200, tenable for three years. The student is required to devote himself to original pathological research during the tenure of the studentship. Candidates are required to send in their names to Professor Roy, 2 Wollaston road, Cambridge, before August 26th. The student need not necessarily be a member of the University.

The Balfour studentship, of the annual value of £200, for original biological inquiry will be vacant in October next. The studentship is not awarded by the result of a competitive examination, but the managers of the Balfour fund take such steps as they think fit to inquire into the qualifications of the candidates. The student shall not necessarily be a member of the University of Cambridge. Subject to the approval of the managers, the studentship is tenable for three years, and in certain cases an extension of the tenure for a further term of three years may be made. Further particulars may be obtained on application to Mr. J. W. Clark, M.A., New Museums, Cambridge, to whom the applicants, with such information concerning their qualifications as they may think desirable, must be sent by October 1st.

Mr. Solomon Schechter has been appointed by the General Board of Studies to the vacant readership in Talmudic.

The Rev. E. T. Leeke, M.A., of Trinity College, Canon and Chancellor of Lincoln Cathedral, has been appointed by the Special Board for Divinity lecturer in pastoral theology for the year 1891.

Other Universities, Colleges, and Schools.

The results of the University of St. Andrews L.L.A. Examination for the present year have just been issued, from which it appears that 607 candidates entered for examination at 31 centres, as compared with 536 at 26 centres in 1889. Of these, 244 entered for the first time, as compared with 194 in 1889, and 174 in 1888. Taking a joint view of all the subjects in which candidates entered, passes were obtained in 594 instances, and Honours in 220. From the commencement of the scheme in 1877, 2112 candidates in all have been entered for this Examination, and of these 912 have obtained the title.

The new tower, which completes the college buildings at Clifton, has been opened at this year's commemoration. It contains three spacious and handsome rooms, which will serve as the council room, the sixth-form school, and the natural history school. It is the joint gift of the headmaster and old Cliftonians. The mosaic picture is now placed in the chapel as a reredos in an alabaster frame.

The Rev. M. A. Bayfield, of Clare College, Cambridge, Second Master of Malvern College, has been appointed to succeed the Bishop of Bangor as Headmaster of Brecon College. Mr. Bayfield was in the first class of the Classical Tripos in 1875.

The Rev. T. H. Bindley, M.A., of Merton College, Oxford, has been appointed Principal of Codrington College, Barbados

The Rev. S. M. Crosthwaite, M.A., Headmaster of Maidstone Grammar School, has been appointed Headmaster of Carlisle Grammar School.

The town clerk of Nottingham has received a cheque for £3000 from the Draper's Company in aid of the new technical schools in that town, to the charge of which Mr. William Robinson, late of City Guilds Institute, Finsbury, has been appointed.

EDUCATIONAL NOTES AND SUMMARY.

"Mansfield House," a new University settlement in East London, is to be opened in September. The Rev. F. W. Newland, the Honorary Warden, writes from Canning Town as follows:—

"For the past two years Mansfield students have very kindly sacrificed portions of their vacations in order to take part in work here; they have made many friends by their brotherly sympathy, and, at the same time, they have gained truer conceptions of the condition of the labouring classes and a practical insight into some of the most terrible problems of our complex civilization: a permanent settlement will afford magnificent opportunities for the extension of intercourse of this kind between different classes. Residence for nearly six years in this neighbourhood has impressed me with the conviction that only by personal service, personal intercourse, and personal sympathy can the most permanent good be effected. In no part of London ought a Sunday morning adult school, or a pleasant Sunday afternoon Bible class, to be more successful; while lectures on religious subjects, explaining the teaching of Christianity on social duty and similar topics, are certain to excite much interest. Evangelistic and temperance efforts need also to be greatly developed. On the *social* side of the work, the clubs for working-men and the institute for working lads, with all the societies and organizations which will naturally cluster around them, will fill up a gap which is very conspicuous here; the neighbourhood is practically without any such provision for healthy social intercourse and recreation. No less urgent is the need for *intellectual* development: classes, both popular and technical, are being sought after; and there is every prospect that the desire for increased knowledge will grow in strength rapidly. I am sanguine enough to anticipate that this side of the scheme will eventually develop into a fully equipped Polytechnic or Working Men's College."

We wish the venture every success.

We have received a copy of the following Rules and Conditions relating to the Travelling Scholarships instituted by the Gilchrist Educational Trust for Women Teachers:—

"1. The Gilchrist Trustees offer to women teachers two travelling scholarships of the value of £50 each for one year. Candidates will be required to fulfil the following conditions:—(i.) To hold either the Teacher's Diploma of the University of London or the Certificate of the Syndicate for the Training of Teachers of the University of Cambridge. (ii.) To have had at least two years' experience as a teacher in a secondary school or as a member of the staff of any training college for teachers of elementary or higher schools.

"2. The scholarships will be awarded to those candidates whose professional standing and attainments in scholarship constitute them the most worthy recipients. The award of the scholarships shall in the first instance be undertaken by the following bodies:—(i.) One scholarship in 1891 by the Council of the Maria Grey Training College for Women Teachers in connexion with the Teachers' Training and Registration Society, 5 Fitzroy Street, London, W. (ii.) One scholarship in 1892 by the Council of the Training College for Women, Cambridge. Applications should be accompanied by a complete statement of the qualifications of the candidate, which should be sent in to the Principal of the College before December 1st in each year.

"3. The holders of these scholarships must undertake—(i.) To spend three months in visiting schools in either France, Germany, Denmark, Holland, Belgium, Sweden, or America within twelve months of the time when the scholarship is awarded. (ii.) To make a full report of their observations to the Trustees of the Gilchrist Fund.

"4. The Councils of the above-mentioned Training Colleges will determine in each case—(i.) The country and schools to be visited. (ii.) The character of the report to be made."

The headmaster of Sherborne School, addressing the governors on the last speech day, said that during the past eighteen months the school has passed through as severe a struggle for the maintenance of its discipline and its very existence as could fall to the lot of any public school. Sherborne was by no means a wealthy school. It had not been easy to keep the school abreast of the requirements of modern education during a series of years, when, like other institutions dependent upon agricultural rents, it had suffered severely. If that had been accomplished it had been due, in great measure, to the steady accession of from 70 to 90 boys every year. The vigorous attack which had been made upon himself had, no doubt, succeeded thus far that it had—he hoped only for a time—tended to arrest the development of the school. Into the motives of that attack it would be impossible, even were it becoming, for him to enter. If a long record of tried work in the service of two great public schools, and the security afforded to the public by a governing body such as Sherborne possessed, were not sufficient guarantee that the headmaster was no petty tyrant or narrow-minded pedant, no amount of protestation upon his part that he had done nothing more than his simple duty to the school and to the parents of the boys would save him from disparagement. He had the hearty and unanimous support of a body of able and devoted assistant masters. It was his belief that, although Sherborne School had been for a time seriously depleted and impoverished by persistent misrepresentations, the school was never in a sounder condition in regard to all those moral and social relations upon which the happiness and well-being of a public school must ultimately rest than it was at the present moment.

The seventeenth annual report on the Local Lectures of the University of Cambridge, with appendices and class lists, is published. The syndicate report that the number of courses and students is larger than ever, and that the greatest increase is shown in connexion with the more specially educational features of the work—namely, the number of those who write weekly papers for the lecturers, and the number of those who present themselves for examination at the end of the course. The syndicate have from the first maintained the principle that the courses of lectures given under their management must be of considerable length, extending to 12 weekly lectures, with a "class" for more detailed work before or after each lecture. The result of this determination is that, of the 125 courses given in the last session, all but four or five have been courses of 12 lectures; while the report of the Oxford Delegacy, recently published, shows only four courses with so many as 12 lectures, and more than 110 courses with six lectures each.

An appeal to the public for funds to maintain and develop the objects of the Brown Institution, which was founded in 1871 by Mr. Thomas Brown, citizen of London, and placed by him under the trusteeship of the University of London, has been issued by Earl Granville, Sir James Paget, and Mr. Richard Quain. Mr. Brown provided for the establishment of a laboratory in which the origin and progress of diseases should be investigated, and a hospital in which animals belonging to poor persons, who were unable to pay for skilled veterinary advice, should receive it without charge save for the keep of the animal treated. He further directed that five lectures on pathological subjects should be annually delivered free to the public. The Committee of Management have carried out the benevolent intentions of the founder as freely as the limited means at their disposal permit; but as the annual income yielded by the bequest is only £1000, which barely suffices to cover present expenses, the committee feel that the time has come when they must either definitely restrict their operations, or ask for such public support as will enable these to be carried out upon a large scale and with greater efficiency. They take the latter course in the hope of obtaining the aid of all those who desire to alleviate the sufferings of domestic animals, and at the same time to enlarge the bounds of medical science. Contributions will be gladly received by Mr. T. Le Marchant Douse, the University of London, Burlington Gardens.

"The Best Curriculum" is the subject of an article by the Rev. W. H. Keeling, Headmaster of the Bradford Grammar School, in this month's issue of the *Parents' Review*. The writer suggests that up to the age of sixteen the course of education should be mainly classical and literary.

"After sixteen, if a learned profession is contemplated, and even if the best preparation for a commercial career is desired, the education should still be mainly classical, but room should be made for special work in modern languages, science, and other subjects according to the bent and destination of the pupil. Also for the great majority, whatever their aim may be. I would give two or three hours to science teaching. On the other hand, for all who have not been able to begin Latin and Greek before thirteen, I would seek to give culture through modern subjects. Again, when a boy is intended for a profession such as engineering, or for a trade requiring a knowledge of chemistry, I would, after sixteen, specialise on these subjects, at the same time taking care not to neglect the literary side of education, and I would allow the entire dropping of classics in such cases, and substitute English literature, French and German. I have not mentioned mathematics, for this branch is common to a classical and a non-classical education, though it is unwise to give mathematics too great a prominence, since for the majority of mankind a little of mathematics, even, goes a long way."

The annual report for the year 1889 of the Science and Art Department of the Committee of Council on Education, which has been recently issued, contains much varied and interesting reading. The Science and Art Department, better known to the world by its familiar name of "South Kensington," is not without its adverse critics. It has had a struggling youth and a stormy history; but it has now vindicated its position among the educational institutions of the country as the symbol and embodiment of the belief that industrial efficiency is largely an affair of sound knowledge and systematic training. The number of schools in which science and art are taught increases annually, while the requirements imposed on schools with regard to apparatus and experimental and practical teaching have, we are told, been constantly raised. There is, moreover, a progressive, though not very rapid, improvement in the general results obtained. Coming to the detailed reports of the Examiners we are told that "many of the teachers of drawing have "undoubtedly themselves much to learn," and, as drawing is the foundation of sound instruction in art, the remark is sufficiently significant. In science it appears, on the whole, to be satisfactory, though we cannot pretend to attach much importance in the sum of things to the results of examinations of which the examiners report, as regards the principles of mining, that "numerous phonetic attempts at rendering the names of gases, such as nitrogen and hydrogen, in a manner not in accordance with the received orthography of those words, almost lead to the belief that many of the candidates have never even seen these words either written or in print"; and as regards the principles of agriculture, that in certain schools the papers were of an "exceedingly illiterate character," while "a similarity in the answers gave the impression of attempts to reproduce lessons learnt by rote rather than of copying." Of the advanced and honours stages there is not much to be said. Not many candidates appear to attempt honours, and of these an appreciable proportion fail even to secure a pass. In the advanced stage the reports are various, the examiners in some subjects reporting a marked improvement and the attainment of a creditable standard of excellence, while those in others appear to think, with Professors Huxley and Michael Foster, the examiners in animal physiology, that "in a very large number of cases the amount of knowledge shown is not greater than that required for the elementary stage."

The Principal and the Professors of the University College of North Wales, Bangor, have written to the *Times* stating their objections to the scheme for a teaching University for London. They state that the scheme endeavours to combine in one institution two incompatible systems, an examining University for the Empire, and a teaching University for London. The functions to be discharged by these are wholly distinct, and it is impossible to devise any scheme which would provide at once a real teaching University and an impartial examining board. They object to the handing over to the London Colleges the government of what is really an Imperial Institution, maintaining that such an arrangement would involve a total disregard of

the rights of the provincial colleges, and would also fail to satisfy the conditions either of a general examining University or of a local teaching University. In their opinion the simple and effectual plan for satisfying, on the one hand, the legitimate demands of the London colleges for a teaching University, and on the other, the claim of the provincial colleges not to be degraded into an inferior position with respect to the examining University, would be to create a separate teaching University for London, and to leave the present examining body free and unhampered to continue the work it has done so well in the past.

The *Pall Mall Gazette* states that the headmastership of one of the most important of the public schools will shortly become vacant by the resignation of the Rev. J. M. Wilson. Mr. Wilson, who has held the headmastership for eleven years, is resigning in order to take ecclesiastical preferment, having been appointed by the Bishop of Manchester to the vicarage of Rochdale, in succession to the new Dean of Manchester, and also to the Archdeaconry of Manchester. We are informed by Mr. Wilson that the dates for his leaving Clifton and taking up clerical duties are not yet fixed. Mr. Wilson succeeded Dr. Percival at Clifton, and has fully maintained the high position of the school. Indeed, Clifton has, under Mr. Wilson's headmastership, been second to few, if any, of the Great Public Schools of the country. Mr. Wilson was a scholar of St. John's College, Cambridge, and was Senior Wrangler in 1859. In that year he was appointed by Dr. Temple to a mastership at Rugby, where he worked for twenty years—first as science and afterwards as mathematical master. On being appointed to the headmastership of Clifton, Mr. Wilson took holy orders, and was appointed chaplain to his old chief, the present Bishop of London.

At the Mansion House on Thursday, the 24th ult., Earl Granville presented the certificates, scholarships, and prizes to the successful candidates in the first examination, held in March last, under the scheme of "commercial education" of the London Chamber of Commerce. Sir John Lubbock, who presided in the absence of the Lord Mayor, defended the scheme somewhat apologetically, and again said the Chamber had found that the system of education pursued throughout the country did not give to young men those qualifications which employers desired, and the project had been formulated to prevent Englishmen being shut out of appointments which were now necessarily given to foreigners. After the prizes had been distributed, Lord Granville declared it would be gigantic folly to allow ourselves to be handicapped in the race with the nations of the world by ignorance of that commercial education which business men should possess. The Chamber of Commerce formed a committee for the consideration of educational questions, which had already had so great an influence by adding a "commercial side" to many large public and private schools. The attendance included Mr. Mundella, M.P., Sir Albert Rollit, M.P., Sir Philip Magnus, Sir Henry Doulton, Dr. Wormell, and Mr. C. W. Bourne.

A curious result of the Government's abortive Temperance legislation is that education comes in for a very welcome windfall. The sum that would have been devoted to the extinction of public-house licences, had Parliament approved the Government measure, is to be devoted in great part to the services of education. In England the sum set free goes to the County Councils, with an intimation that they may be called on by-and-by to make provision for intermediate technical or agricultural education. In Wales the County Councils are already armed with statutory powers of raising, to the extent of a halfpenny in the pound of the local rates, funds for the Joint Committee for Intermediate Education; now they may add, if they please, to this the sum that will fall to their share of the distribution. It comes, too, at the best possible time, we should say, that they could get assistance, when the initial expenses of a new scheme have to be incurred. In Scotland the County Councils are permitted to do as they please with their share of the money; and Ireland, which at present possesses no County Councils, gets her £40,000 for the purposes of intermediate education. Everybody seems satisfied with this appropriation of the money, and disposed to say, "All's well that ends well."

"Verily," says Mr. Frederick Harrison, like a true son of Oxford, and in his well-known high-pitched key, "the old University of Oxford is waking up, and is beginning to feel in earnest that it is a great national institution. The programme for the third summer meeting of the University Extension and other non-University students is now before the public, and the session which opens on August 1st promises to be the most important that has yet been held." "Practical men," he continues, "have long seen, with sorrow, that the stately foundations of Oxford and her improving machinery of mental growth hibernate (as Pat would say) during the whole summer, and are only at work for less than half the year. Three terms of about eight weeks each are said to use up the energies of students and tutors, and for some twenty-six weeks we are told it is not good for either students or teachers to remain within sound of "TOM." Various explanations are given of this phenomenon, as they are given of most phenomena. The students are, as a rule, not suffered to remain a day over the full term. The tutors are usually off, like the swallows, to another country, or even to another continent. Some say that men go away from Oxford in order to read quietly, and this school of exegesis asserts that they come to Oxford to play," and so on in Mr. Harrison's usual style. He does not forget his passage of arms with the Examiners, as is evident from this consoling thought of his: "The *Examinator Malignus* is less poisonous in August. And the great Don *Cram* has gone off to the Bernese Oberland." He does not, however, allow his enthusiasm to quite carry him off his legs, for at the end of his article he drops into soberness, and remarks—"The danger is that, like other learned gatherings, the meeting may degenerate into a big picnic." Well, what then? A holiday of three-and-thirty days in Matthew Arnold's—"Beautiful city! so venerable, so lovely, so unravaged by the fierce intellectual life of our century, so serene! . . . steeped in sentiment as she lies spreading her garments to the moonlight, and whispering from her towers the last enchantments of the Middle Age"—is an intellectual stimulus of no mean order.

In last Saturday's *Lancet* we are told that an Extraordinary Comitia of the Royal College of Physicians was summoned for Monday last, "to consider certain difficulties that have arisen with the College of Surgeons on the report of the delegates of the two colleges adopted by the College at the Comitia on the 9th inst." The Council of the Colleges of Surgeons is also summoned to consider the same question on the same day. The decision of the two colleges, our contemporary remarks, will be the turning-point of the whole scheme so far as the Faculty of Medicine is concerned, and the responsibility evidently rests with the College of Surgeons. It is understood that the Council of that body objects to such an intimate union with the University of London as the scheme necessarily involves, but wishes to control the examinations for the pass M.B. degrees by an external joint committee of the two Colleges and the University. It is obvious, continues the *Lancet*, that no University can allow its degrees to be conferred after examination controlled by a body partly composed of non-University representatives; and University and King's Colleges, recognising this, have agreed to send their representatives to the Senate of the reconstituted University, so that they may be placed on the standing committees in the Faculties of Arts and Science. The Fellows of the Royal College of Physicians are willing, by sending representatives to the Senate, to co-operate in forming a standing committee of the Senate for the Faculty of Medicine, so as to secure an organic and constitutional connexion with the new University, and also to provide for an efficient representation of the whole Faculty of Medicine of London in the counsels of the University. There cannot be two opinions that the Physicians are taking a much wiser course, in so electing to act, than the Surgeons.

The Minister of Public Instruction in New South Wales has decided to place a copy of Dr. Richardson's work on "Drink and Strong Drink" in the hands of every head teacher in the public schools. Teachers will be required to impart to pupils such instruction on the effects of alcohol and temperance as may be given without committing themselves to extreme views on the debatable question of total abstinence. If the educational bodies and County Councils would consider that the sums of which they have so unexpectedly become the residuary legatees, by the demise of the Chancellor of the Exchequer's ill-starred Bill, were impressed, as to part at least, with a trust to promote temperance in some such way as this, it might in the end be a more effective mode of dealing with a great public evil than in the direct manner, which has failed.

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THE EDUCATIONAL TIMES.

LONDON, AUGUST 1, 1890.

THE Report of the Department of Science and Art for 1889 is interesting, and in several matters suggestive, particularly by its references to Technical Education. We have always been of opinion that the proper functions of this Department were connected with secondary and continuation schools, not with primary and elementary schools. There are evident disadvantages in multiplying the departments which contribute to the maintenance of the latter. It becomes difficult when this is done to calculate the total cost per head, and to keep popular control of the total expenditure in schools. Even drawing, when it is a subject of general education in Board schools, should be dealt with as other subjects are by the Inspectors of the Education Department, and the payments on account of it should be scheduled with other grants. In support of this contention we need only refer to the origin in 1851, and the subsequent history, of the Science and Art Department. It was formed by consolidation of institutions, most of which had been long established. The oldest institution connected with the Department is the Royal Dublin Society, which, as early as 1800, received a public grant of £15,500, a sum it disbursed without being subject to much parliamentary control. The School of Mines, Geological Museum in Jermyn Street, and Geological Survey were in process of organization from 1837 to 1851, and were placed under the Chief Commissioner of Works; whilst the School of Design, which is the parent of the present schools of art located in all parts of the United Kingdom, and supported mainly by local authority and action, was founded in 1837 by Mr. Poulett Thompson, afterwards Lord Sydenham, and was subject to the authority of the Board of Trade.

All these institutions had in view the promotion of scientific and artistic knowledge of an industrial tendency at the expense of the State, but they acted in different ways, independently of each other, and were subject to different kinds of ministerial responsibility. It can hardly be said that they reported proceedings systematically to Parliament, but they made occasional returns, which were called for spasmodically and very much from accidental causes.

After the Exhibition of 1851, public opinion unanimously demanded that the State should give more systematic assistance to the scientific and artistic education of the people than it had hitherto done; and it was an obvious process, and in accordance with the working of institutions in this country, rather to improve and consolidate what existed already than to create a new institution.

Accordingly, in 1852, whilst Mr. Cardwell was President of the Board of Trade, the Royal Dublin Society, the Mining Museum and School in Jermyn Street, the Industrial Museums

of Ireland and Scotland, with the Department of Practical Art, were consolidated under a single parliamentary authority, and were required to publish an annual statement of the results of their working.

One beneficial effect of this consolidation was to call increased public attention to these institutions, and generally to lead the public more largely to demand the assistance offered by them than when they were isolated. And the bringing into one sum the cost of these institutions, while without doubt it led some to infer that Parliament had suddenly and largely increased its votes on behalf of science and art, yet it had the advantage of showing at once the total amount of the annual parliamentary votes on behalf of this part of the education of the country.

In a few years the Science and Art Department was removed from the Board of Trade, and established as the division of the Committee of Council on Education charged with the duty of offering to the public increased means for promoting continued or adult education. After the change all the functions attaching to primary education remained, as before, a separate division of the Committee of Council, and were carried on at Whitehall. The transfer of the Science and Art Department from the Board of Trade did not affect them, except to enable the President and Vice-President to render the working of any points of contact between primary and secondary (continued) education harmonious and consistent.

This being the history of the Department, what more natural than that it should take a part in the development of the continuation schools and technical schools, and what more unnatural than that it should be charged with part of the work of the Board schools and other public elementary schools?

The Department, however, is doing its legitimate work in dealing with trade and technical education. In a remarkably able criticism of the scheme of Polytechnics in London, Dr. Sylvanus Thompson has recently laid out the position of this part of the educational system as follows:—

"Technical education cannot, as a system, be divorced from secondary education of a non-technical kind; it is, indeed, only a part of secondary education, though distinct from the purely literary and purely scientific parts of secondary education in this, that whereas they are framed for the most part to lead onward to the work of the higher colleges, and so to the Universities, the system of instruction in a technical school should not in all its branches necessarily aim at leading the pupil onward to the higher technical college, and thence to the Polytechnicum or Technical University. In other words, the technical part of secondary education, though necessarily more specialised than the literary or scientific part, is still a part of secondary education, and as such ought to be arranged to fit on to the system of primary education, the latter being properly organized to lead up to the former. To carry out the proper co-ordination in the various parts of the complete educational scheme, all ought to be under one general administrative department of Government, with a responsible head, but with a sufficiently elastic system of administration as to allow of local adaptations in the code of instruction. The management of the organization for secondary and technical instruction should be in the hands of persons acquainted with educational methods and with the needs of local industries, and each secondary or technical school should be under the administrative guidance of a head who, by whatever name he is called, should be a person of wide educational experience. The instructors of the technical classes should obviously be craftsmen accomplished in the technique of their respective subjects, and gifted with the power of teaching it, and the principles that underlie it. The teaching must be live teaching, each pupil educating himself by working in the laboratory, or workshop, or studio, under an instructor who has worked in his trade. Such teaching is worth more than all lectures by the most eloquent of lecturers, worth more than all books by the most encyclopædic of writers."

This view exactly agrees with that of the Report before us. The Department of Science and Art has sent Mr. Gilbert Redgrave, one of its Inspectors, to visit Stuttgart, and to prepare a Report on the exhibition of the school work of the kingdom of Würtemberg, which took place in the month of August, 1889. Mr. Redgrave's report is printed in full in an appendix. Technical education in Würtemberg is organized in what are known as Trade Continuation Schools. Attendance is voluntary, a small school fee being payable, and the teaching takes place after work at night and on Sunday mornings. The instruction is adapted to give a practical direction, according to local requirements, to the study of drawing, modelling, and other subjects likely to be useful in trade and industries, and includes also the study of arithmetic, bookkeeping, and other mercantile subjects. As regards the teachers, the Report states that they are generally men employed in the local manufactures:—

"Teachers of many years' standing, skilled in their vocation, and at the same time in the confidence of the manufacturers, are selected by the school commissioners to inspect and report on the work of a group of schools. There are no permanent inspectors, and all the State supervision is managed in this way."

This fact, together with the keen and intelligent interest taken by the local manufacturers in the supervision and management of the schools, is insisted on by Mr. Redgrave as the secret of the success of the system.

From time to time we have drawn the attention of our readers to the points of difference which exist between the relations of Scotch education to the State and those which obtain in England. The Report just published of the Committee of Council on Education in Scotland for the year 1889–90 supplies us with the latest authentic evidence of the working of the Scotch educational system. The mere fact that it embraces not only a detailed account of the progress of elementary education during the past year, but also a notice of the operations of the Department in connexion with secondary and technical education, shows that Scotland is much nearer than England to having the whole of her education brought under the direction and control of the State.

It is very satisfactory to find that recent changes in the Code are working beneficially. That introduced as an experiment in 1886, and which provided for judging of the efficiency of that part of a school below the Third Standard by a collective test instead of an individual examination, has worked so well that arrangements have now been made for its extension and permanency, so that individual examination will not in future form the basis of any payment for the ordinary standard work of the school. It is justly considered that this step is one of great importance, and necessitates, on the part of school managers, increased care and vigilance. Confidence is, however, expressed that the loyalty with which the new system will be worked, not only by the officers of the Department, but by the local authorities, will justify what is characterised as a "bold reconstruction of existing arrangements."

In respect of night schools, also, the changes introduced by the same Code are working satisfactorily. There is an increase in the number of schools and in the attendance thereat, which doubtless is largely due to the wider range of instruction given in the schools under the arrangements of 1886. During the year, 221 (as against 200 last year) of these schools were examined; and 14,554 scholars (as against

13,151 last year) qualified for examination by having made the requisite number of attendances during the night school session. The Report places on record the fact that the Lords of the Council are as strongly convinced as formerly of the usefulness of such schools, both in developing and rendering permanent the work begun in the day schools, and also in the sphere of technical education with which the interests of the scholars are so vitally concerned, and express their desire to do all in their power to encourage and promote the prosperity of such schools, which, in their Lordships' judgment, appear "well worthy to share in the benefits of the Parliamentary grant in proportion to the amount of local effort spent in their maintenance."

In reference to the chief source of the teaching supply, the training colleges, we are informed that they are seven in number, and are recognised as accommodating 860 students. They thus furnish each year more than 400 teachers who have been trained for two years, a number nearly sufficient to supply the waste in the staff of teachers now employed. The School Boards and other school managers throughout the country, as well as the Education Department, have full confidence in the excellence of the work done by these training colleges. There has been, however, since 1873 a plan in operation for adding some attendance at University classes to the ordinary curriculum of the training colleges. Under this plan the fees of students, who, after giving proof of their qualifications, attended University classes, were admitted as part of the legitimate expenditure of training colleges. Advantage has been taken of this opportunity to a very large extent, the number of students who attended the University classes in the past winter being 138. Thus not a few of the future Scotch elementary teachers acquire some higher culture in a sphere larger than is possible in any institution devoted solely to professional training; and this, it is rightly judged, "will greatly help in maintaining the high standard which has always been a traditional characteristic of Scottish education." Further opportunities are now provided for such University education by allowing the students of training colleges to add a third session of attendance at the University to those which are concurrent with their attendance at the training colleges—a privilege, we are told, which is highly valued, and from which good results are hoped.

This is not all. Some of the University authorities have approached the Department with a view to developing further the connexion between the teaching profession and the Universities. "Any scheme," says the Report, "for this end will have our best attention, although there are serious difficulties to be met in devising any arrangement which would largely alter the relations of the State to the training of teachers." When we add to this the statement that 450 of the male teachers in the elementary schools are graduates, we get some measure of the beneficial influence which the Universities now exercise, and which they will exercise in a still greater degree in the future, over Scotch elementary education.

As to secondary education, the Report bears testimony to a considerable improvement having taken place in the condition of those higher schools which were brought within the operations of the Department by the legislation of 1885. The number of such schools now under inspection is 52. Of these 22 are higher class public schools, 22 endowed schools, and eight schools under voluntary managers, who have invited the inspection of the Department. Serious attention is drawn to points which operate injuriously on secondary schools. The first of these is the early age at which the pupils, and more especially the boys, are withdrawn from the schools, whereby they often miss the advantage of the highest class, so invaluable as the completion of a school training. Another is the irregularity of attendance, and the habit, which in some places has become very frequent, of withdrawing pupils before the close of the session, and of unduly prolonging their vacation. We can understand how the first of these practices comes into play, as we are familiar enough with it in England; but we confess we are surprised to learn that, in a country where education is so highly appreciated as in Scotland, there should be such laxity in the matter of attendance as is spoken of in terms not too strong by the Inspectors. We hope it does not arise from the cheapening of the cost of education which has been brought about by recent legislation. There is in this part of the Report, also, evidence of the readiness of the Universities to lend their aid and place their experience at the service of the Department. The Leaving Certificate Examination was undertaken after consultation with them, and great care was bestowed on the scheme, so as to ensure public confidence in its soundness. That that confidence has been secured is proved by the facts that the number of schools participating in the Examination, which was 29 in 1888, is now 43; that the number of candidates, which was 972 in 1888, was this year 2,528. Further, a large number of Universities and professional authorities have announced their readiness to accept the certificate in lieu of such preliminary examinations as are held under their directions.

The great saving in teaching power resulting from pupils working for one examination, recognised by the various professional bodies as of sufficiently high standard to entitle those who have passed it to enter on their professional training, will be fully appreciated by those who have had experience of preparing pupils for examinations different in point of subjects or books, but about the same standard of difficulty. As to proficiency of the pupils examined, the Report speaks favourably of the character of the work in mathematics and classics, but not so favourably of modern languages. As to the latter, it says: "We are forced to the conclusion either that insufficient attention is given to it, or that special difficulties have to be overcome in imparting in day schools of this kind a sound and practical acquaintance with modern languages."

With reference to technical education, we gather from the Report that the School Board authorities are proceeding with more than Scotch caution. They seem still to be very dubious about availing themselves of the provisions of the Technical Schools (Scotland) Act of 1887. "But," says the Report, "we are not disposed to infer from this that the subject is disregarded, and, on the contrary, we believe that it is attracting considerable attention, and that discussion is now doing much to define the proper aims and methods of such instruction. It is probable also that School Boards are anxious to consider this, not so much as a separate question, but rather as one belonging to the larger sphere of higher education generally, that they desire to weigh carefully the action it may be expedient for them to take, on grounds of public interest, in this larger question before embarking upon any

further development of technical education as one branch thereof."

Whatever may be the drawbacks to having the secondary education of a country under the control of a State department, we think no candid educationist can study the working of the educational machine in Scotland without acknowledging that a central authority, judiciously worked, possesses many great advantages for co-ordinating the various educational organizations of the country, and so influencing these that each shall work for the good of each, and that the whole available educational power shall be so disposed as to secure the maximum of efficiency with the minimum of friction or waste.

The plan of holding a summer meeting of University Extension and other students at Oxford may now be considered an established success. The third annual gathering, which will take place from August 1st to August 12th, and from August 13th to September 2nd, has proved so attractive that, we hear, considerably over 1000 students have signified their intention to be present; and there are rumours that there is likely to be, in addition, a fairly large contingent of teachers and others from America—the original home of summer meetings. The task of finding accommodation, entertainment, and instruction for so large a crowd has been a formidable one, and great credit is due to the committee and to Mr. Hewins for the way in which it has been accomplished. The first part of the meeting, which lasts twelve days, is not only shorter than the second, but is also more of a social character, and its courses of lectures are briefer. The second part aims at providing three weeks of quiet study. The list of subjects and lecturers is far too long for us to reproduce it here; but it may interest some of our readers to have a few specimens. In Modern History, amongst others, Professor S. R. Gardiner, Mr. C. E. Mallet, and Mr. J. A. Marriott will lecture. In Literature there are no fewer than eight lecturers, amongst whom we may mention Mr. A. Sidgwick (*Virgil*), Mr. Churton Collins (*Study of Poetry*), Dr. J. G. Bailey (*Shakespeare*); while Mr. F. S. Boas will lecture on Browning and Tennyson, and Dr. Murray on the History of the English Language. In Art, Mr. F. Seymour Haden lectures on Etching. In Science there are eight lecturers, amongst whom we note Professor Geddes (*Evolution*), Professor A. H. Green (*Geology*), and Mr. Mackinder (*Geography*). And perhaps not the least interesting of the series will be the lectures given by Mr. F. Madan on the History of Oxford. A few new subjects have been introduced this year as experiments, amongst which may be reckoned three lectures on the History, Theory, and Art of Teaching, to be delivered by Mr. H. Courthope Bowen. With so much to choose from, students may well be excused if they get a little "mixed"; but the older members have, no doubt, already learnt the wisdom of not attempting too many subjects. After all, it is holiday time; and it would be little short of folly to forget this, and, while straining after mental improvement, to miss the chance of regaining that freshness and brightness which is essential to all brain-workers, and especially to teachers. It should be remembered that it is quite as much "mental improvement" to regain brightness and freshness of mind as to increase one's store of knowledge, or to add to the number of one's possible points of view.

The question of holiday work which these gatherings at Oxford raise is, indeed, one both interesting and extremely difficult to answer aright. It is a new idea, and at present we have but little data to go upon. The problem in America is wholly different—for the simple reason that the summer holidays there are usually two or three times as long as the summer holidays in England; and even those who can afford to rush about somewhat, must find it a relief to spend a week or two of their spare time in quiet study. In England, where so much of our work in the middle of the year is done at high pressure, there is much more to be said for the theory that holidays in the warm weather (if we have any) should be devoted to sauntering and lying on the grass—if it be not too rainy—so that by the middle of September we may have recovered a normal human state. Will the Oxford gatherings be found to interfere with this? That is a question which the authorities will do well to take note of, so that in a year or two they may be able to answer the question definitely, and be in a position to make such changes in their programme as may render overpressure impossible, should it have been found that there has been any. Of the charms of the social and intellectual side of the movement we have often spoken, and would do so again were it any longer needful. It is clear that teachers and students of all kinds already appreciate these things to the full; and they are right. The good done is very great; and there could scarcely be a more delightful place for a summer saunter than Oxford and its neighbourhood. We wish the students a very pleasant time; and if they will take our advice, they will partake in moderation of the good things intellectual which are to be set before them.

REVIEWS, NOTICES, &c.

The Schoolmaster and the Law. A manual chiefly intended for the use of Private Schoolmasters. By James Williams, B.C.L., M.A., of Lincoln's Inn, Barrister-at-Law, Fellow of Lincoln College, Oxford. (*George Bell & Sons.*)

It is not easy *à priori* to assign a reason for dedicating a book bearing the comprehensive title of "The Schoolmaster and the Law" to the use chiefly of private schoolmasters; nor are we able, after a careful perusal of its contents, to render any reason for this, that seems to us sufficient. It is true that the Preface discloses the fact that much of the matter of the book has already appeared in the *Private Schoolmaster*, and we are told on the title page that the editor of that paper assisted the learned author in compiling the little manual. Possibly it is to this accident of an accident that we are to attribute the narrow scope of the work and its misleading title.

However this may be, the author, in purporting to write a book of law for the use chiefly of the private schoolmaster, puts himself in the illogical, if not absurd, position of writing on a law that has no existence. The private schoolmaster, as such, has no more necessary connexion with the law than any of the Queen's subjects. He is liable on his contracts, for his torts and crimes, as other men are, and not otherwise. He has no *status*, in the sense that an infant, a married woman, or a lunatic has a status. There are no common law rules or statutory enactments solely applicable to him, in the sense in which there are common law rules and statutes applicable, say, to the patentee of an invention, a common carrier, or an innkeeper. His relations to the public or to his assistants are not in any way qualified or regulated by statute, after the manner of schoolmasters holding office under the Endowed Schools Acts or the Elementary Education Acts. Hence we must not expect, in the little work under notice, an exposition of any branch of the *corpus juris* that can be isolated from the whole, and treated apart for the benefit of the private schoolmaster. It cannot, at best, be much other than a more or less adequate compendium of cases in which schoolmasters have been concerned either as plaintiffs or defendants.

We do not say that such a compendium may not be useful—

indeed, if it induces any schoolmaster to read a standard book on contracts, such as Sir William Anson's or Sir Frederick Pollock's, or a standard book on torts, it will not fail to do some good.

The book consists of seven chapters, the last three, on "The Married Woman as Teacher," "The Infant as Teacher," and "Procedure," being comprised in ten pages. The infant teacher has the same rights as any other infant; and the married woman teacher is entitled to her earnings, as other married women are, under the Married Women's Property Act; and this is practically all that the two chapters devoted to infants and married women tell us. As to the chapter on Procedure, we think it might very well be omitted. When a schoolmaster has the misfortune to be either plaintiff or defendant in an action, our view is that he had better leave procedure to his solicitor. Cutting blocks with a razor would be a sensible proceeding compared to putting a schoolmaster to do the work of a solicitor's clerk.

There remain four chapters, and of these the first two might be rolled into one. The very titles of the chapters, viz., "The Schoolmaster and the Public," and "The Schoolmaster and other Schoolmasters," imply as much; and when we look into the chapters themselves, we find the same ground is either gone over twice, or matter is discussed in one that might as fittingly be discussed in the other. Thus the first sentence of the first chapter is, "The establishment of a new school in a neighbourhood is not an actionable nuisance," and on the first page of the second chapter we meet this, "The opening of a new school is, in the absence of any contract creating as between the contracting parties a partial monopoly, merely *damnum absque injuriâ*, and does not give the first comer any right of action against the competitor." Now the maxim *Ex damno absque injuria non oritur actio* covers both, and they might have been given once for all as illustrations of it. Again, in the first chapter we find discussed, in connexion with libel and slander, the case of Hume *v.* Marshall, which was an action brought by an assistant-master of Dulwich against the second master of that college, as also the recent case of Malan *v.* Young, an action by an assistant-master at Sherborne against the headmaster; whilst in the second chapter we find discussed the cases of Dummer *v.* Corporation of Chippenham, Hayman *v.* Governors of Rugby, Regina *v.* Governors of Darlington Grammar School, and Whiston *v.* Dean and Chapter of Rochester, which are certainly not cases between schoolmaster and schoolmaster.

The third and fourth chapters, which treat respectively of "The Schoolmaster and the Parent" and "The Schoolmaster and the Pupil," will undoubtedly prove the most useful in the book. The rules given at the end of Chapter III. will, if observed, safeguard a schoolmaster in all ordinary cases against lawsuits, and, where he is involved in one through no fault of his own, will secure, in all but very exceptional cases, that he is on the right side. We have not left ourselves space to go through these chapters in detail. We may say, however, that in respect to arrangement and substance they are those with which we have least fault to find. Nearly all the important decisions bearing on the points discussed, down to the date of publication, are given. There remains to be said that the book is within the reach of all, as its published price is only one-and-sixpence.

In conclusion, we venture to express the hope that those for whom this little book is designed will rise from a perusal of its seventy-six pages with a desire to study the principles of that law of which they only catch fugitive glimpses therein. English law has from the earliest times enlisted in its service a fair share of the ability of each generation of Englishmen, and it is a serious defect, we cannot but think, in our current systems of education that a jurisprudence which counts Coke, Somers, Holt, Hardwicke, Mansfield, Parke, Willes, and Jessel among a few of its luminaries makes for so little in the education of educators. All the grand qualities which Sir Henry Maine ascribed to the Ulpians, Papinians, and Pauluses of Roman Jurisprudence might be identified, as he remarks, with one or another of distinguished English lawyers. To use Sir Henry Maine's words, we see "the same force and elegance of expression, the same rectitude of moral view, the same immunity from prejudice, the same sound and masculine sense, the same sensibility to analogies, the same keen observation, the same nice analysis of generals, the same vast sweep of comprehension over particulars."

It surely is a grievous waste of moral and intellectual stimulus, from which the whole nation suffers, that so few opportunities are provided in our schemes of liberal education for bringing the minds of our youth under the influence of a discipline at once morally and mentally bracing and valuable in the practical affairs of everyday life.

General Metaphysics. By John Rickaby, S.J. (*Longmans.*)

We are so accustomed to look upon the Middle Ages as cabin'd, cribb'd, confin'd, both in the products of their thinking, and also in the processes by which they arrived at their conclusions, that the mere mention of the old schoolmen seems the occasion for banter about angels dancing on the point of a needle. We all of us recognise the Renascence as delivering us from the "Dark Ages," as "the discovery of the world and of man," as Burckhardt terms it, as "the substitution of substance for form," to quote Professor Laurie's generalization. What good, then, can come from such a period of history? If there is any good, who, with such preconceptions, will listen to it? Is there any hope for the philosophy of such a period? To speak calmly, have we not, since the Middle Ages, had such a wealth of experience, such a wealth of thinkers on that experience, that the philosophy of that age is for us obsolete? In other words, can an age in which Herbert Spencer speaks to us, with the ripened experience of the centuries, and especially of the last century, listen patiently to Thomas Aquinas? For ourselves, we confess that to answer "No" would be to show that modern philosophy has made little advance on the philosophy of the Middle Ages—in the matter of dogmatism. The truth is, that though we now have an unspeakably large accumulation to the material of our knowledge, which research after research, laboured observations and experiments, together with the elaboration of scientific method, have brought about, that though new sciences by the score have swum like stars into our ken, that new generalizations have, so to say, organized and classified the multitudinous new details, yet the reasoned explanation of this widened field of knowledge is no more certain to-day than it was of the narrower field of vision six or seven hundred years ago. That we know more about the world in which we live is certain; but who yet has authoritatively solved the problem, "How do I know anything at all?" "How do I, the thinking subject, enter into the consciousness of the thing perceived, or thought of?" "In knowledge, how do we bridge over the abyss between Mind and Matter?" "Is either anterior to the other?" Or, indeed, does Mind exist apart from Matter? Or, on the other hand, does Matter exist apart from Mind?

Now, on these fundamental points, men have had opinions, ever since they made any attempt to give a reasoned explanation of things at all. Notice, too, that our present-day clearer recognition of the content of mind and of the content of matter does not closely affect the general relation of mind to matter. Accordingly, it seems to us to be an interesting, if not indeed a useful, contribution to philosophy to restate the more general problems of the Metaphysics of Thomas Aquinas, correcting and interpreting into the terms of to-day, wherever more exact and detailed knowledge can improve upon that philosopher. This appears to be the aim of Father John Rickaby. The book, of course, appears in the interest of the Catholic system. With this, we have nothing to do. From our view, we have to point out that this is the best presentment, as far as we know, of the scholastic philosophy, and that, for clear treatment of a complicated and abstruse subject, we have a model in method and style. So, whether we agree or not with the conclusions arrived at, at any rate the reading is sound mental discipline.

As an example of Father Rickaby's power of illustration, we take the very difficult definition of *Being*. He quotes Thomas Aquinas: "It is true that Being (*Ens*), so far as it signifies that which is apt to exist (*secundum quod importat rem cui competit esse*), means the essence of the thing." To explain that by the term Being he includes not only actual, but also potential existence, he says: "Just as a Protestant, in these days of easy tolerance, might pass all his days without ever actually protesting, and yet would have claim to his title because his position is one that might naturally lead to a protestation; so a Being may never actually be, and yet deserve its name, because it truly presents an actualizable nature. It so presents itself to thought, and thus the vulgarism *somethink* for *something* is not altogether a useless reminder of what many suppose to be a correct piece of etymology. They connect *thing* and *think* as *ding* and *denken*, or as *res* and *reri*." Or, again, our author says: "Every object is a Being so far as in answer to question, What is it? the intellect must reply, 'It is a *something*, an *Ens essentiae*.'" Mr. Rickaby points out that attacks may be made on this doctrine. It may be said (1) The fact of essence, we grant, but we deny the impossibility of any knowledge; (2) the fact may be declared doubtful; (3) "the so-called fact may be pronounced a fiction of the mind." The following illustration is given:—

"In the hidden personality of an Oriental monarch, who sometimes holds himself aloof from his people as the great, mysterious power in the background, we may find these three corresponding stages of belief and disbelief. One subject of the prince might say, 'There is such a potentate, but that is all I know;' another, 'I doubt whether there is such a potentate;' a third, 'Such potentate certainly does not exist, and those styled his Ministers are our real and only rulers.'"

The subjects dealt with include the following: The Notion of Being; Essence and Existence; Three Attributes of Being, namely, Unity, Truth, and Goodness; The Possibilities of Being; The Finite and Infinite in Being; Substance and Accident; Substance as Hypostasis and Personality, Causality, Relation, Space and Time.

German School Books.—(1) *Gustav Freytag's Die Journalisten. Edited by W. D. Toy, M.A.* (2) *Wilhelm Jensen's Die Braune Erica. With Notes by E. S. Joynes.* (3) *Onkel und Nichte. By D. Faulhaber, Ph.D.* (4) *One-Year Course in German. By D. Faulhaber, Ph.D.* (*Boston: D. C. Heath & Co.*)

Freytag's play, *Die Journalisten*, is in a fair way of becoming one of the most-edited German books. The choice is, on the whole, commendable enough. It is harmless, rather amusing, and was written by the author at a time when he had not yet adopted the affected, not to say stilted, style, which somewhat mars his later writings. The dialogue is easy and frequently even elegant. The only objection that might be urged against the *Journalisten* is, that the play will hardly interest English readers, young or old; simply because it unrolls a picture of occurrences, and of all sorts and conditions of men, which are quite alien to them. It portrays, in fact, the German journalistic world, such at least as it was in former years, and some interesting details regarding the origin of the comedy will be found in the author's autobiographic reminiscences, published some time ago. We recommend the editor of the present play to consult that little publication, before issuing a second edition of the book, and to embody the substance of the respective passage in his "Biographical Note." He will then score a great advantage over all the other editors of the play. We should also recommend him to correct several misstatements in the short biographical notice prefixed to the volume. Freytag did not undertake, together with Julian Schmidt, the "management" of the *Grenzboten*, but the *editorship* of that journal, and the latter was not a political "newspaper," but a politico-literary magazine. Prof. Toy's edition is an honest attempt to use the text of the play as the basis of grammatical instruction. His notes contain some useful hints, both grammatical and idiomatic; but several of them are too long-winded, and others are too abstrusely worded for ordinary school use. We will quote one example only, in order to substantiate our strictnre. To the simple phrase, *Ich würde Sie behalten*, the following note is given:—"Apodosis of an ideal conditional sentence, to which a protasis, like *wenn dem so wäre*, is to be supplied from the context. As its name implies, this condition presents a mere possibility, lacking the forcible energetic expression of the logical condition, and the notion of impossibility of the unreal condition." What is the school boy or girl to make of this philosophical definition of a common colloquial phrase? Several other notes, of which we will point out a few onl alsoy, require correction. *Abgeordneter in Hoffnung* means "a deputy *in spe*," and not "a would-be legislator." The word *Darnenrose*, applied as a nickname, to a young lady, named Adelheid, who has a seeming aversion to marriage, is explained: "*Sleeping Beauty* in the story of the Brothers Grimm. Adelheid was so called because of the many unsuccessful attempts to win her hand." This interpretation is quite erroneous. The expression *Dornenrose* is here simply taken in its literal meaning of "thorny rose"—*i.e.*, a rose that pricks—and it has nothing whatever to do with *Dornröschen*. In spite of these and some other shortcomings, Prof. Toy's performance gives the impression of being the result of earnest grammatical studies. We may also mention in his commendation, that he duly acknowledges it, whenever he has adopted any remark or rendering from his predecessors,—a practice which is, unfortunately, not always observed by other editors of school-books.

We cannot agree with Prof. Joynes, that Wilhelm Jensen's novelette *Die Braune Erica*, "is specially fit, in matter and style, for use in class-reading." The tale is not actually objectionable, but its tenour is rather "sensual." In this part of the world, at least, the book is not likely to be relished by either teachers or pupils. In glancing at the notes, which, by the bye, are not conveniently printed for reference, we hit upon the translation turned topsy-turvy" for *übergeschnappt*, whilst any little dictionary would tell the student of German that it means "cracked" or "crazy."

Dr. Faulhaber has issued a "German story for sight translation," entitled *Onkel und Nichte*, of which he seems to be the author. The tale has been composed with a laudable intention, and has both a moral and a patriotic tendency. We think that the author would have done better to publish his novel first as a purely literary production, not intended for school use. The critics would then have told him what they think of its literary merit. To us it does not seem of particular interest, and we cannot agree in all instances with the author's attempts to substitute purely Teutonic expressions for foreign words. Thus *Casematten*, "casemates," are certainly not *Soldaten-Wohnungen*, and even the most fanatic German purists would not commonly use the word *Regimentsbefehlhaber*, instead of *Oberst*, "colonel."

Dr. Faulhaber's *One-Year Course in German* consists of two parts. The first contains the accidence of German Grammar (in which the author, of course, adopts his own system of the declension of nouns) in a very condensed form. The complete list of irregular or strong verbs, with their various forms in the present, as well as in the past tenses, will be found particularly useful. The second part contains "Reading Exercises," chiefly intended to illustrate the rules in Part I. The "reading-matter" is, on the whole, well-chosen, but we did not expect to find a difficult passage from "Faust" at the beginning of the practical part. The author gives two Vocabularies: one after each passage and another in alphabetical order at the end of the book. One of these Vocabularies is certainly superfluous.

Syntax of the Moods and Tenses of the Greek Verb. By W. W. Goodwin. (*Macmillan.*)—A peculiar interest and value must necessarily attach to the final form of a treatise like the present, which the author, in the full maturity of his powers, has been able to revise, or rather to rewrite, after the lapse of thirty years, "under the greater sense of responsibility which doubled years and more than doubled experience have taught him." The small volume which Professor Goodwin, with no affected modesty, calls an ephemeral production, "written in the enthusiasm of youth," has long been a standard authority in England. It now appears as a handsome octavo, enlarged to nearly twice its former size. Every page bears evidence not merely of careful revision, but of the advance in scholarship which has been achieved in the course of a generation. The labours of Delbrück, of Lange, and of Schanz, with his fellow-workers Weber, Sturm, Schmidt, Grünewald, and Birklein, have not only greatly increased the apparatus of scholarship, but have largely affected its methods. It is the views of the first-named, and not those of Kuhner and Rost, that are now discussed in the Appendix on the relations of the optative to other moods. The introduction of statistics to scholarship by the last-named has afforded material for the new Appendices III. and IV. It is a strong testimony to the sureness of touch characteristic of the author that his conclusions have undergone such substantially little alteration, though they are sometimes supported on new grounds. For example, he rejects now, as decidedly as in his second edition, the theory of Elmsley involving different explanations of the constructions of οὐ μή with subjunctive and future indicative respectively, which had been adopted with some misgivings in his first edition. But, while he insists still that both constructions must be explained on the same lines, the explanation of οὐ μή as forming a strong single negative is replaced by one which regards the negative force of μή as in abeyance, as in the Platonic μὴ φαυλὸν ᾖ, μὴ ἀναγκαῖον ᾖ, practically cautious assertions which are then converted into negatives by οὐ. The sentences which were claimed as decisive witnesses in favour of Elmsley's theory, such as οὐ σίγ' ἀνέξει, μηδὲ δειλίαν ἀρεῖ; are explained as two separate interrogations, introduced respectively by οὐ (*nonne*) and μή (*num*), so that they are not instances of the construction with οὐ μή at all. The part of the book with which we feel least satisfied is the theory of the tenses, especially in the treatment of the present and aorist infinitive and participle. The remark that the present infinitive in indirect discourse, besides representing, as it generally does, a present indicative, may also represent an imperfect indicative, "thus supplying the want of an imperfect infinitive," is rather like the explanation that *posse* is sometimes used in a future sense because *possum* has no future participle. If the present infinitive is thus found used in a sense which on our theory ought to be impossible, surely it follows that our theory is at fault. In the same way when, it is observed (§ 673) that the present optative supplies the want of an imperfect, but

that this "can be done only when the context makes it perfectly clear that the optative represents an imperfect and not a present," it is obvious to reply that it is only from the context that we can discover which it is used for. We are misled by inferences drawn from the name "present," which is merely accidental, and is better taken as meaningless. It is a great point to have got rid of the unfortunate expression that the aorist denotes "the momentary occurrence of an action," or "a single and momentary action." Most teachers have had experience of the misconceptions to which these expressions give rise. One very important improvement has been made in the substitution of short sections for the long sections subdivided by a bewildering succession of numbers, letters, notes and remarks, which made reference, except by the page, most difficult. The fact that the latter numbered only 114, while the former amount to 926, will indicate the gain in practical convenience. In one respect we think a change has been made for the worse. Surely it is more generally convenient that, in references to the orators, the speeches, as in former editions, should be named, and not merely numbered. The names might at all events have been given in the index of passages referred to. We congratulate Professor Goodwin on the reissue of his great work, which has fitly preceded the honours conferred on him by the University of Oxford. In its new form, even more than in its old, it is indispensable to every scholar.

First Lessons in Political Economy. By Francis A. Walker, Ph.D., LL.D. (*Macmillan.*)—Dr. Walker is one of the ablest students of political economy, and one of its clearest exponents. He is well known as a writer on "The Wages Question," "Money," "Land and its Rent," and larger text-books. Having thus dealt at length in these larger treatises, he has well equipped himself for the work of writing these "First Lessons." It seems sometimes as if the writing of a small book were a small matter, but Dr. Walker is of a different opinion. He says, "In writing its pages, I have been well aware that the object sought is the most difficult at which an economist can aim." We cannot but feel that a work by a man of such knowledge of economics, written in the spirit he has written, has, *à priori*, all the elements of success. But Dr. Walker would tell us—nay, he does tell us—that whether the book be successful or not will only be learned on actual trial in the schoolroom. We therefore at present are excluded from saying much as to the value of the book. After perusal of some of the chief stumbling-blocks to the beginner, we may say we are struck by the lucidity of the explanations and the appositeness of the examples. Dr. Walker is particularly happy and judicious in his application of the principle that it is the cost of production at the greatest disadvantage which determines the value of the products. Dr. Walker states the case for land nationalization, but maintains that the private ownership of land is "inexpressibly superior" to collective ownership. Perhaps this strong expression of opinion, although supported by reason, is hardly necessary in an elementary exposition of first principles, for the nationalization of the land is precisely one of those subjects as to which the student should look for guiding principles and materials for consideration, but on which he should be encouraged to form his own opinion, and not that of either Dr. Walker on the one hand, or Mr. Henry George on the other. We only say, further, that Dr. Walker selects the class-room as the court in which his book should be tried. We only say to the teacher, in addition, that, judging by reference to the book on critical points, to the class-room let it go. It has all the promise of being an excellent class-book.

Handcraft. By J. D. Sutcliffe. (*Griffith, Farran, & Co.*)—This book contains the best account of the Sloyd system we have seen, and is primarily intended as a text-book on the subject for teachers. The Sloyd models are carefully described, and full notes are given upon their construction; but suggestions upon the use of tools are advisedly omitted. The notes are accompanied by carefully designed scale drawings, and in this respect the work is a distinct advance upon all others on the subject. We think a great point would have been gained if it were insisted that, before constructing models, the pupils should *themselves* make scale drawings of them. The regulation laid down in the last Minute issued by the Committee of Council on Education in reference to Manual Instruction is that "The work must be from drawings to scale previously made by the students." Teachers will find in this work a plain account of what the Sloyd system is capable of effecting, and our opinion is, that for young children, of say from nine to ten years of age, or for children who have plenty of time to devote to manual instruction, the system might be introduced with advantage. The book is also intended "as an incentive to parents, educationists, and statesmen to fortify the rising generation of England against the opprobrium so justly alleged against the English of the present day, that they are behind the rest of the industrial world in those elements of mechanical taste and skill which are becoming more and more essential to the maintenance of manufacturing and commercial prosperity.". We do not entirely agree with this statement, so freely made by those who view everything foreign with such partial eyes. Certainly, from the results which have come under our notice, we do not think the Sloyd system could be applied in England more than we have indicated above, and to other systems of manual training we must look for help to wipe away the alleged disgrace.

OUR LIBRARY TABLE.

The Elements of Laboratory Work. By A. G. Earl, M.A., F.C.S. (*Longmans.*)—This purports to be an introduction to all branches of natural science, but we doubt whether young students, or those previously unacquainted with practical physics, will derive much benefit from the book. There is an absence of simple experiments, and we are at once plunged into matters that require considerable skill and practice. Moreover, the terms used are such as would require more explanation than seems justified by a book for beginners, and indeed would be quite unintelligible to most. There is, however, much that is to be commended, and those schoolboys who can understand such exercises as—"Show that every portion of a rotating body moves either in a plane or non-planar curve," or "Show that two mutually electrified bodies behave, when separated, as if they were joined by some extensible but elastic material," or who can "Draw a diagram showing the method of obtaining an absorption spectrum," will find the book useful.

Longmans' School Trigonometry. By Rev. F. Sparks, B.A. (*Longmans.*)—This is strictly an elementary book designed to meet the requirements of such Examinations as Stage 2, Mathematics, South Kensington. It covers the whole of the subject as far as the end of the "Solution of Triangles," including practical applications. The distinguishing features are the geometrical proofs of formulæ connecting the ratios of two angles, the graphs showing the growth and variations of functions, and an unusually copious supply of well-chosen examples.

Longmans' Junior School Algebra. By W. S. Beard, F.R.G.S. (*Longmans.*)—Very little attempt is here made to explain the principles and rules, this being, as the writer states, left to the teacher. The book is therefore reduced to little more than a collection of sets of examples, and as such it may probably be found useful.

Text-Book of Practical Plane and Solid Geometry, Parts I. and II. By J. Spencer, B.Sc., F.C.S. (*J. Boulton & Co.*)—This little work is written for the use of students preparing for South Kensington Examinations in the subject. The propositions are the accumulated results of some twenty years' teaching, and as such Mr. Spencer may fairly hope to have included what is likely to be most useful. The Solid Geometry in Part II. seems particularly good.

(1) *Forty Lessons in Carpentry Workshop Practice. By C. F. Mitchell.* (2) *Practical Plane and Solid Geometry, Vol. I. Elementary. By Henry J. Spooner, C.E., F.G.S.* (3) *Engineering. By C. F. Mitchell.* (*Cassells.*)—These three works form the basis of a series known as the Polytechnical Series. Technical education is receiving great attention in this country, and new "Polytechnics" are being opened; so that such a set of practical books as this will be greatly in request. They are all written by teachers daily engaged in the work, and in a position to appreciate the real wants of students. The diagrams are excellently drawn, and the printing and style leave nothing to be desired.

Thirty-six Observation Lessons on Common Minerals. By H. L. Clapp. (*Heath & Co.*)—This is one of a series of guides for science teaching issued by the Boston Society of Natural History. The lessons are based chiefly upon the more salient and obvious physical properties of the common minerals, such as hardness, weight, colour, form, &c., with only occasional or incidental references to their chemical behaviour. In an Appendix is given some information on asbestus, calcite, coal, graphite, iron, mica, serpentine, talc, tin, and zinc.

Royal Story-Book Readers. (*Nelsons.*)—The four volumes before us are well bound in blue covers, and are adapted to the requirements of Standards I. to IV. They contain many first-rate illustrations, and are clearly printed in types which decrease in size as the books advance in difficulty. Each reading-lesson is followed by lists of words for spelling, notes and meanings, and easy grammatical notes. The volume for Standard I. is entitled "Stories and Fables"; for II., "Stories of Children's Pets"; III. is the "Hans Anderson Story-Book"; IV., "The Swiss Family Robinson."

Supplement to the Student's Plane Trigonometry. By Thomas Roney. (*Allen & Co.*)—The general appearance and style of this work is similar in every respect to the author's "Student's Plane Trigonometry." It contains all the recent papers in the subject set at the various Military and University entrance examinations, with answers, explanations, and full directions for the solution of all the difficult problems.

Analysis of the Catechism of the Church of England. By the Rev. Lewis Hughes, B.A. (*John Heywood.*)—Notes and examination questions are the special features of this analysis. It will be found especially useful in the preparation of candidates for Confirmation, and as a text-book for Sunday-school teaching.

New Arithmetic, Mental and Practical, in Seven Books. (*Longmans.*)—The seventh and last book of an excellent little series.

Light: An Introduction to the Science of Optics. By E. Wyndham Tarn, M.A. (*Crosby Lockwood & Son.*)—Without dispensing altogether with mathematics, the author has arranged his work to suit those who have only an elementary knowledge of geometry and algebra, by avoiding all subjects which can only be understood by help of the higher mathematics. There are nine chapters in the book, under the headings of Photometry, Reflexion and Refraction of Light at Plane and Curved Surfaces, Lenses and Telescopes, Chromatics, Double Refraction and Polarisation, and Illumination by Diffused Light.

Coloured Music System, Book I. By E. M. Story. (*Philip & Son.*)—This novel pianoforte instruction book for beginners contains only six pages. Colour is the basis of the system. Simple mnemonical verses teach the names of the colours corresponding with the notes of the pianoforte, both treble and bass. The colours do not change; so, whether within, above, or below the stave in treble or bass, the purple line always represent E, the green line G, and so on, while the spaces necessarily lie between the same colours. It is certainly strikingly original, and we believe it will prove attractive.

Platonis Euthyphro. By J. Adam. (*Cambridge University Press.*)—Mr. Adam has here followed up his well-known editions of the Apology and the Crito by a similar edition of the Euthyphro, which, in spite of its suitability as an introduction to the serious study of Plato, has not, we believe, previously appeared in England in a separate form. The introduction and commentary are full and excellent. In a few cases, as in illustration of ἀλλὰ γάρ, we think it might have been better to repeat a note already given on the Apology, instead of giving a reference to it. But perhaps this is a good way of reminding us that the Apology should be read first. We hope Mr. Adam will edit other dialogues.

Tales and Stories. By Hans Christian Andersen. Edited by Alfonzo Gardiner. (*John Heywood.*)—This edition is for school use, and contains nothing which is unsuitable for children's reading. In making his selection, Mr. Gardiner has retained tales of world-wide popularity, such as "The Ugly Duckling," "The Tin Soldier," &c.; parables from nature, as "The Flax," "The Snowdrop"; and flights of fancy, as "The Shadow." He has also added helpful explanations to make the tales thoroughly understandable by English children; the particular lessons taught by the tales, and all topographical and historical allusions, are pointed out.

The Day School Hymn Book, with Tunes. Edited by Emma Mundella. (*Novello, Ewer, & Co.*)—A hymn book intended solely for the use of day schools, containing such hymns as are suited to ordinary week-day morning use. The book will be found acceptable in schools in which the religious teaching is compulsorily undenominational in character, for no hymns of an especially doctrinal tendency have been chosen. All the hymns and tunes are by well-known authors and composers.

Scriptural Revision Cards: St. Luke. By A. J. Wyatt, M.A. (*Relfe Brothers.*)—This card is intended as a test of candidates for the Local Examinations, in their familiarity with the text and matter of the books of the Bible. There are 142 texts, and students are asked in what connexion the texts occur, and to comment, where necessary, on the texts themselves.

Sentences for Translation into French. By Edward E. Bowen, M.A. (*Percival & Co.*)—This little book contains 2,201 sentences, placed in no regular order, but gradually increasing in difficulty as they advance. They are not intended to teach rules, but to give practice to those who have learnt them. There are no notes, references, or vocabulary, and there is no key.

Milton's Samson Agonistes. By H. M. Percival, M.A. (*Macmillan & Co.*)—Little is omitted in the Introduction and notes of this classic which a student is likely to require. We have read the Introduction with pleasure; and a close examination of many of the notes has failed to bring to light anything with which we can find fault. On the other hand, Mr. Percival deserves much praise for the painstaking manner in which his work has been performed. He has brought out strongly the resemblance between the vocabulary and phraseology of Elizabethan literature and those of Milton's poetry, and has made a great point of the historical aspect of words.

New Editions.

(1) *Geometrische Konstruktions Aufgaben. By Dr. H. Lieber and F. Von Lühmann.* (2) *Trigonometrische Aufgaben. Same Authors.* (3) *Stereometrische Aufgaben. By Dr. H. Lieber.* (*Berlin: L. Simion.*)—We conclude, from the number of editions through which each of these German mathematical text-books, has passed, that their value is fully appreciated in their own country. There appears to be a uniformity of system throughout; a systematic arrangement into well-graduated groups, each group being preceded by a fundamental rule. The examples are numerous, and, in some cases, short hints have been given to assist in the solution.

Progressive French Course: II., Second Year. By G. Eugène-Fasnacht. (*Macmillans.*)—In the latest edition of this well known work, the fundamental principle underlying the whole course, the order of the lessons and the colloquial character of the exercises, remain unaltered. The appendices, however, have been enlarged, and we find many improvements in the classification of nouns and adjectives, order of personal pronouns in objective relation, formation of adverbs, interrogative construction, conditional, infinitive, and construction of *il faut*. There is also an addition of ten exercises for practice on the syntax of prepositions.

The Illustrated Guide to Cromer and Neighbourhood (*Jarrold & Sons*) is revised to the present time, and is published at sixpence.

Virgil Æneid, Books I. to III. Edited, with Introduction and Notes, by T. L. Papillon, M.A., and A. E. Haigh, M.A. (*Clarendon Press.*)—In 1882 Mr. Papillon published the Æneid in two volumes. He has now, in association with Mr. Haigh, revised and, to a considerable extent, re-written the commentary and abridged the introduction of the former edition. The greater part of the discussion upon the history of the text and upon Latin orthography has been omitted.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending July 31st, 1890.

Best Elizabethan Plays (The), edited by W. R. Thayer, 7s. 6d.
Brosch (M.): Geschichte v. England, Vol. 6, 13m.
Buettner-Wobst (T.): Studia Byzantina, Part 1, 1m. 30.
Burton's (Rev. H.) Gospel according to St. Luke, cr. 8vo, 7s. 6d. cl. (Expositor's Bible.)
Carnot's (N. L. S.) Reflections on the Motive Power of Heat, &c., edited by R. H. Thurston, cr. 8vo, 7s. 6d. cl.
Cicero Pro Roscio, with Introduction and Notes by St. G. Stock, 12mo, 3s. 6d. cl.
Crowest's (F. J.) Musical Groundwork, cr. 8vo, 2s. 6d. cl.
Daniell's (C. J.) The Industrial Competition of Asia, 8vo, 12s.
D'Arblay's (Madame) Diary and Letters, with Notes by W. C. Ward, Vol. 1, cr. 8vo, 2s. 6d. cl.
Drayson's (Major A. W.) Untrodden Ground in Astronomy and Geology, 8vo, 14s. cl.
Eighth Century (An) Latin-Anglo-Saxon Glossary, edited by J. H. Hessels, 8vo, 10s. cl.
Fedor Dose of the VII. Brigade, Episodes from Hackländer's "Wachtstuben Abenteuer," selected by Beresford, 2s. cl.
Fitz-gerald's (C. E.) Lectures on Physiology, Hygiene, &c., 2s. 6d.
Fritsch (G.): Die Elektrischen Fische, Part 2, 30m.
Fröhlich (F.): Das Kriegswesen Cäsars, Parts 2 and 3, 1m. 40.
Great Artists: The Painters of Barbizon—Millet, Rousseau, Diaz; Corot, Daubigny, Dupré, by J. W. Mollett, cr. 8vo, 3s. 6d. each, cl.
Hand-Kommentar zum Neuen Testament, bearb. v. H. J. Holtzmann, 3m.
Heymans (G.): Die Gesetze u. Elemente d. Wissenschaftlichen Denkens, 6m.
Horace's Odes, translated into English Verse by J. L. S. Hatton, cr. 8vo, 5s. cl.
Hornberger (R.): Graphische Darstellungen f. den Meteorologischen Unterricht, Part 3, 24m.
Körting (G.): Lateinisch-Romanisches Wörterbuch, Parts 2 and 3, 4m.
Mackintosh's (J.) Scotland from the Earliest Times to Present Century, cr. 8vo, 5s. cl. (Story of the Nations.)
Meusel (4): Lexicon Cæsarianum, Parts 14 and 15, 4m. 80.
Mitchell's (D. G.) English Lands, Letters, and Kings: II., From Elizabeth to Anne, cr. 8vo, 6s. cl.
Montaigne's Essays, translated by J. Florio, edited by J. H. McCarthy, Vols. 3 and 4, 3s. each. (Stott Library.)
Schaff's (P.) Literature and Poetry, Studies on the English Language, 8vo, 12s. cl.
Schweinfurth's (Dr. G.) Heart of Africa, cheap edition, 2 vols. cr. 8vo, 3s. 6d. each, cl.
Sophoclis Tragœdiae, ed. J. Holub, Part 5, 0m. 80.
Soteldo's (A. M.) Spanish Grammar, cr. 8vo, 10s. cl.
Symes's (J. E.) The Prelude to Modern History, 12mo, 2s. 6d. cl.
Thiaucourt (C.): Les Causes de la Seconde Guerre Punique, 1fr.
Thomson's (Sir W.) Mathematical and Physical Papers, Vol. 3, 8vo, 18s. cl.
Through North Wales with a Knapsack, by Four Schoolmistresses, 12mo, 2s. 6d. cl.
Tweedie's (J.) Hindustani as it ought to be Spoken, 5s. cl.
Walpole's (S.) History of England, Cabinet Edition, Vol. 1, cr. 8vo, 6s. cl.

COLLEGE OF PRECEPTORS.

DISTRIBUTION OF PRIZES AND CERTIFICATES.

The Public Distribution of Prizes and Certificates to the successful candidates at the Midsummer Examination took place at the College of Preceptors, Bloomsbury Square, on Tuesday, the 29th inst.

The Chair was occupied by J. Allanson Picton, Esq., M.P., who was supported on the platform by Mr. H. W. Eve, the Dean of the College; Mr. J. Stewart, Vice-President; Mr. E. Pinches, Treasurer; Mr. Brown, Rev. R. O. T. Thorpe, Mr. Atkinson, Mr. Bidlake, Dr. Dillon, Mr. Dymes, Mr. Nasmith, Mr. Reynolds, Mr. Lee, Mr. Kimber, Mr. Armitage Smith, and others.

The Chairman, in opening the proceedings, said: Ladies and Gentlemen,—I assure you I count it both an honour and a pleasure to attend this meeting to-day, and to occupy the position to which I have been so kindly invited. I count it an

honour, for this is a great institution, which has done a very remarkable work in organizing secondary education and in raising its character. I count it a pleasure to be here on this occasion, for to those of my age, with any proper sympathy for humanity, it is always a delight to be brought face to face with our future hope, the young people who will be the citizens of Great Britain, and will control its destinies, when we are laid in our graves. But I confess that, ever since accepting the invitation that was extended to me, I have felt very much like that lady of Burleigh of whom the poet says that—

> "A trouble weighed upon her
> And perplexed her night and morn,
> With the burden of an honour
> Unto which she was not born."

I have been very much troubled in mind as to the line of subjects that should be brought before an assembly like the present one, in the short address that is expected from the Chairman. And one difficulty that has presented itself to my mind has been caused by the very rapid progress which has been made in recent years in both the science and the art of education. For some time back I personally have had little or no opportunity of taking the part that it once was my privilege to take in connexion with one most important branch of our national education—I mean our elementary schools. And it is highly probable that observations and suggestions which would have been applicable at the time when I through circumstances was severed from the work, would now be altogether irrelevant. So recently as the year 1875, Mr. Legard, H.M. Inspector of Elementary Schools for the Leeds district, wrote these words in his annual report: "One of the weakest points of our English elementary education is its unscientific character. The idea that there is such a thing as a science of education is a novel one, and our backwardness in this respect is one of the reasons why the results in our schools are not more satisfactory." Surely these words must sound very strange in the present year, which after all is only fifteen years later. Perhaps there may have been a tinge of what one may call indignant exaggeration in the words then used by Mr. Legard, and we observe that his remarks were applied directly and immediately, though I think not exclusively, to elementary education. But certainly, as regards our middle and higher schools, this College of Preceptors has been doing a work for more than a generation past which has produced some very excellent, and indeed wonderful, results. Certainly during the last few years, since Mr. Legard wrote those words, very great progress has been made both in the science and art of education. Not that any epoch-making works have appeared, perhaps, but the principles laid down by the great masters have received an enormous extension in their application. For evidence of this assertion I need only refer to the rapid multiplication of what are called High Schools especially I would mention the High Schools for Girls, which I think have done a noble work. We may notice also the increased attention that is given by our Universities to Pedagogy. We may notice the immense importance which has been attached to the physical side of education; we may note the larger scope which has been rightly and properly given to women, both in study and teaching, with results that must rejoice the hearts of all of us. And not only has the application of the scientific principles of education received a large development, but in the practical results that are aimed at, and are obtained, there has been a very considerable progress. I note, with very great interest and pleasure, an incident in the work of the College of Preceptors which is comparatively recent, if it does not belong, as I think it does, to this present year. I find that an oral examination in French and German has been instituted, with the object of encouraging and securing an actual, living, practical use of these languages, in regard to which we often suffer very painful comparisons with our friends abroad on the Continent of Europe. It has been said, as you know, that, whereas it is comparatively easy to get a young Frenchman or German into an office who is able to speak and correspond in two or three languages besides his own, it is in the highest degree difficult to obtain a young Englishman who has the same accomplishments. The London Chamber of Commerce has had its attention drawn to this subject, and has made very excellent proposals in regard to it, and I rejoice to know that the College of Preceptors is fully alive to the importance of the problem to be solved. In one respect, however, little or no progress has hitherto been made in regard to the development of middle and indeed higher education. I refer to an aspiration which has often moved the souls of many excellent educationalists in times gone by, viz., the co-ordination of lower, middle, and higher education into one well-ordered scheme for the development of the humanity of the whole British people. In the year 1879, a most honoured predecessor of mine in this post, Mr. W. E. Forster, while deprecating the too sanguine hopes of his illustrious brother-in-law, the late Mr. Matthew Arnold, yet expressed a hope that the time would come when the State would recognise teaching as a profession, would examine those who aspired to take a part in it, and would give them certificates before they were allowed to become fit members of that profession. This was eleven years ago, and yet only last night a Bill for the organization and registration of teachers stood so very far down on the notice paper that it was deferred, and, I may add, to an impossible occasion. There is no chance of that Bill passing this session. I can only say that if, as I believe, it is favoured by the College of Preceptors, and it is brought forward again in the House of Commons in some other session, I shall be only too happy if I can do anything to forward its prospects. However, for the present, it is dropped. It is with the melancholy induced by the remembrance of musical voices now still in death, that I quote from a too much neglected report of the late Mr. Matthew Arnold, in which this subject of the co-ordination of schools and training institutions is touched upon. In a report on certain points connected with elementary education in Germany, France, and Italy, written in the year 1886, Mr. Arnold refers to what he regarded as the better and superior instruction given in French popular schools, and he goes on:—"This is the main reason of the superiority, that the teachers are better trained. But that they are better trained comes from a cause which acts for good upon the whole of education abroad—that the instruction as a whole is better organized than with us. Indeed, with us it is not, and cannot at present be, organized as a whole at all; for the public administration which deals with the popular schools stops at those schools, and takes into its view no other. But there is an article in the Constitution of Canton Zürich which well expresses the idea that prevails everywhere abroad of the organization to instruct from top to bottom as one whole. The higher establishments (these are the words to which Mr. Arnold refers) for teaching shall be brought into organic connexion with the popular schools. And men like Wilhelm von Humboldt in Germany, Guizot or Cousin in France, appear at the head of public administration of schools in those countries, and have organized popular instruction as a part of one great system—a part in correspondence of some kind with the higher parts, and to be organized with the same seriousness, the same thorough knowledge and large views of education, the same single eye to its requirements as the higher parts." Now here it is evident that we have two easily separable but closely connected questions brought before us. The first is that of the State organization of secondary education and its co-ordination with the State-organized elementary instruction. The other subject is the organization and registration of the teaching profession. It is on the first that I desire mainly to make a few remarks. Perhaps there are some reasons for desiring this co-ordination of lower and higher instruction that have not been sufficiently attended to. Consider for a moment the numerical proportions of the attendances at elementary and at secondary instruction. In the address of Mr. Forster, to which I referred just now, he said that the Public Schools Commission had arrived at the conclusion that, in any thousand of the population, there would only be twelve children requiring secondary instruction. He said there were differences of opinion; some thought that sixteen would be the truer proportion, but he himself evidently inclined to twelve. Now, taking our population at the present moment at about (we are close on a new census, and therefore cannot speak accurately) thirty-seven millions, twelve per thousand would be just 444,000 children requiring secondary instruction. But the children out of that population requiring elementary education are 6,283,300, and this proportion of one-sixth of the population has been confirmed, notably by a very careful house-to-house census, taken by the London School Board in the year 1871, when it was found that of all the children of school age—that is, elementary school age, between three and sixteen—six-sevenths were necessarily, owing to their circumstances, attendants at elementary schools. Six-sevenths of the children of school age represent just about one-sixth of the whole population. See, then, the enormous disproportion between the number of children requiring only elementary instruction, and the number of children requiring secondary instruction. Nor is this

mere theory. At the present moment there are, according to the latest education reports, on the register in elementary schools in England alone, apart from Scotland and Ireland, more than 4¼ millions of children. The fact is, as you will see from these numbers, the secondary school system is, so far as its numerical proportions are concerned, a mere lagoon along the shore, as it were, compared with the vast sea outside; and it is my opinion that the ocean will break in at some time or another, and the two will be, if not merged, at least moulded into one. I am, however, here perhaps speaking for the future, and not for the present; but I am speaking for a future for which we all ought to be prepared. In fifty or sixty years the population of Great Britain will be educated as no democracy ever was educated before, and long before that time the pressure of the elementary system on the higher will be felt. Let me illustrate my position by the case of Scotland. This is a significant fact. The High School of Edinburgh is under the charge and supervision of the School Board for Edinburgh, and that is the case with a very considerable proportion of the higher schools throughout the country of Scotland. Now I ask you, what would be thought if the University College School and King's College School, for instance, were placed under the charge of the School Board for London? Why it would be thought preposterous. Why, then, should things be so different in Scotland? The reason is not very far to seek. In Scotland there has never been that hard and fast line between elementary education on the one hand, and the higher education on the other. I am told by some of my best-informed colleagues in the House of Commons who represent Scotch constituencies, that the range of teaching in the old parochial school was very much larger than is represented by an elementary curriculum, and that consequently pupils were sent, and still are sent, from these parochial schools to the Universities. A change has taken place recently. The evil example of England has affected Scotland. The Act passed in 1872 for Scotland has necessitated a wider separation between the elementary instruction in Scotland and the higher instruction that formerly existed, and I am assured this is the cause of not a little discontent among the most patriotic of Scotchmen. We may, therefore, safely predict that, with the growth of popular education in England, there will be an increasing demand for the co-ordination of the lower and the higher instruction in our country.

If time had permitted, I might have pointed out other influences that tend to the same result. There is in this country a growing jealousy—and I think a very just jealousy—of the private management of public endowments. The Acts of 1868 and 1869, which dealt with certain public schools and endowed schools generally, were tentative rather than sufficient—they did not go far enough. Our great public schools will undoubtedly always remain institutions somewhat apart—the threshold, as it were, of the University; but I predict that they will be far more open to the populace at large than they are at the present time. When I was first a member of the School Board for London, there was no figure of speech more common—none more hackneyed, I might say—than that of a ladder which should have its foot in the gutter and its top in the University. This ladder was to be open to all the poorest and even the most destitute children. To a certain extent that ladder has been constructed. The London School Board and other School Boards have received by benevolent subscriptions a considerable number of scholarships which enable poor but deserving children to go through the secondary schools to the University; but I do not think this is sufficient. The scholarships are necessarily given by competitive examinations, but some of those who fail, only just fail in those examinations, and those who only just fail have oftentimes greater gifts than those who succeed. I am not in the least degree casting any doubt upon the superiority of those who have won prizes in the examinations of this College, but it is a fact that occasionally—and I am sure my friend, who has so much experience, on my right (the Dean) will bear me out in this—that it is a fact, and cannot be helped, that occasionally those who only just fail may have the elements of greater capacity in them than those who brilliantly succeed in these early examinations. I do not think it will always be satisfactory that the existence of this ladder of which I have spoken should be dependent upon private charity. I believe there are endowments enough in this country, consecrated of old to education, to provide for the education of all the talent that God sends into the population amongst us, and I do look forward to the time when this vast fund will be better managed for the public interest. Of course, this co-ordination of lower and higher education would mean a greater assimilation than at present exists in regard to methods. Here again I might quote Mr. Matthew Arnold: "You hear often people of the richer class in England" (he says) "wishing that they and their children were as well educated as the children of an elementary school; they mean that they wish they wrote as good a hand, worked sums as rapidly and correctly, and had as many facts of geography at command; but they suppose themselves retaining all the while the higher cultivation of taste and feeling, which is their advantage and their children's advantage over the pupils of the elementary schools at present, and they forget it is within the power of the popular school, and should be its aim, to do much for this cultivation, though our schools accomplish for it so very little." This is what I mean by an assimilation of method, as between the lower and the higher schools. But, if the lower schools would gain much, I cannot help thinking that the higher schools might gain something; for these very results to which Matthew Arnold refers in the elementary schools are by no means always attained, at least, if my experience is any guide, in some of the higher schools, and perhaps the two classes of institution might be a mutual benefit to each other were their connexion better organized.

I have already said that, with regard to organization and registration of teachers, I have much sympathy with the Bill that is at present before the House of Commons, but which is not likely to be passed just yet. Perhaps some alterations might be suggested in it, and will be hereafter accepted, but I quite agree with the College in regarding the objects of the Bill as in the highest degree desirable.

Now, in the course of these remarks, which I must bring to a conclusion, I have expressed, as you will bear in mind, considerable sympathy with Mr. Matthew Arnold's noble discontent with the state of our educational institutions; but it is to be remembered that there is another side to all this. If we have not as much organization in this country, or as complete a co-ordination of our educational institutions, as exists in France, Germany, and Switzerland, it is in a great measure because we have more freedom, and because we insist on having it. There are advantages in this freedom which no amount of organization could compensate us for if we were to lose it. It has often been observed that the average intelligence amongst young people abroad, who have left their school experience a few years behind them, is hardly, if at all, superior to the average intelligence of young people of the same class in our own country. My own impression is that it is inferior, though perhaps that may be a prejudice of patriotism. Certainly practical politics, as distinguished from mere phrases and sentiment, have not the interest for the masses or the classes in Germany or Italy, or even in France, that they have for our own population, and public opinion in those countries is far from being the swift, powerful, and sensitive influence that it is amongst ourselves. Now, so long as that is the case, it cannot be considered that the schools for the people have done their highest possible work. I agree that, in a few exceptional cases, foreign workmen may by their peculiar training be able to compete on terms of too great advantage with some of our own workpeople, nor am I altogether satisfied by the mere fact that literature such as the Niebelungen Lied, for instance, has a demand in Germany which enables booksellers to issue it at a cost of a few pence, and to make a profit out of it. There are other things to be attained by the instrumentality of schools. Man is not a mere machine, nor a bookworm, and any nation whose schools fail to make the people free and public-spirited, keenly alive to the great problems of order and progress which we have to solve, are deprived, or suffer others to deprive them, of some of the highest results of education. Those who see in this failure, as I take it for public purposes, of the foreign educational systems, a complete condemnation of them, too often forget how small a part after all (if I may say it in the present company with freedom) school life plays in education. School is indeed most important, but it must necessarily form only a subsidiary part of our education. Its work is not so much to make men, as rather to prepare them for being made. Its function is to multiply and to refine the susceptibilities of men or women to the best influences of the condition into which he or she is born. If those conditions are adverse—well, the susceptibilities will be withered and dull; but this is by no means the fault of the school. In England, as I take it not more than about one-seventh of our education is received in school. The more powerful influences that play upon us are those of the family, the Church, municipal life, trades unions, clubs, political leagues, and parliamentary elections. In free England we are rich in such

influences as these, and I contend that they keep on educating men and women up to the last day of their lives on earth. Now it is on the fact that you young people are born to such an inheritance as that of free British citizenship, and the active social human life it necessarily involves, that I most of all congratulate you. The best wish I can have for your school life is that it may fit you for the high calling of British citizenship—a high calling, the duties of which must necessarily demand the most complete development of all the humanity that God has placed within you. I thank you, Ladies and Gentlemen, for your attention, and will now proceed to the more interesting work of the day.

The CHAIRMAN then distributed the prizes and certificates to the successful candidates.

The DEAN, in proposing a vote of thanks to the Chairman, said it was no light thing for a hard-worked man of letters and a Member of Parliament to steal time enough from those absorbing avocations to put together such a thoughtful address as they had that day listened to; nor was it easy even for him to spare the time to come and deliver it. He had listened to it with a great deal of pleasure, but, lucid as it was, it needed much thought to appreciate thoroughly the reasoning, and he believed they would all do well if, when it appeared in the *Educational Times*, they read it a second time and thought about it. It was a great satisfaction to him to see the statesmanlike way in which a very difficult problem had been treated. He was gratified to see that the historian of Cromwell was not going to subject them to a board of educational Triers, or to divide up England among educational Major-generals. Again and again, to those who had thought at all about the question, the conflict of organization and freedom in education had presented itself as one of the most difficult questions to be faced. The particular form in which the Chairman had put it, as associated with the gradual encroachment of the vast machinery of elementary education on the limited range—the breaking in of the ocean of elementary education on the lagoon of higher education—did contribute a good deal to the statesmanlike way of looking at the problem. One thing they had to do was to keep the advantages which they had in higher education—to level up, and not to level down. The system of elementary education in England was by no means an old one. It dated from the time when Sir J. Kay Shuttleworth and some other energetic men undertook the first training colleges for teachers. Inevitably, there had been about the development of elementary education a great deal of the hard and fast line of cut-and-dried mechanical requirements, which he was inclined to think had been, on the whole, necessary and useful, but against which the better men in the profession had been constantly kicking, and he thought with good reason. The combination of restrictions and of kicking against restrictions was inevitable in a transition period. He thought the recent Code showed that they were, even in elementary education, coming into a larger and freer sphere. Most of the regulations seemed to point to giving greater and greater discretion to the masters, of judging schools more by their general results than by the minute coming up to certain definite requirements; and therefore there was every reason to hope that, if the system of elementary education did encroach on the higher education, it would do so with different tendencies to those at present generally associated with it—it would be a larger and freer elementary education than that of a transition period. It might be that Englishmen would never rise to the height of Scotchmen, and desire something of the higher education for every citizen. He only wished they would. If the desire that every citizen should have the higher education were dominant in the elementary schools—and in those who managed them—then they need have no fear of the system of elementary education encroaching on the higher. He would not venture to follow the Chairman through all which he had given them to think about, but there was one point to which he might refer, and that was the question of endowments. He had only one word to say about endowments, namely, that they all wished they could get them.

Mr. STEWART, in seconding the motion, said he would rather the Chairman had not been quite so reticent in regard to the possible action of the legislature in relation to education. He thought every one would agree that the State should do a little more, but that it should not do everything in the matter. As to the educational work done in schools, he thought that, if a larger fraction than one-seventh was done in the family, the next most important point was the seventh that was done while the young were under the influence of the teachers. It was of the utmost importance that, where these influences were at work, they should be in the hands of those who had a free hand. He hoped that the College would continue to help in the free association for practical purposes of those who had a strong and earnest desire to perfect, as far as it was in their power to do, the education they could give, so as to demonstrate that any great interference by the Government was unnecessary.

The resolution having been carried unanimously,

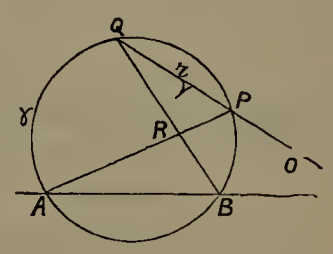
The CHAIRMAN, in reply, said:—Ladies and Gentlemen, I thank you for the kind manner in which you have received my humble remarks. I am entirely at one in spirit, though we might differ perhaps in detail, with what has been said by the Dean and by Mr. Stewart. I seem to have disappointed Mr. Stewart in not drawing a hard and fast line. My experience is, that if you draw a hard and fast line, you are sure to break your shins against it, and therefore I avoid it if possible. I agree with him in thinking that the Government should do a little more, but not everything. There again we find ourselves safely vague. With regard to my fraction, I cannot say that it is a matter of mathematical calculation at all; but on the whole, when you consider the family and the enormous influence that is exerted upon the plastic minds of youth when they are first coming into contact with social and public life of the country after they have left school, I think you will not be far from my estimate, that while the school does undoubtedly lay the most important foundation without which we could do nothing—yet, on the other hand, our free public institutions do exert a wonderful educational influence upon us all. It has been a great pleasure to me to be present with you, and I heartily wish you a continuance of the notable success which has attended this noble institution.

MATHEMATICS.

10590. (Professor GENESE, M.A.)—A, B are two points of a circle, O any point in its plane; OPQ is any secant, and AP, BQ meet at R. The locus of R is a conic through A, B. Prove that, by properly choosing the circle and point O, the locus may be made to coincide with any given conic through A, B.

Solution by Professor SCHOUTE.

When OPQ turns about O, the points P and Q form an involution on the circle γ through A and B. Therefore the pencils (AP) and (BQ) are in (1, 1) correspondence, and R describes a conic through A, B. By properly choosing the circle γ and the point O, the locus may be made to contain A, B and three points R, S, T of the plane chosen at random; this can be proved in the following manner.



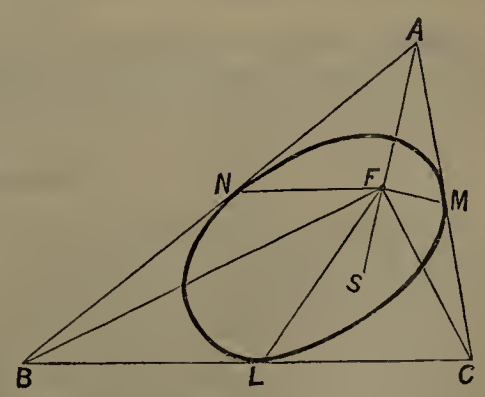
[The rest in Volume.]

10562. (Professor MORLEY.)—Let there be three parallel rectilinear vortices in an infinite mass of fluid. Let a cross section meet the vortices at ABC. Prove that (1) the motion of any vortex A is at right angles to AK, where K is the symmedian point; and (2) the particles at foci of the maximum ellipse inscribed in ABC are instantaneously at rest.

Solution by Professor ANDERSON, M.A.

(1) If the vortices be of equal strengths m, the velocity of the point A due to the vortex B is perpendicular to AB and equal to m/C. In like manner, the velocity of A due to the vortex C is perpendicular to AC and equal to m/b. The resultant velocity of the point A is easily seen, from this, to be perpendicular to the symmedian through A.

(2) Draw the maximum ellipse of the triangle ABC touching at L, M, N the mid-points of the sides, and let F be one of its foci. [The rest in Volume.]



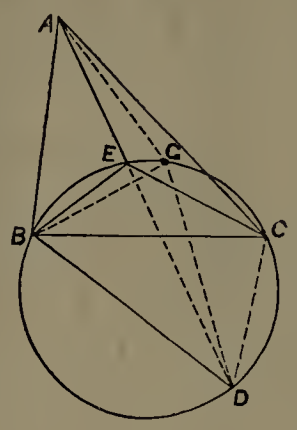
10210. (E. M. LANGLEY, M.A.)—Find a point E within the triangle ABC such that $l \cdot AE + m \cdot BE + n \cdot CE$ may be a minimum; l, m, n being any three constants such that two are together greater than the third.

Solution by the PROPOSER; J. J. BARNIVILLE; *and others.*

On BC draw a triangle BCD such that

$$BC : CD : DB = l : m : n;$$

then the point required will be the intersection E of AD with the circumcircle of BCD, if E is within the triangle ABC.



For $BE \,.\, CD + CE \,.\, BD = ED \,.\, BC$,

therefore $m \,.\, BE + n \,.\, CE = l \,.\, ED$;

therefore $l \,.\, AE + m \,.\, BE + n \,.\, CE = l \,.\, AD$.

But, if G is any other point on the arc BEC,

$$m \,.\, BG + n \,.\, CG = l \,.\, GD;$$

$\therefore\ l \,.\, AG + m \,.\, BG + n \,.\, CG = l \,.\, AG + l \,.\, GD$;

$\therefore\ l \,.\, AG + m \,.\, BG + n \,.\, CG > l \,.\, AD$.

[The rest in Volume.]

10938. (J. GRIFFITHS, M.A.)—If a, b, c, k be all real quantities, and k not greater than unity, prove that $(a+b-2kc)^2 > 4(1-k^2)(ab-c^2)$.

Solution by R. H. W. WHAPHAM, B.A.; M. BRIERLEY; *and others.*

We have to prove that $(a-b)^2 + 4(c-ak)(c-bk) > 0$, which is evident if the factors $c-ak$, $c-bk$ are both positive or both negative; but suppose only one of them $c-ak$ (say) is negative $(= -\delta^2)$, and $c-bk = \epsilon^2$; then $a-b = (\delta^2+\epsilon^2)/k$; thus we have to show that $[(\delta^2+\epsilon^2)/k]^2 - 4\delta^2\epsilon^2 > 0$, which is clear if $k = 1$, and, *à priori*, when $k < 1$.

4193. (Professor EVANS, M.A.)—At the station A, the apparent angular elevation of a meteor B, whose distance from the earth's surface is one-nth of the earth's radius, is θ. Supposing the earth to be a perfect sphere, find the exact distance from A to B.

Solution by Professor ASAPH HALL, M.A.

Let AD be a tangent at A; then we have

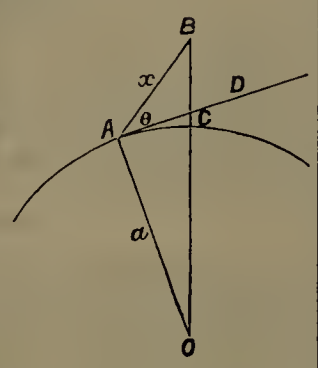
$$AO = CO = a,$$

$$\angle BAO = 90° + \theta,$$

$$BC = a/n,$$

$$BO = \frac{(n+1)\,a}{n};$$

hence in the plane triangle BAO two sides and an angle given, and the distance follows at once.



10610. (D. BIDDLE.)—Give a general method of solving Question 9957, already solved in a particular case in Vol. LI., pp. 67, 68.

Solution by J. D. HAMILTON DICKSON, M.A.

The question is to find that function of x which, when x is replaced by 1, 2, 3, 4, yields respectively 0, $\frac{2}{9}$, $\frac{17}{36}$, $\frac{641}{900}$.

This is a mere application of LAGRANGE'S (or any other) interpolation formula, or of the well-known formula in Finite Differences which gives u_x in terms of its successive differences. It is obvious, however, that an infinite number of functions fulfilling the required conditions may be found, and that therefore some one at least will be simpler than the others. It follows also that, if U, V be two such functions, then U and V must, generally speaking, differ by some multiple of

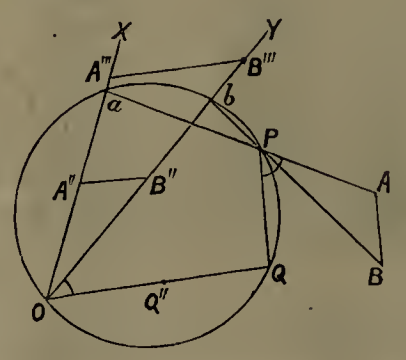
$$(x-1)(x-2)(x-3)(x-4) \equiv \phi(x).$$

[The rest in Volume.]

10588. (Professor NEUBERG.)—La droite AB est fixe; la droite A′B′ se meut parallélement à elle-même entre deux droites fixes OX, OY. Trouver le lieu du centre de similitude de deux figures semblables construites sur AB, A′B′.

Solution by Professor SCHOUTE.

Soit A″B″ une des deux positions de la droite mobile A′B′ dans lesquelles la longueur de cette droite variable est égale à AB. Soit P le point de la figure (AB) qui correspond au point O de la figure (A″B″). Soit PQ une droite quelconque par P de la première figure et OQ la droite correspondante de la seconde, ce qui exige l'égalité des angles BPQ et B″OQ. Soit Q″ le point de la seconde figure qui correspond au point Q de la première (OQ″ = PQ).

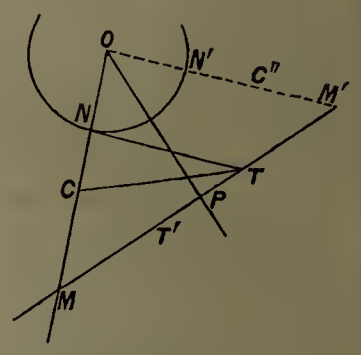


[The rest in Volume.]

10579. (MORGAN BRIERLEY.)—A variable circle touches another given in magnitude and position, and also a line given in position; determine the magnitude and position of the variable circle when the line joining the centres makes a given angle with the given line.

Solution by J. C. ST. CLAIR; Prof. AIYAR; *and others.*

Let O be the centre of the fixed circle, and OP the perpendicular on the given line. On either side of OP make $\angle POM$ = complement of the given angle, and draw the tangent at N, the point where OM cuts the circle. Let this tangent meet the given line in T, and let the bisector of $\angle NTP$ meet OM in C. Then, since $\angle CMP$ is equal to the given angle, and C is equidistant from the circle and line, C is the centre, and CN the radius, of the required circle.

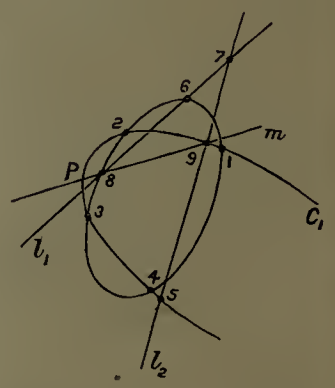


It is obvious that the two circles satisfying the conditions are reflexions of each other with respect to OP.

2874. (The late T. COTTERILL, M.A.)—Seven points on a cubic locus have an opposite point on the curve: *i.e.*, a variable cubic through seven given points cuts a fixed cubic through the same points, in two other points collinear with a point on the fixed cubic. Construct for the opposite point when the fixed cubic breaks up into a conic through five points and a line through two.

Solution by Professor SCHOUTE.

The fixed cubic breaks up into the conic C_1 determined by the points 1, 2, 3, 4, 5, and the line l_1 joining the points 6, 7. The construction consists of three equal parts.



1. By means of Pascal's theorem we seek the second point 8 common to C_1 and line l_2 joining 5, 7.

2. In the same manner we determine the second point 9 common to the conic C_2 through 1, 2, 3, 4, 6, and l_1.

3. Finally, we construct in the same way the second point P common to C_1 and the join m of 8, 9.

This point P is the opposite point in question; it is determined by linear construction without tracing the conics, the diagram only serving for illustration. [See also Vol. LVII., p. 155.]

9406. (W. J. BARTON, M.A.)—Prove that, if $R = 2r$, the triangle is equilateral.

Solution by Professor LAMPE, LL.D.

Professor EMMERICH (in Vol. XLIX., p. 70) bases his proof on the properties of the nine-point circle. An easy proof results from a few formulæ of trigonometry. Transforming

$$r = 4R \,.\, \sin\tfrac{1}{2}\alpha \sin\tfrac{1}{2}\beta \sin\tfrac{1}{2}\gamma = 2R \sin\tfrac{1}{2}\alpha \left[\cos\tfrac{1}{2}(\beta-\gamma) - \cos\tfrac{1}{2}(\beta+\gamma)\right],$$

we get
$$\cos\tfrac{1}{2}(\beta-\gamma) = \frac{r}{2R\sin\frac{1}{2}\alpha} + \sin\tfrac{1}{2}\alpha;$$

and as a cosine is $\overline{\overline{<}}\ 1$ and $R = 2r$, we have

$$\frac{1}{4\sin\frac{1}{2}\alpha} + \sin\tfrac{1}{2}\alpha \overline{\overline{<}}\ 1, \text{ or } \sin^2\tfrac{1}{2}\alpha - \sin\tfrac{1}{2}\alpha + \tfrac{1}{4} \overline{\overline{<}}\ 0;\ \textit{i.e.},\ (\sin\tfrac{1}{2}\alpha - \tfrac{1}{2})^2 \overline{\overline{<}}\ 0.$$

But a square is always > 0, unless it be $= 0$; therefore $\sin\frac{1}{2}\alpha = \frac{1}{2}$, $\alpha = 60°$, and $\cos\frac{1}{2}(\beta-\gamma) = 1$; $\beta = \gamma = 60°$. It would not be difficult to make a geometrical interpretation of this reasoning.

[The rest in Volume.]

10606. (R. TUCKER, M.A.)—P $(am_1^2, 2am_1)$, Q (m_2), R (m_3) are three co-normal points on a parabola: show that the rectangular coordinates of the "S"-point of PQR are given by $\Sigma(m)^2 \,.\, Y = -6am_1m_2m_3$,

$$2\Sigma(m^2) \,.\, \left[\Sigma(m^2) + 24\right] X = a\left[\left\{\Sigma(m^2)\right\}^2 \,.\, \left\{\Sigma(m^2) + 8\right\} - 36m_1^2 m_2^2 m_3^2\right].$$

Solution by the PROPOSER.

In this case $\Sigma(m) = 0$, and therefore $m_1^2 - m_2m_3 = \Sigma(m^2)/2$. I write

$$\mu \equiv m_1m_2m_3,\quad p \equiv \Sigma(m^2) + 8,\quad q \equiv m_1^2 + 8,\quad r \equiv \Sigma(m^2) + 24.$$

The equations to the circle PQR, and the tangents to it at Q, R, are

$$x^2 + y^2 - \tfrac{1}{2}apx - \tfrac{1}{2}a\mu y = 0 \ldots\ldots\ldots\ldots(1),$$

$$X(4m_2^2 - p) + Y(8m_2 - \mu) = am_2(pm_2 + 2\mu) \ldots\ldots\ldots\ldots(2),$$

$$X(4m_3^2 - p) + Y(8m_3 - \mu) = am_3(pm_3 + 2\mu) \ldots\ldots\ldots\ldots(3);$$

whence (2) − (3), and m_3^2 (2) − m_2^2 (3) give

$$4m_1X - 8Y = a(pm_1 - 2\mu),\quad pm_1X + qm_2m_3Y = 2am_2m_3\mu \ldots\ldots(4, 5).$$

[The rest in Volume.]

10594. (Professor WOLSTENHOLME, M.A., Sc.D.)—On the parabola $y^2 = 4ax$ is taken the point P $(am^2, 2am)$, and the coordinates of a point Q are $[a(8+m^2), -\frac{2}{3}am]$; prove that the circle described with centre Q and radius QP will meet the parabola again in three points which are corners of an equilateral triangle, and that QP is always normal to the parabola $y^2 = 36a(x+12a)$.

Solution by Professor ANDERSON; J. D. WILLIAMS; *and others.*

Let P, R, S, T be the four points of intersection of the circle and parabola; then the triangle RST will be equilateral if the point Q be its centroid. The equation of the circle is

$$[x - a(8+m^2)]^2 + [y + \tfrac{2}{3}am]^2 - 64(a^2 + \tfrac{1}{9}a^2m^2) = 0.$$

Substituting for x, $a\mu^2$, and for y, $2a\mu$, the resulting equation in μ will give the points of intersection; and, since P is one of these points, the equation is divisible by $\mu - m$. Performing the division, we obtain the cubic $\mu^3 + m\mu^2 - \mu(m^2+12) - (m^3 + \frac{28}{3}m) = 0$.

[The rest in Volume.]

10464. (Professor ZERR, M.A.)—Solve the equations

$$x + y^2 + z^3 = 21, \quad x^2 + y^3 + z = 45, \quad x^3 + y + z^2 = 71.$$

Solution by J. BOLAND, M.A.; Prof. MUKHOPÂDHYÂY; *and others.*

The equations may be reduced, in various ways, to a quadratic, from which we readily find one set of values to be $x = 4$, $y = 3$, $z = 2$.

3657. (Professor MINCHIN, M.A.)—Show that the force by which a particle describes the inverse (with respect to centre of force) of a given curve is $\mu \cdot r^5(r^2 - 2p\rho)/(\rho p^3)$, where r is the radius vector to any point on the given curve, ρ and p the radius of curvature and perpendicular to a tangent at the point.

Solution by Professors ZERR, BEYENS, *and others.*

We have $F = u^2h^2\left(\frac{d^2u}{d\theta^2} + u\right)$, where h is a constant. To express the relation of the inverse curve to the given curve in the above, substitute k^2r^{-1} for r or $r = k^2u$, where k is a constant; then

$$u = \frac{r}{k^2}, \quad \frac{d^2u}{d\theta^2} = \frac{1}{k^2} \cdot \frac{d^2r}{d\theta^2},$$

therefore $$F = \frac{r^2h^2}{k^6}\left\{\frac{d^2r}{d\theta^2} + r\right\} = \mu r^2\left\{\frac{d^2r}{d\theta^2} + r\right\}, \quad \left(\text{where } \mu = \frac{h^2}{k^6}\right).$$

[The rest in Volume.]

4132. (MATTHEW COLLINS, LL.D.)—The equation of a curve of the nth order being $P + Q + R + S + \&c. = 0$, where $P = ax^{n-2}y^2 + a'x^{n-3}y^3 + \&c.$, $Q = bx^{n-1} + b'x^{n-2}y + \&c.$, $R = cx^{n-2} + c'x^{n-3}y + \&c.$; show that Euler has fallen into error in giving $ay^2 + bx = 0$ as the equation of the asymptotic parabola, and find the *correct* equation.

Solution by Professor SEBASTIAN SIRCOM.

Making the equation to the curve homogeneous by introducing z, where $z = 0$ is the line at infinity, we must have $z^2 = 0$ if the equation of the parabola $ay^2 + (bx + qy)z = 0$ be substituted. This gives

$$0 = -(bx+qy)x^{n-2}z - \frac{a_1}{a}(bx+qy)x^{n-3}yz + bx^{n-1}z + b_1x^{n-2}yz + \ldots,$$

whence $$b_1 - q - \frac{a_1}{a}b = 0, \quad q = \frac{ab_1 - a_1b}{a},$$

and the asymptotic parabola is $a^2y^2 + abx + (ab_1 - a_1b)y = 0$.

2632. (The EDITOR.)—Prove that

$$1 \cdot 2 \cdot 3 \ldots n \equiv n! < 2^{\frac{1}{2}n(n-1)}.$$

Solution by Professor LAMPE, LL.D.

Writing $1 = 1$, $2 = 2$, $3 < 2^2$, $4 = 2^2$, $5 < 2^3$, $6 < 2^3$, $7 < 2^3$, $8 = 2^3$, $9 < 2^4$, $10 < 2^4$, ..., $16 = 2^4$, ..., and multiplying, we get another limit for $m = 2^n$,

$$1 \cdot 2 \cdot 3 \ldots, m < 2^{1+2.2+3.2^2+4.2^3+\ldots+n.2^{n-1}};$$

the exponent being $= (n-1)2^n + 1 = (n-1)m + 1$, we have

$$1 \cdot 2 \cdot 3 \ldots m < 2^{nm-m+1} \text{ or } < 2 \cdot (2^n/2)^m, \textit{ i.e.}, 2 \cdot (\tfrac{1}{2}m)^m.$$

[The rest in Volume.]

10249. (Professor LEMOINE.) — Construire un tétraèdre équifacial SABC, connaissant la droite sur laquelle est l'arête SA, le plan mené par SA parallèlement à BC, un point de BC, enfin un triangle LMN semblable à ABC.

Solution by Professor IGNACIO BEYENS.

Désignons par α le plan donné, par P le point donné sur BC. Si l'on construit sur LMN un tétraèdre équifacial OLMN il sera semblable à SABC, et les angles (SA, BC), (OL, MN) seront égaux. Donc on peut obtenir la droite indéfinie BC en construisant, dans le plan mené par P parallèlement à (α) une droite faisant avec une parallèle à SA par P un angle égal à l'angle (OL, MN). Soient maintenant DE, QR les plus courtes distances des couples SA, BC, OL, MN. Les proportions

$$DE : QR = DS : QO = DA : QZ = EB : RM = EC : RN$$

serviront à déterminer les segments inconnus DS, DA, EB, EC.

QUESTIONS FOR SOLUTION.

10651. (Prince CAMILLE DE POLIGNAC.)—A right line of constant length moves so that three of its points remain on three cylindrical surfaces the generators of which are parallel to a given line. Prove that any other point must remain on a cylindrical surface of the same nature.

—652. (Professor SYLVESTER.)—Prove that the equation

$$a\left(1 + x + \frac{x^2}{1.2} + \frac{x^3}{1.2.3} + \ldots + \frac{x^m}{1.2.3\ldots m}\right)$$
$$+ b\left(1 - x + \frac{x^2}{1.2} - \frac{x^3}{1.2.3} + \ldots \pm \frac{x^m}{1.2.3\ldots m}\right) + c = 0$$

cannot have more than two real roots.

—653. (Professor CATALAN.)—Décomposer, en une somme de deux carrés, le nombre $N = 17^3 . 73^5 = 10185000736409$.

[See Quest. 9967. In this Question there are twelve decompositions.]

—654. (Professor DE LONGCHAMPS.)—Résoudre l'équation

$$\frac{1}{x(x-a)(x-b)} + \frac{1}{a(a-x)(a-b)} + \frac{1}{b(b-x)(b-a)} + \frac{1}{ax^2 - abx - a^3} = 0.$$

—655. (Professor WOLSTENHOLME, M.A., Sc.D.)—In a tetrahedron ABCD, the sums of the lengths of two pairs of opposite edges are equal (AB + CD = AC + BD): prove that the sums of the corresponding pairs of dihedral angles are also equal [(AB) + (CD) = (AC) + (BD)].

—656. (Professor EMMERICH.)—Prove that in any triangle, unless equilateral, $\cot\omega > \tan\frac{1}{2}A + \tan\frac{1}{2}B + \tan\frac{1}{2}C$.

—657. (Professor ZERR, M.A.)—Solve the equations

$$100y^2 - 100x^{\frac{6}{11}} + 29 = 0, \quad 50x^{\frac{3}{11}} + 70x^{\frac{3}{11}}y^3 - 105y^3 - 990y + 1311 = 0.$$

—658. (Professor SVÉCHNIKOFF.)—Résoudre les équations

$$x + y + z + t = 4m, \quad x^2 + y^2 + z^2 + t^2 = 4m^2 + 4q^2,$$
$$x^3 + y^3 + z^3 + t^3 = 4m^3 + 16mq^2, \quad x^4 + y^4 + z^4 + t^4 = 4m^4 + 24m^2q^2 + 4q^4 + 4p^4.$$

—659. (Professor NEUBERG.)—Soit I le centre du cercle inscrit au triangle ABC, et soient M, N, P les symétriques de I par rapport à BC, CA, AB. Démontrer que les droites AI, BI, CI concourent au conjugué isogonal d'un certain point de la droite OI (O est le centre du cercle ABC).

—660. (Professor SCHOUTE.)—Given four complanar conics: show that there are to be found three right lines that meet these four conics in four couples of points belonging to the same quadratic involution.

—661. (Professor MORLEY.)—In the cardioid, let C be the cusp, O the centre. Let the tangent at any point meet the curve again at Q, Q_1, and let the tangents at Q, Q_1 meet the double tangent at R, R_1. Show that C, O, Q, R, R_1, Q_1 are concyclic.

—662. (Professor REALIS.)—Trouver la valeur de l'intégrale

$$\int x^n / (P_n x^n + P_{n-1}x^{n-1} + \ldots + P_2x^2 + P_1x + 1)^{1-m-1}\,dx,$$

où l'on a posé $P_k = \{(k+1)(k+2)\ldots(k+m-1)/(m-1)!\}$,

m désignant un nombre entier plus grand que l'unité, et n un entier positif quelconque.

—663. (Professor VILLADEMOROS.)—Deux triangles ABC, AB′C′ ont le sommet A et la médiane AM communs. Démontrer que, si le côté BC est parallèle à la bissectrice de l'angle B′AC′, et tel que $MB^2 = AB'.AC'$, réciproquement le côté B′C′ sera parallèle à la bissectrice de l'angle BAC, et tel que $MB'^2 = AB.AC$.

—664. (Professor TARRY.) — On donne un point P, une droite A′B′, et une conique Σ. Une transversale, tournant autour du point P, coupe la droite en un point Q, et la conique en deux points R, R′. Si l'on prend les points doubles de l'involution déterminée sur la transversale par les deux couples de points P, Q et R, R′, le lieu de ces points doubles est une conique Σ'.

—665. (Professor DELLAC.)—Sur le diamètre AA′ d'un cercle donné, on construit un rectangle AA′CC′ ayant pour hauteur le côté du carré inscrit; on prend, sur la circonférence, un point quelconque M; et l'on tire les lignes MC, MC′ qui coupent AA′ en D, D′. (1) Vérifier que $AD'^2 + A'D^2 = AA'^2$. (2) On reporte les segments AD′, A′D sur la circonférence comme cordes, en tenant compte de leurs sens, et on obtient un nouveau point M′; on demande d'étudier les variations de l'arc MM′, lorsque le point M parcourt la circonférence donnée.

—666. (Professor ORCHARD, M.A.)—A triangle, PQR, right-angled at Q, is inscribed in the conic $4x^2 - 9y^2 - 36 = 0$; find the envelope of the line PR.

—667. (The EDITOR.)—If a conic S circumscribe a given triangle ABC, and another conic S′ be drawn touching the sides of the triangle,

touching S in a point O, cutting S in the points P, Q; prove that (1) the locus of the point of intersection of PQ and the tangent at O is a nodal cubic; and (2) that this is also the locus of the intersection of the tangent at O with the other two common tangents to S, S′.

10668. (R. Chartres.)—Show that a slight variation in Newton's method of proof (Book I., Prop. 71) will give, in a very elementary manner, the attraction of a spherical shell on an external particle.

—669. (Walter Stott.)—Find whether an integral of a binomial differential can be expressed in finite terms, by the aid of elliptic or hyper-elliptic functions.

—670. (J. Griffiths, M.A.)—Prove that if $x = \xi + \lambda\eta$, $y = \eta$,

$$A_n = a_n + na_{n-1}\lambda + \frac{n\,.\,n-1}{1\,.\,2}a_{n-2}\lambda^2 + \ldots,$$

where a_n, a_{n-1}, ... are functions of x, y, A_n, A_{n-1}, ... the corresponding functions of ξ, η, such that $\frac{da_n}{dx} = a_0 a_{n+1} - a_1 a_n$, $\frac{da_n}{dy} = \frac{1}{2}(a_0 a_{n+2} - a_2 a_n)$,

$$\frac{dA_n}{d\xi} = A_0 A_{n+1} - A_1 A_n, \quad \frac{dA_n}{d\eta} = \frac{1}{2}(A_0 A_{n+2} - A_2 A_n), \text{ then}$$

$$\frac{dA_n}{d\eta} = \frac{1}{2}(A_0 A_{n+2} - A_2 A_n)$$

$$= \left(\frac{d}{dy} + \lambda\frac{d}{dx}\right)\left(a_n + na_{n-1}\lambda + \frac{n\,.\,n-1}{1\,.\,2}a_{n-2}\lambda^2 + \ldots\right).$$

[This Question is taken from the Proposer's *Notes on the Application of the Theory of Elliptic Transformation to the Formation of Semi-covariants and Semi-invariants*, a very valuable and interesting paper in which Mr. Griffiths shows that the elements a_n, a_{n-1}, ... of a binary, may be considered as functions of x and y such that

$$\frac{da_n}{dx} = a_0 a_{n+1} - a_1 a_n, \quad \frac{da_n}{dy} = \frac{1}{2}(a_0 a_{n+2} - a_2 a_n).]$$

—671. (J. J. Barniville.)—Find the envelope of a line bisecting the triangle of reference. Show also how to find the envelope of a plane dividing two polyhedra in given ratios.

—672. (W. J. Greenstreet, M.A.)—ABC is a triangle. From any point D within the triangle, perpendiculars DM and DN are dropped on AB, AC. If CN . AC = BM . AB, find the locus of P.

—673. (D. Biddle.)—At a spot where the surface of the earth is at mean distance from the centre, is the mouth of a disused vertical shaft, at the bottom of which is water. A stone is dropped in, and in $16\frac{1}{5}$ seconds the splash is heard. Assuming that, by reason of the confinement of the air, sound travels at the rate of $(1130 + mx)$ feet per second at any depth x, in the shaft, find the level of the water. [See Vol. LII., pp. 37, 38.]

—674. (Elizabeth Blackwood.) — Examine the accuracy of the following construction, given in books on geometrical drawing, for inscribing a regular polygon of n sides in a given circle:—Divide the diameter AB into two parts at C, such that AC : AB = 2 : n. Through P, the vertex of an equilateral triangle on AB, draw a straight line passing through C and meeting the circumference at Q, on the opposite side of the diameter to P. Then AQ is one side of the required polygon.

—675. (R. Knowles, B.A.)—Prove that the four points of intersection of the opposite sides of an octagon, inscribed in a conic, are collinear.

—676. (Morgan Brierley.)—Given the radius and the rectangle under the chord, and the sum of the sine and tangent: to determine them geometrically.

—677. (Rev. T. W. Openshaw.)—Describe a triangle, having given the vertical angle, the sum or difference of the sides containing it, and the altitude.

—678. (J. O'Byrne Croke, M.A.)—Show that, if Δ be the discriminant of the general equation of the second degree,

$$ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0, \quad \text{and} \quad R^2 = 4h^2 + (a-b)^2,$$

the semi-axes α, β are given by

$$\alpha^2 = 2\Delta/\{(h^2 - ab)(a + b - R)\}, \quad \beta^2 = 2\Delta/\{(h^2 - ab)(a + b + R)\}.$$

—679. (W. J. C. Sharp, M.A.)—Prove that the power of the modulus of transformation which affects a concomitant of the k-ary n-ic of order θ in the coefficients, m in the variables, and m' in the contragredient variables, is $(n\theta - m + m')/k$.

—680. (H. J. Woodall.)—A plane has points scattered on it in an arbitrary fashion, the average being a per square inch, but the maximum in any square inch is b, the minimum is c. A plane figure (area A) is thrown on the plane: what is the probability that the number of points covered by it is p? Also, the special case of the most probable value of p?

—681. (R. Tucker, M.A.)—Two parabolas intersect in four concyclic points, O is the centre of the circle, and K the intersection of the axes; S, L, S′, L′ are the respective foci and latera recta of the curves. Prove that (1) $4OK^2 = L^2 + L'^2$; (2) the square on radius of the circle $= L\,.\,SN + L'\,.\,S'N'$ (N, N′ being the projections of O on the axes) (3) the polar of either vertex with respect to the other curve meets its polar with respect to the circle on the tangent through that vertex, and the curve cuts the tangent midway between the vertex and that point of section; and (4) the rectangles under the intercepts from the vertices made on the respective axes by the curves and the circle are respectively equal.

NOTICE TO CORRESPONDENTS.

Correspondents should be careful (*a*) to write each Question and each Solution on a *separate* paper (otherwise, when used for printing, the Editor has the labour of entirely *re-writing* such articles); (*b*) to make their Solutions as short as possible; (*c*) to send all Questions *early in the month*, but not to send Solutions till their Questions have been published; (*d*) to write their names at the *top* of *each* paper; (*e*) to *prepay* the postage in *full*; and (*f*) to send all communications to

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THE LONDON MATHEMATICAL SOCIETY.

Thursday, June 12th, 1890.—J. J. Walker, F.R.S., President, in the Chair. The President announced that the Council had unanimously awarded the De Morgan Medal to Lord Rayleigh, for his papers on Mathematical Physics. The medal will be presented at the Annual Meeting on November 13th next. The following papers were read:—"Further Notes on Simplicissima," W. J. C. Sharp, M.A.; "Rotatory Polarization," Dr. J. Larmor; "Parabolic Note," R. Tucker, M.A. Professor Greenhill, F.R.S., communicated papers on the "Expression of the Square Root of a Quartic as a Continued Fraction," Professor G. B. Mathews, and on "Modular Equations," R. Russell, M.A. The President gave a brief sketch of a paper on "Certain Concomitants of a System of Conics and Quadrics," and on the "Calculation of the Covariant S of the Ternary Quartic," A. R. Johnson, M.A. At the Annual Meeting the President will read his valedictory Address, and Sir R. Stawell Ball, F.R.S., will make a communication on "Some Recent Additions to the Theory of Screws."

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—721. Governess. For Zool., Lit., Math., Eng. subj., Ger. or Sing. a recommendation. 30*l.* to 35*l.*

—722. Master. For elem. work, Read., Writ., elem. Fr., Lat., Arith., Sports. 20*l.* to 40*l.*

16723. Gov. Thoro. Eng., Draw., Paint, Class Sing. 20*l.*

16724. Master who has taken an Hon. Degree in Math., and who wishes for an opportunity to study the Theory and Practice of Teaching. Work abt. 3 hours a day. 50*l.* res. No duty.

—725. Gov. Student. Mutual terms, lessons given. Able to teach the Piano. If res., small premium required.

—726. Mus. Mistress. Piano and Sing., and willing to assist with Jun. Eng. in the mornings. 20*l.* to 25*l.* Exp. in the Kindergarten System given. Sept.

—727. Jun. Master. Math., &c.

—728. Kindergarten Teacher.

—729. Jun. Master. Lat., Fr., Eng. Disciplinarian (good). 20*l.* to 30*l.*

—730. Gov. Certd. in Mus., able to prep. pupils for R.A.M. and Trin. Coll., Lond. Sing., Danc., and, if possible, Ger. 20*l.* to 25*l.*

—731. Master for Jun. Class in Eng., Lat., Fr., and out of school supervision.

—732. Pupil Teacher to teach Eng. and Ndlwk, Mus. Practice to a small class. Premium 21*l.*

—733. Master. Eng. (usual branches), Alg., Euc., Fr., Draw. Good Disciplinarian. Res.

—735. Master. Eng. subj., a knowledge of Shorthand a recommendation. 15*l.* to 20*l.*

—737. Jun. Res. Gov., chiefly to assist with Piano lessons to Jun. Mutual terms.

—739. Headmaster for an endowed school. Stipend 100*l.* Capitation fee 2*l.* 5s. for each pupil. Accommodation for 30 boarders. 85*l.* allowed for assistant masters.

—740. House Master. One of a scientific turn of mind would suit, able to play harmonium. 40*l.*

—741. Gov. Good Eng., Fr., Ger., Draw. Knowledge of Mus. 25*l.*

—744. Fr. Gov. Mutual terms.

—745. Master. Eng., Class., Lat. and Gk., Shorthd., Piano a recommendation. Duty light. 30*l.* to 40*l.*

—747. Gov. Good Mus., Sing., and Har., adv. Eng. 30*l.*

16749. Master. Good Fr., elem. Lat., Eng. subj., Shorthd., Draw., or Mus. an advantage. 30*l.* about.

16751. Jun. Master. Eng. subj. Mutual terms. Help in studies.

—753. Master. Eng., Lat., Fr., Math., Draw., and Shorthand to a larger number.

—754. A Grad. Math., Phys., Eng., Fr., Chem., Class. 60*l.* about.

—755. Master. Class., Fr. to standard of loc. exams. Draw. an advantage. 30*l.*

—759. (i.) Jun. Gov. Knowledge of Kindergarten. 10*l.*
(ii.) Gov. student. Premium 18 guineas.

—760. Jun. Master. Good general subj. Not under 25 years of age. Good discipline. Athlete, Sing. if possible. Res. 60*l.* to 70*l.*

—761. Temporary Gov. Eng. subj., Bot. or Phys., jun. Mus.

—764. Master. Chem. (theo. and pract.), Gen. subj., Bkkpg. or Piano a recommendation. 50*l.* to 60*l.*

—765. (i.) Class. Master. Lat. and Gk., Gen. subj. 60*l.*
(ii.) Jun. Master. Gen. subj., Sports. Small salary.

—766. Gov. Mus. (good, theo. and pract.), Draw. (freeh. and crayon), Paint., Ndlwk., Calisth., elem. Fr. 25*l.*

—766. Gov. Pupil. Small premium.

—771. Gov. Thoro. Eng., Arith., adv., Good Draw., Theo. of Mus. 25*l.* to 30*l.*

—774. French Gov. Protestant. To teach Hist., Geog., Jun. Mus. and Sing., Calisth. 25*l.*

—775. Gov. Usual IV. form subjs., Eng. and Sci. for Matric. 35*l.* to 40*l.*

—777. Gov. Fr. and Ger. 30*l.*

—778. Master. Gen. Subjs., must be able to teach Singing. 20*l.* to 30*l.*

—779. Kindergarten Teacher. Jun. Draw. State *all* particulars.

—780. Gov. Eng., Mus., if possible elem. Lat. Small salary or mutual terms.

16783. Non-res. Master. Graduate. Math., Sci., Pract. Chem. and Physics, possibly Eng. Hist., Draw., and Shorthd. a recommendation. 120*l.* to 150*l.*

16786. Master. Lond. Degree Hons. pref. Tutor for Correspondence work, Math., Classics.
—789. German Nursery Gov. for 4 children. Fr., Ger., and Mus. 20*l.*
—790. Gov. Thoro. Eng., Arith. (adv.). Fr. 25*l.*
—791. (i.) Jun. Gov. Eng., Fr., Ger., Mus., Sing., Draw. From 15*l.*
(ii.) Jun. Gov. Mutual terms.
—792. Gov. Eng., Fr., Ger., Mus., Draw. 15*l.*(from).
—795. Good General Master, to assist Headmaster in the office with accts, Shorthd. desirable. To teach a few hours per week. 40*l.* to 60*l.*
—796. Master. Lat. (good), Ger. a recommendation, Eng. subj., Sports. 40*l.* (from).
—800. Gov. Eng. subj, Cert. Lat. and Arith. 16*l.* to 18*l.*
—801. Jun. Gov. Mutual terms.
—802. Eng. Master. Prep. for Coll. P. Exams., Camb. and Oxf. Loc., Math., Shorthd. a recommendation.
—804. Two Jun. Govs. to teach Mus., Fr., Eng., Draw., Sing., Ndlwk., knowledge of Kindergarten. 20*l.* and 9*l.*
—805. Ger. Gov. Ger., Fr., Draw. (elem.), Mus., Ndlwrk. Small salary.
—807. Eng. Master. Math. (good), Fr., Ger., Mus., Piano, Sports. 50*l.*
—810. Articled Pupil. Mutual terms.
—812. Jun. Master. Eng., Lat., Fr., Draw. 20*l.* to 30*l.*
—813. Jun. Master. Gen. subj., Cricket, and Football. Small salary, or mutual terms.
—814. Pupil Master Teacher. Mutual terms.
—817. (i.) Sen. Master. Lat., Fr. (good), Math. Eng. subj. 40*l.* If with German a higher salary.
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—818. Master. Lat., Fr., Math., Shorthd. essential, S. and A. subj., Bkkpg., Sing., and easy Drill, Ger. 90*l.*, with capitation fee on each pupil over 40 of 2*l.* per annum.
—819. Master. Piano (good), Violin (mod.), Fr., Ger., Drill, Fencing, Dancing, or Drawing an advantage. 40*l.*
—820. Eng. Gov. To prep. pupils for Exams., Arith., and Gram. (must be good). 25*l.* Daily.
—821. Master. Gen. Eng. subj., Draw. (freehd. and mod.), Shorthd. (Pitman's), Sports. 30*l.* to 40*l.*
—822. (i.) Master, Jun. Eng. Gen. subj. 30*l.* to 40*l.*
(ii.) Foreign Master. Fr., Ger., Draw. 30*l.* to 40*l.*
—823. French Gov. Fr., Ger., work light. Res.
—824. Jun. Eng. Gov. Jun. Eng. and Fr. 15*l.*
—825. Jun. Master. Eng., Lat., Chem. (good).
—827. Jun. Master. Gen. subj. 10*l.* (from).
—829. Articled Pupil. Premium 12*l.*
—830. Nursery Gov. Dressmk., Ndlwk., Gen. subj., and Mus. 20*l.*
—832. Master. Fr. (conv. and gram.), an Englishman. Gen. Eng. subj. (Ger. and Classics desirable). 40*l.* with small capitation fee.
—833. Gov. Thoro. Eng., good Arith., some Lat., Euc., Alg., Bkkpg. 25*l.* to 30*l.*
—835. (i.) Gov. Pupil. Premium 15*l.*
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—836. Fr. Master. Ger., Draw. 30*l.* (abt.).
—837. Gov. Mus. (good), Thoro. Eng., Violin if possible. 30*l.* to 35*l.* For N.B, for two girls 13 and 15 years of age.
—838. Gov. Eng. subj., Mus., Arith., Lat., Draw. 20*l.*
—839. Jun. Gov. Eng., Fr., Draw., Mus., Sing.
—840. Jun. Gov. Eng., Mus., and Fr. to Juns. 12*l.*
—841. Jun. Eng. Gov. Piano, Fr.
—842. Gov. Student.
—843. Jun. Gov. Gen. subj., Fr., &c. Mutual terms.
—844. Gov. Gymns., Handwork, such as Woodcarving, direction and superintendence of games, and if possible elem. Physiol. Non-res. 90*l.* (abt.),
16845. Master. To prep. for Camb. in Classics, other subj. moderate. Res. 30*l.* to 40*l.*

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—989. Class., Fr., Math., Eng., elem. Sci. Uni. Corr. Coll. Camb. For Vacation. Age 18.
—991. Fr., Math., Mech., Sci., Chem, Phys., Physics, &c. For Vacation. B.Sc. Neuchâtel.
—992. Eng. subj., jun. Math., Bkkpg., Shorthd., Free. Draw., Chem. Sci., Mech., Lt., Ht., Chem, Hydrostatics, Fr., Ger., and elem. Gk. Lond. Matric. Res. 45*l.*; non-res. 100*l.*
—993. Classics, Fr., Eng. subj., Math., Chem., Mag., Elec., Lt. and Heat, Nat. Phil., Draw. (freehd.), Bkkpg. Land. Surrey, Matric. Lond, and S.K. Sci. Res. 60*l.*; Non-res. 100*l.* Age 25.
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—005. Draw. (freehd. and mod.), Mus. (theory), Eng. subj., Sing., Math., Mens., Lat. (gram.) and Fr. (elem.), Script., Shorthd. Draw. Cert., Trin. Coll. for Mus., Queen's Scholarship. Res. 30*l.* to 40*l.*; non-res. 60*l.* to 70*l.* Age 34.
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—007. Eng., Math., Mens., Bkkpg., Lat. (elem.). Res. 30*l.*; non-res. 65*l.* Age 25.
—009. Eng. subj. (Hist., Script.), Math., Mens., Mech., Class. (elem.), Fr., Chem., and Draw. (elem), 1st Cl. C.P., Lond. Matric. Res. 30*l.*; non-res. 60*l.* Age 20.
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—032. Phys., Math., Chem. (inorg.). Matric. Lond. Non-res. 120*l.*; res. or Visiting. Age 29.
—033. Class., Math., Fr., Eng. (all branches), Shakespeare, Chem. (theo. and prac.). Inter. Arts, S.K. Certs. Res. 120*l.* to 150*l.* Age 34.
22034. Class., Fr., Math., Mech., Physics, Chem., Eng. (all branches), Mus., Theory, Vocal. Res. 45*l.* to 60*l.*; non-res. 90*l.* to 130*l.* Age 25.
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—040. Math., Trig. (plane and spheric.), Geom, Mech. and Hydros., Class., Fr., Eng. Lit. and Hist., Geog., &c. Inter. B.A. Lond., 1st Div. 2nd Schol., Aberystwith.
—041. Fr., Ger., Geog., Draw., Math, Eng. Hist. Res. 40*l.* Age 26.
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—045. Eng. (gram. and anal.), Hist., Geog., Arith, Alg., Draw., Fr., Bkkpg., Drill. 2nd Cl. C.P. S.K. Chem. Res. 10*l.* Age 17.
—047. Ger., Fr., Paint. (oil and w.-col.), Math., Draw., Tech. Writ. (Chem.). Member of the Zürich and Gottingen Univ. Res. 80*l.*; non res. 120*l.* Age 24.
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—051. Lat., Fr., Ger., Eng. subj., Math., Violin, Sports. Non-res. 100*l.*, or res. Age 21.
—052. Math., Eng. subj., Class., Fr., Ger. (elem.), Shorthd., Draw. (frhd.), Math. Schol. Jesus Coll. Camb., B.A. Lond. Non-res. 150*l.* Age 32.
—053. Eng., Math., Class. Non-res. or res.
—054. Class., Eng. subj., Math. (jun.), Fr., Chem. (theor. and prac.). Non-res. 90*l.* St. John's Coll, Camb.
—055. Piano, Organ, Singing. Non-res.
—057. Math., Eng. subj., Lat., Fr., Mens., Exp. Phys., Mech. (elem.), Phys., Physiog., Geog., Hygiene. S.K. Arts, Queen's Scholarship. Age 20. Res. or non-res.
—058. Class., Math., Chem. (theor. and prac.), Ht., Statics, Geol., Bot., Hydros., Eng. and Fr. (elem.). Athlete. B.A. Camb. Non-res. from 150*l.*, or res. Age 21.
—059. Eng. subj., Arith., Fr. and Mus. (elem.), Draw. (jun.). Res. 20*l.* Age 20.
—060. Eng. subj., Fr. (conv. and gram.), Ger. and Lat. (elem.), Draw. (persp. and frhd.), Math. Shorthd., Chem., Sound, Lt. Res. 40*l.* to 60*l.*, or non-res. Age 49.
—061. Math., Fr., Geog., Gram., Hist., Draw. (frhd., mod., geom.), Bkkpg., Lat. (elem.), Music Theory. 2nd Cl. C.P., S.K. Certs. Res. 20*l.* (abt.). Age 17.
—062. Fr. and Ger. (conv.), Ital. (gram. and comp.), Lat., Eng., Arith. (elem.). Irish Inter. Exam., 2nd Prize, 700 students. Res. 20*l.* Age 19.
—063. Ger. (conv. and gram.), Fr. (gram.), Math., Mech., Chem., Script. Matric. Lond. About 30*l.* res. Age 20.
—065. Eng. subj., Math., Lat. and Fr. (elem). Res. Age 22.
—066. Eng. Lang. and Hist., Geog., Math. (Jun.), Bkkpg., Fr., Phys., Draw. (freehd.), Pol. Econ., Script., Lat. (elem.). Res. 20*l.*; non-res. 60*l.* 1st Cl. C.P., Spec. Cert. in Gram. and Hist. Age 19.
—067. Math., Nat. Phil., Class., Fr., Ger., Chem., Shorthd., Eng. subj., Sports. Matric. Lond., 1st Div. Non-res. or res. Age 22.
—068. Fr. (all), Ger. (elem.), Draw., Athletics, Math. Brevet Sup. Cert. Pedagogue, 1st Cl. Govt. Exam. Res. or Visiting. Age 23.
—069. Eng. subj., Class., Fr., Ger., Math., Sports, Jun. Camb., 1st Cl. Hon., Matric. Lond. Res. 25*l.* to 40*l.* Age 19.
—070. Class., Eng., Math. (high), Fr. (fair), Ger. (elem.), Draw., Bkkpg., Phys. and Chem. (elem.). Matric. Hons., Inter. Arts Hons., B.A. 1st Div., 1st Cl. C.P., Camb. Sen. and Jun. Non-res. 120*l.* Age 23.
—071. Eng., Math., Sci., Draw., Fr., Lat., Mus. (theory), all subj. for A.C.P., S.K. Cert. for Sci. Non-res. 70*l.*; res. 30*l.* to 40*l.* Age 24.
22072. Math., Mech., Hydros., Lat., Fr., Hist., Geog., Gram., Chem., Elect., Mus. 1st Cl. C.P. Camb. L. Sen. Hon. Lond. Matric. 1st Div. Res. 20*l.* Age 18.

22073. Chem. (theo. and pract.), Physics (general) Statics, Dynamics, Hydros., Ht., Optics, Elect., Mag., Phys. Geog., Classics, Maths., Biol., Anat., Physiol., Sports. B.A. Camb, 1st M.B. Camb., 1st Cl. Chem. Special. Res. 50*l.*; non-res. 120*l.* Age 23.

—074. Math. (all), Classics, Fr., Ger., Hebrew, Nat. Sci., Zool., Bot., Geol., Phys. Geog., Shorthd. Univ. Glasgow and King's Coll., Lond. Non-res. or Visiting.

—075. Eng. subj., Math., Mens., Fr., Lat., Elect., Lt., Ht., Mech., Geol., Hyg., Phys., Physiog. S.K. Certs. Res. or non-res. Age 19.

GOVERNESSES.

No. in Register.

10036. Eng., Anal., Comp., Lit., Arith. (adv.), Eloc., Fr., Mus., Draw., Calis., Ndlwk., Alg. (elem.), Bkkpg., and Lat. 2nd Cl. C.P., Queen's Scholarship., S.K. Res. 24*l.* to 30*l.* Age 23.

—037. Eng. (thoro.), Fr. (Paris), Ger, Mus. (thoro.), Arith. (good), Lat., Math., Draw., Paint. (Jun.). Inter. Trin. Coll., Dublin. Res. 40*l.* Age 28.

—038. Piano, Sing. Harm., 1st Cl. Cert. Soc. of Arts, R.A.M. Bronze Medal, Trin. Coll. Jun. Theory. Res. 50*l.*; or non-res. Age 22.

—040. Arith., Alg., Geom., Phys., Zool., Bot., Hist., Cosmography, Lit., Dutch, Fr., Ger., Eng., Draw. Mus., Ndlwk. Res. or Non-res. Teacher's Govt. Exam., Holland.

—041. Eng. subj., Lit., &c., Arith., Fr. and Ger. Res. 25*l.* to 30*l.* 1st Cl. C.P., Sen. Camb. Age 08.

—042. Eng. Subj., Fr. (conv.), Mus., Theo. and Sing., Ndlwk. Res. 20*l.* to 25*l.* in a Fam. 2nd. Cl. C.P.

—043. Eng. subj., Fr., Ger., Lat. (elem.), Mus. and Sing. (good), Draw. (elem.), Theory (performer), Dane., Calis., plain and fancy Ndlwk. Sal. abt. 40*l.*

—044. Eng. subj., Lit., Draw., Paint., Mus., Arith., Ger. (fluent), Fr. (gram.), Lat. (elem.). 1st Cl. C.P. Non-res. from 45*l.*; res. 25*l.* to 30*l.* Age 22.

—045. Eng. (adv.), Fr., Ger. (elem.), Hist., Geog., Bot., Phys, Arith., Draw., Paint., Mus. (elem.). Univ. St. Andrews Sen. L. Exam, L.L.A. St. Andrews, S.K. Certs. Res. 40*l.* Age 20.

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—047. Mus. (all branches), Piano, Violin, Sing., Class Sing., Theory. Res. 20*l.* to 25*l.* Age 18.

—048. Fr., Mus. (jun.). Cert. Acad. de Paris. Res. 40*l.* Age 24.

—049. Ger., Eng., Fr. (good), Draw., Paint. (oil and w.-col.), Arith., Sing. (elem.), Danc., Ndlwk. Res. 40*l.*; non-res. 100*l.* Age 26.

—050. Eng. subj. (special), Bot., Phys., Geog., Fr., Ger., and Lat. (elem.). Jun. and Sen. Camb., Camb. Hr. Loc., Camb. Teachers' Exam. Non-res. 70*l.* to 100*l.*; res. 50*l.* Age 21.

—051. Eng. subj. (general), Math., Fr., Bot., Lat., Ndlwk., Swedish Drill. Matric. Lond. S.K. Draw. Non-res. 75*l.* to 85*l.*; or res.

—052. Eng. (thoro.), Mus. (good), Fr. (gram.), Ger. (elem.), Lat., Draw., Sing. (class). Sen. Camb., Teacher's Cert. Home and Col. Coll. Non-res. Age 30.

—055. Hist. and Lit. (special), Fr., Eng. subj. (jun.), Phys., Mus. Hon. Cert. Camb. L., Trin. Coll. for Mus., Oxf. Lat. Cert. Non-res. 60*l.*; res. 45*l.* Age 25.

—056. Hist., Script., Lit., Geog., Bot., Draw. (class), Fr., Ger. (elem.). Camb. Hr. Loc. Teacher's Exam., Teacher's Train. Class. Non-res. 70*l.* to 100*l.*; or res. Age 21.

—058. Piano (theory), Harm., Ger., Fr. (elem.). R. Acad., Loc. Sen. Cert., &c. Non-res. or res. Mutual terms. Help for Licent. Cert. Age 21.

—059. Piano, Sing., Fr. (conv.), Span., Ger. (elem.). Cert. Loc. R.A.M. Res. 25*l.* to 30*l.* Age 23.

—060. Eng. subj. (all), Lit., Mus. (good—class. and mod.), Sing. (solo), Fr. (gram.). 15 years' exp. Res. 40*l.* to 50*l.*; non-res. 70*l.* to 80*l.* Age 37.

—061. Sing., Piano, Theory. Non-res. Age 21.

—063. Violin, Piano, Theory, Eng., Sing., Fr., Harm. Trin. Coll. Sen. Hon., Piano (sen.). Res. 30*l.* to 40*l.* Age 21.

—064. Piano, Theory, Harm., Class Sing., elem. Fr. (conv.). Sen. Loc. Associated Bd. R.A.M., and R.C.M. Res. 45*l.* Age 22.

—065. Piano (adv.), Sing. (Solo and Class), Harm. (theory). R.S. Prof. Mus. (adv. grade) Sen. Hons., Jun. and Sen. Camb. Hons., Member of the R.A. Hall C. Soc. Res. 40*l.* to 50*l.*; non-res. 80*l.* Age 23.

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10067. Eng. and Arith. (thoro.), Fr., Mus., Lat., and Draw. (jun.). 1st Cl. C.P., Jun. Camb. Res. 40*l.*; non-res. 70*l.* to 80*l.* Age 23.

—068. Mus., Sing., Eng. (to juniors). Sen. R.A.M. Res. 30*l.* to 40*l.* Age 31.

—069. Eng. subj. (adv.), Math., Mus. (piano), Fr., Draw. Res. 50*l.* Age 44.

—070. Eng. subj. (all), Fr. and Ger. (conv. and gram.), Arith., Alg., Lat., Mus., Draw. 1st Cl. C.P., Sen. Camb. Res. 40*l.* to 50*l.*; non-res. Age 24.

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Raymer, H. J. *a. ph.* Sea House School, Eastbourne.
Bois, G. W. *e.* St. James' Collegiate S., Jersey.
Benham, S. J. *a. al.* University School, Hastings.
Parsons, W. J. University School, Hastings.
Lee, J. S. *s. d.* Bruce Castle School, Tottenham.
Alexander, P. A. *l.* St. George's College, Weybridge.
Dupigny, J. E. *f.* Tooting College.
Hayes, J. E. *f.* St. Mary's Coll., Woolhampton.
Hall, N. *f.* Tooting College.
Sutton, G. P. C. Market Bosworth Grammar S.
Maud, F. H. *a.* Noncon. Gram. S., Bp. Stortford.
Stewart, B. H. *nat.* University School, Hastings.
Turner, P. H. *a.* Stationers' Company's S., E.C.
Cole, R. J. *s. a.* Banham Grammar S., Attleboro'.
Stevens, P. B. *e. bk.* Truro College.
Cross, W. *a. mu.* Woodhouse Grove School.
Nugent, F. J. *a.* Salford Catholic Grammar S.
Pollard, R. *eu.* East Cornwall College, Liskeard.
Stewart, A. A. *bk.* University School, Hastings.
Gosschalk, M. Private study.

First Class.—Pass Division.

Morrison, J. St. John's Coll., Finsbury Park.
Dixon, J. F. *e.* Queen Elizabeth's S., Gainsboro'.
Horsfall, A. E. Almondbury Grammar School.
Martin, T. T. *nat.* Tollington Park College, N.
Strong, J. A. East Cornwall College, Liskeard.
Wilkes, W. M. P. Woodhouse Grove School.
Meek, S. W. Truro College. *eu. tr. bk.*
Elliot-Smith, H. University School, Hastings.
Walmsley, G. E. *d.* Grammar School, Eccles.
Harpham, E. S. Tollington Park College, N.
Hooley, S. P. Banham Grammar S., Attleboro'.
Prentice, G. J. *nat. d.* S. Hackney High School, N.E.
Haigh, E. F. A. N. Lond. High S. for Boys, N.W.
Robinson, C. Banham Grammar S., Attleboro'.
Andrews, H. C. *d.* St. Catharine's S., Broxbourne.
Miller, N. McL. Dudley Grammar School.
Spofforth, J. R. H. Thorne Grammar S., Doncaster.
Ottaway, E. E. *a.* North London Collegiate School.
Benians, W. S. Bethany House S., Goudhurst.
Greenwood, A. R. University School, Hastings. *bk.*
Anderson, J. C. Tollington Park College, N.
Greasley, F. *ch.* Thorne Grammar S., Doncaster.
Morley, E. Banham Grammar S., Attleboro'.
Penrose, J. Truro College.
Torrance, A. M. Tollington Park College, N.
Baker, A. T. *f.* Noncon. Gram. S., Bp. Stortford.
Kenny, J. H. Southampton Boys' College.
Martin, W. H. *e.* Private study.
McGechie, R. G. Tollington Park College, N.
Williams, H. L. Bilton Grange S., Harrogate.
Harrington, T. Tooting College.
Read, E. H. The Coll., South Penge Pk., S.E.
Willson, R. Ampleforth College, York.
Mann, C. J. Tooting College.
Adames, F. St. Mary's Coll., Woolhampton.
Girdwood, R. W. *d.* Wesley College, Sheffield.
Connolly, J. Ampleforth College, York.
Crossfield, J. S. Woodhouse Grove School.
Bawden, A. C. *e. bk.* Truro College.
Gudgeon, H. H. Glenwood House School, Winchmore Hill.
Jenkins, J. C. Exmouth House S., Stoke, Devon.
Lieck, A. H. *s.* S. Hackney High School, N.E.
Watson, J. V. Middleton Gram. S., Manchester.
Wharton, H. F. Bethany House S., Goudhurst.
Barber, J. W. Almondbury Grammar School.
Benson, H. J. Queen Elizabeth's S., Gainsboro'.
Branwell, C. Kelly College, Tavistock.
Dutton, J. H. P. Almondbury Grammar School.
Mathieson, J. G. S. Hackney High School, N.E.
Hyatt, S. P. Rugby House S., Eastbourne.
Bailey, F. St. Mary's Coll., Woolhampton.
Powell, A. Ampleforth College, York.
Carey, F. C. Lonsbury Coll., Upper Clapton.
Morrison, T. *d.* St. John's Coll., Finsbury Park.
Brown, F. W. R. St. John's Coll., Finsbury Park.
Edwards, L. A. C. University School, Hastings.
Holditch, E. D. *a.* Whitchurch Grammar School.
Cole, S. University School, Hastings.
Tillott, A. *e.* The Grammar School, Eye.
Lovitt, H. G. *h.* North London Collegiate School.
Neumegen, R. W. Bruce Castle School, Tottenham.
Nicholson, E. T. Truro College.
Desai, U. L. *p.* Private tuition.
Kemp, N. W. The Coll., South Penge Pk., S.E.
O'Connell, J. St. Joseph's Acad., Kennington.
Riley, F. Blackburn Grammar School.
Bleasdale, R. *a.* Hindley Grammar School.
Smith, J. H. St. John's College, Brixton.
Loseby, P. J. *e.* Market Bosworth Grammar School.
Holditch, A. H. *a.* Whitchurch Grammar School.
Soames, H. G. R. Schorne College, Winslow.
Mason, F. J. Private study.
Squire, M. F. Queen Elizabeth's S., Gainsboro'.
Bateman, H. H. *a.* Barton School, Wisbech.
Hindley, J. C. Grammar School, Eccles.
Kavanagh, J. *e.* Tooting College.
Hind, G. Ampleforth College, York.
Skinner, C. W. King Edwd. VI. S., Wymondham.
Whitmarsh, G. Tooting College.
Collins, A. Sutton Park School, Surrey.
Hall, A. W. Stationers' Company's S., E.C.
Harris, A. J. Emwell House S., Warminster.
Williams, E. L. Grammar School, Eccles.
Freeman, G. R. *a.* The Coll., South Penge Pk., S.E.
Hildreth, C. J. St. John's Coll., Finsbury Park.
Hawson, O. M. Private tuition.
Longhurst, S. C. Sea House School, Eastbourne.
Davies, H. S. Parkyvelvet Grammar School, Carmarthen.
Goodchild, J. H. Noncon. Gram. S., Bp. Stortford.
Stone, A. W. Schorne College, Winslow.
Sutherland, S. A. St. Oswald's Coll., Tynemouth.
Andrew, J. G. Tollington Park College, N.
Casartelli, L. Ampleforth College, York.
Hiles, H. H. *d.* Laurel Bank School, Manchest'r.
Hanes, E. S. North London Collegiate School.
Rogers, A. W. Private study.

Second Class.—1st Division.

Petter, H. M. *d.* Mount Radford School, Exeter.
Primavesi, R. H. *a. m. s.* Tooting College.
Nash, R. P. Tollington Park College, N.
Frank, W. P. Bilton Grange School, Harrogate.
Clifford, F. C. W. Private study.
Buckley, W. M. *bk. d.* Grammar School, Belper.
Smith, B. S. *bk.* Woodhouse Grove School.
Brice, J. H. Tollington Park College, N.
Hird, W. H. North London Collegiate School.
Dillon, A. Ampleforth College, York.
Dunford, H. G. The Polytechnic Intermediate S., W.
White, H. F. Commercial School, Bournemouth.
Dawson, T. L. Private tuition.
Verslage, A. H. *d.* Grammar School, Godalming.
Colbeck, N. Almondbury Grammar School.
Carrara, A. *bk. ms.* Tooting College.
Whiting, C. J. Woodhouse Grove School.
Moss, F. J. North London Collegiate School.
Newton, J. Tollington Park College, N.
Baumann, R. *ger.* Anglo-German School, Brixton.
Fetherstone-Haugh, R. High School, Anerley.
Starkey, H. W. Noncon. Gram. S., Bp. Stortford.
West, G. The Polytechnic Intermediate S., W.
Cooling, W. A. Woodhouse Grove School.
Lindsey, A. B. Tollington Park College, N.
Batho, G. F. W. Oakwood House School, Jersey.
Ives, G. A. Almondbury Grammar School.
Powell, W. Ampleforth College, York.
Callard, P. S. *bk.* Seaford College.
Deakin, N. H. *bk.* University School, Hastings.
Wynn, W. L. Dean Close Memorial S., Cheltenh'm.
Linn, H. P. Almondbury Grammar School.
Mott, S. V. Paradise House, Stoke Newington.
Barton, A. C. Woodhouse Grove School.
Francke, W. Grafton House School, Manchester.
Phillips, C. W. East Cornwall College, Liskeard.
Rose, L. Grammar School, Belper.
Gates, H. C. St. John's College, Finsbury Park.
Turner, W. E. West Cliff Prep. S., Bournemouth.
Hutchinson, H. G. C. Grosvenor College, Ostende.
Bunting, W. H. J. *bk.* Seaford College.
French, H. J. Tollington Park College, N.
Holford, E. W. Woodhouse Grove School.
Matthews, A. J. High School, Bromley, Kent.
May, O. Tollington Park College, N.
Seligmann, C. G. Private tuition.
Bernhardt, D. R. Private study.
Hebert, H. F. Dean Close Memorial S., Cheltenh'm.
Pearson, P. H. Woodhouse Grove, School.
Roe, A. H. West Cliff Prep. S., Bournemouth.
Corley, F. E. Finsbury Park College, N.
Firth, A. R. Barton School, Wisbech.
Gardner, H. R. Portsmouth Grammar School.
Mann, F. R. Belle Vue House School, Norwich.
Strong, H. E. High School, Bromley, Kent.
Swinnerton, R. H. Woodhouse Grove School.
Evans, W. B. Tollington Park College, N.
Hubert, W. A. Epsom College.
Prestwich, J. Royal Grammar School, Whalley.
Punch, J. F. T. Byron House School, Ealing.
Coutts, J. W. Grafton House S., Manchester.
Sachs, J. C. North London Collegiate School.
Spurway, W. J. East Cornwall College, Liskeard.
Chandler, T. R. Tollington Park College, N.
Smith, A. J. Oxford County School, Thame.
Warren, W. H. M. The Polytechnic Intermediate S., W.
Browning, A. Bussage House, Stroud.
Cochran, J. R. University School, Hastings.
Jarvis, E. M. Private study.
Knowles, W. Yorkshire Society's School, S.E.
Parker, J. Ampleforth College, York.
Smith, H. Bilton Grange School, Harrogate.
Hines, C. Ampleforth College, York.
Mallinson, T. H. Almondbury Grammar School.
Foster, E. St. John's College, Finsbury Park.
Fyrth, W. Ashted School, Birmingham.
Biggs, M. H. Epsom College.
Edwards, S. P. *bk.* Tollington Park College, N.
Ridge, W. S. Woodhouse Grove School.
Sheldrake, A. M. University School, Hastings.
Windsor, C. L. *d.* Grammar School, Chard.
Phipson, D. E. *d.* Fowey Grammar School.
Barber, J. Almondbury Grammar School.
Webb, H. G. Dean Close Memorial S., Cheltenh'm.
Brown, W. *bk.* St. Joseph's Acad., Kennington Rd.
Buckley, H. P. Grammar School, Belper.
Hunter, E. F. Tollington Park College, N.
Schofield, J. A. Almondbury Grammar School.
Griffiths, W. J. Private study.
Rich, A. Dr. Morgan's End. S., Bridgwater.
Roman, S. A. Salford Catholic Grammar School.
Simpson, G. S. *l.* Noncon. Gram. S., Bp. Stortford.
Styles, J. C. Commercial S., Barrow-in-Furness.
Braddock, W. Private tuition.
Lyth, G. J. W. Archbishop Holgate's School, York.
Picken, G. A. Plymouth College.
Pridie, A. B. Montrose College, Brixton Hill.
Stimson, E. F. Halstead Grammar School.
Wright, S. W. *bk. d.* The Polytechnic Intermediate S., W.
Broadbent, F. J. Almondbury Grammar School.
Hartley, W. E. New Hall Coll., Sutton Coldfield.
Playford, R. B. Epsom College.
Rosser, F. Tollington Park College, N.
Rowe, W. Truro College.

BOYS, SECOND CLASS—*Continued.*

Swanson, F. M.		North London Collegiate School.
Chauncy, C. H. K.		K. Edwd. VI. S., Stratford-on-Avon.
Mortimer, W. H.		Independent College, Taunton.
Stonehouse, T. D.		Collegiate School, Pontardawe.
Wallis, C. S.		Hatton House S., Newark-on-Trent.
Blieden, B.	*bk.*	The Polytechnic Intermediate S., W.
Branson, A. W.		High School, Smethwick.
Gill, J. F.		College House S., West Croydon.
Little, A. E.		Leeds Modern School.
Davies, F. A.		Grammar School, Wolverhampton.
Dunn, H.		University School, Stroud Green.
Leufestey, L. d'E.		Dunn Foundation School, Crediton.
Miller, T.		St. Joseph's Comm. Coll., Dumfries.
Patey, C.		Market Bosworth Grammar School.
Potous, M. A.	*d.*	Chiswick Collegiate School.
Town, H. D.		Commercial S., Barrow-in-Furness.
Whiteley, G. H.		Tollington Park College, N.
Gem, G.		K. Edwd. VI. S., Stratford-on-Avon.
Charbonier, O. N. A.	*f.*	University School, Hastings.
Furniss, W.		Salford Catholic Grammar School.
Saunders, E. W.		Tollington Park College, N.
Borthwick, J. J.		Bilton Grange School, Harrogate.
Dell, R. J.	*bk.*	Seaford College.
Jacobs, H. J.		Sandwich School.
Lucas, S. B.		Hatton House S., Newark-on-Trent
Barnes, F. C.		Noncon. Gram. S., Bp. Stortford.
Coltman, E.		The High School, Thirsk.
Nichols, R. A.		St. John's Roy. Latin S., Bucking'm.
Skipwith, R. H.		Bedford Grammar School.
Amaral, A.	*ger.*	Private tuition.
Brown, V. R.		Woodhouse Grove School.
Clapton, W.		Harlesden College, N.W.
De Mierre, A.		Worthing High School for Boys.
Griffiths, E.		Old College School, Carmarthen.
Walsh, F. L. M.	*bk.*	The Polytechnic Intermediate S., W.
Atkinson, B. F.		Salford Catholic Grammar School.
Clough, C. H.		Woodhouse Grove School.
Nelson, C.	*bk.*	The Polytechnic Intermediate S., W.
Parlett, H. S.		St. James' Collegiate S., Jersey.
Pinchard, M. B.		Blundell's School, Tiverton.
Priestman, F.		Ampleforth College, York.
Van Someren, E. H.		Private tuition.
Capps, J. H.		St. Margaret's College, Lowestoft.
Davis, H. H.		Bethany House School, Goudhurst.
Morrissy, F.		Baylis House, Slough.
Perkins, G. F.		Barton School, Wisbech.
Thwaites, H.		Exmouth College.
Tomlins, R. P.		King Edward VI. S., Wymondham.
Feeny, E.	*f.*	St. Joseph's College, Brampton.
Symonds, G. E.		The Grammar School, Eye.
Waterhouse, R.		Woodhouse Grove School.
Blackledge, P.		Ampleforth College, York.
Bowmer, I.		Grammar School, Belper.
Griffiths, A.		Private study.
Haward, A. W.	*bk.*	Brunswick House School, Windsor.
Jago, G.		Plymouth Public School.
Jenkins, J. E.		Grammar School, Cardigan.
Johnson, W. D.		Whitchurch Grammar School.
Reynolds, H. W.		Tollington Park College, N.
Vernon, C. E.		High School, Smethwick.
Clark, H. O.		Halstead Grammar School.
Duffell, T. H.	*d.*	Private tuition.
Gibberd, J. V.		University School, Hastings.
Hines, F.		Ampleforth College, York.
Hughes, T. B.		Elmfield College, York.
Kendall, R.	*ger.*	Anglo-German School, Brixton.
Mann, P. W.		Yorkshire Society's School, S.E.
Smith, C. J.		St. John's Roy. Latin S., Bucking'm.
Spencer, M.		University School, Hastings.
Cash, N. E.		Bethany House School, Goudhurst.
Connor, E.		Ampleforth College, York.
Cook, F. R.		Tollington Park College, N.
Samuel, J.		Parkyvelvet Gram. S., Carmarthen.
Sippe, C. B.		Montrose College, Brixton Hill.
Bell, H.		Royal Gram. S., Newcastle-on-Tyne.
Dawkins, A. E.		Immanuel Coll., Streatham Common.
Livesey, R. M.		Gram. & Collegiate S., Carnarvon.
Morris, H.		Lynton House School, Witney.
Warburton, H.		Endowed Grammar S., Northwich.
Fitch, E. W.		University School, Hastings.
Ledeboer, D. H.		The Coll., South Penge Park, S.E.
Penry, J. L.		Haverfordwest Grammar School.
Pye, R.		St. Joseph's Acad., Kennington Rd.
Rothwell, A. T.		Grammar School, Godalming.
Collin, J. E.		Banham Grammar S., Attleboro'.
Curran, P.		Ampleforth College, York.
Farley, J. T.		Salford Catholic Grammar School.
Gullan, H. F.		Private tuition.
Lang, T. E.		Kingston School, Yeovil.
Prosser, T. A.		Private tuition.
Ruddin, E.		Ampleforth College, York.
Allen, F. W.		Banham Grammar S., Attleboro'.
Bateman, F. B.		Thanet College, Margate.
Butler, C. S.		St. Catharine's School, Broxbourne.
Carry, G. F.		St. George's College, Weybridge.
Field, T. W.		Oxford County School, Thame.
Gibson, G. H.		Queen Elizabeth's S., Gainsborough.
Quickfall, F.		Private study.
Stephenson, H.	*a.*	The College, Churwell, Leeds.
Walker, G. C.		Private tuition.
Willey, C. D.		East Cornwall College, Liskeard.
Botteley, G. J. G.		Wesley College, Sheffield.
Gardner, W.		Collegiate School, Blackpool.
Greaves, J.		Bilton Grange School, Harrogate.
Hammond, W.		St. Joseph's College, Brampton.
Hitchins, F. C.		Kelly College, Tavistock.
Humphrey, W. A.		Woodhouse Grove School.
Pentony, W.		Ampleforth College, York.
Tyte, J. H.		Kingston School, Yeovil.
Cozens, A. I.		Dr. Morgan's End. S., Bridgwater.
Harrison, D. H.	*a.*	St. Catharine's School, Broxbourne.
Hughes, C. J.		Salford Catholic Grammar School.
Kemmis, H. G.		Dr. Morgan's End. S., Bridgwater.
Payton, A. B.		The Southern College, Pannal Ash.
Wolverson, F.		Grammar School, Wolverhampton.
Bird, F. A.		High School, Dorking.
Callard, C. R.		Seaford College.
Gilson, L. D.		St. Peter's College, St. Leonards.
Hawkins, A.		Tooting College School.
Heesom, E. E. D.		13 Royal Terrace, Weymouth.
Greaves, S. T.		Ashbourne Rd. Commercial S., Derby
Humphreys, W. J.		Grammar School, Godalming.
Jones, E. S.		Hoylake School.
Merrit, E. H.		Waverley House, Eastbourne.
Roberts, G. F.		Woodhouse Grove School.
Atkins, O. L.		Immanuel Coll, Streatham Common.
Brownlow, F. A. W.	*d.*	Grosvenor College, Ostende.
Gilbert, E. G.		Bilton Grange School, Harrogate.
Hiscock, A. G.		Handel College, Southampton.
James, G.		Parkyvelvet Gram. S., Carmarthen.
Jones, T. C. L.		Hoylake School.
Mollett, G. J.		Dean Close Memorial S., Cheltenh'm.
Rowlands, D.		Private tuition.
Scorgie, G. W.		Woodhouse Grove School.
Walker, W. W.		Almondbury Grammar School.
Bennett, P. M. S.		Private tuition.
Davies, J. H.		Woodhouse Grove School.
Donovan, W.		St. Joseph's Acad., Kennington Rd.
Forster, W. D.		Argyle House School, Sunderland.
Geoghegan, T. R. J.		Baylis House, Slough.
Holtom, E. G.		K. Edwd. VI. S., Stratford-on-Avon.
Lightfoot, A. M.		Endowed Grammar S., Northwich.
Prince, D. C.		North London Collegiate School.
Sage, H. S.	*d.*	Enfield Grammar School.
Watson, W. G.		University School, Hastings.
Wright, P. H.		Bussage House, Stroud.
Gulliford, W.		Dr. Morgan's End. S., Bridgwater.
Miller, G. A.		Handel College, Southampton.
Robins, E. B.	*bk.*	Truro College.
Snow, W. K.		University School, Hastings.
Woods, F. E.		Tollington Park College, N.
Ayris, E. B.		Ashford Grammar School.
Bailey, H.		The Polytechnic Intermediate S.
Barton, W. W.		Highbury Park School.
Glasspole, R.		Brighton House Coll. S., Oldham.
Hirst, F.		Almondbury Grammar School.
Iliffe, C. W.		Irvine House, Derby.
Kendall, A.		Ampleforth College, York.
Laslett, M. H.		Private tuition.
Redway, R.		Exmouth College.
Sandford, A.		St. Joseph's Acad., Kennington Rd.
Stimson, H. P.		Halstead Grammar School.
Thomas, W. H.		Parkyvelvet Gram. S., Carmarthen.
Turner, D. G.		Sidney Sussex House, Hastings.
Brice, F. V.		East Cornwall College, Liskeard.
Donglass, W. H. H.		St. Oswald's College, Tynemouth.
Fothergill, B. J.		Yorkshire Society's School, S.E.
Grant, R. G.		Mere House, Alsager.
Loosely, A. E. A.		Cavendish House S., Hammersmith.
Mayer, R. D.		Tollington Park College, N.
McGuinness, T.		Acad. of St. Paulinus, Catterick.
Methley, E.		Wadham House School, Hove.
Reidy, R. G.		St. George's College, Weybridge.
Tennant, B. R.		Grosvenor College, Ostende.
Anderson, J. W.		Nairndene, Southport.
Carter, C. B.		University School, Hastings.
Ind, C. U.		Cambridge House School, Margate.
Keall, J.		The Polytechnic Intermediate S., W.
Lazenby, P. E.		St. John's Coll., Grimsargh, Preston.
Roberts, N. O.		Denbigh Grammar School.
Stamm, J. C.		Tollington Park College, N.
Troake, E. M.		St. Mary's College, Harlow.
Whitmore, H. K. S.		The Grammar School, Eye.
Abraham, A.		The Polytechnic Intermediate S., W.
Brown, R. T.		King's School, Rochester.
Jones, H. M.		Montrose College, Brixton Hill.
Murray, C. S.		Dean Close Memorial S., Cheltenh'm.
O'Neill, M.		Salford Catholic Grammar School.
Parker, E.		High School, Anerley.
Penney, C. G.		Eton House School, Hull.
Platt, G.		Grammar School, Belper.
Stubbs, P.		Bilton Grange School, Harrogate.
Allan, A. H.		Montrose College, Brixton Hill.
Davies, A. H.		New Hall Coll., Sutton Coldfield.
Dance, W.		Western Gram. School, Brompton
Dunn, A. S.		Schorne College, Winslow.
Hopwood, E. B.		The Coll., South Penge Park, S.E.
O'Connor, G. P.		Epsom College.
Savage, J. W.		Seaford College.
Stephens, C. C.		Dean Close Memorial S., Cheltenh'm.
Amsden, W.		Private study.
Appleby, E. B.		Argyle House School, Sunderland.
Ayrton, E.		The Academy, Brighouse.
Prior, J. S.		Grammar School, Altrincham.
Zimmermann, F.	*ger.*	Anglo-German School, Brixton.
Aldis, F. G.		Redenhall Comm. S., Harleston.
Binns, N.		Almondbury Grammar School.
Erith, H. A.		Noncon. Gram. S., Bp. Stortford.
Salvin, W. T. J.		Baylis House, Slough.
Simpson, O.		Grafton House School, Manchester.
Street, J.		St. Mary's College, Woolhampton.
Vincent, W. K. E.		Private tuition.
Westmorland, C. H.		Boys' High School, Leeds.
Whitelaw, D.		Tollington Park College, N.
Gaston, G. P.		Kent Coast College, Herne Bay.
Hughes, C. H.		North London Collegiate School.
Johnson, R. C.		Queen Elizabeth's S., Gainsboro'.
Mornement, R. H.		Belle Vue House School, Norwich.
Savage, W. C.		Archbishop Holgate's S., York.
Shackell, F.		Collegiate School, Waltham Cross.
Smith, T. R.		Woodhouse Grove School.
Symonds, T. W.		The Grammar School, Eye.
Wardroper, J. M.		Dean Close Memorial S., Cheltenh'm.

SECOND CLASS.—2ND DIVISION.

Baker, J. E.		St. Oswald's College, Tynemouth.
Bannigan, T.		St. Joseph's Comm. Coll., Dumfries.
Carter, E. J.		Exmouth College.
Jackson, H.		High School, Sutton, Surrey.
James, C. H.		Truro College.
Lovell, W. P.		Market Bosworth Grammar School.
Morris, C. E.		Private tuition.
Price, H. R.		St. John's College, Brixton.
Smith, P. W.		Highbury Park School.
Tweedy, S.		Endowed Grammar S., Northwich.
Bown, F.		Bilton Grange School, Harrogate.
Cloke, F. A.		Sandwich School.
Constant, F. C.		Private tuition.
Hame, W. J.		Kingston School, Yeovil.
Lemin, O. E.		South Hackney College, N.E.
Martin, B. M.		Edw. VI. Grammar S., Southampton.
Ozanne, L. W.		St. Oswald's College, Tynemouth.
Pitman, H. G.		Kurnella, Bournemouth.
Seeley, W. N.		St. Margaret's College, Lowestoft.
Sharrock, T.		Salford Catholic Grammar School.
Strong, J. B.		East Cornwall College, Liskeard.
Vincent, C. W.		Boys' School, Cosham.
Davey, F. S. W.	*d.*	Schorne College, Winslow.
Draper, P.		Grammar School, Ormskirk.
Hore, A.		St. John's Choir S., St. Leonards.
O'Brien, R. F.		St. George's College, Weybridge.
Portway, A. P.		High School, Bromley, Kent.
Sanderson, T. C.		Montrose College, Brixton Hill.
Strong, S. F.		North Lond. High S. for Boys, N.W.
Thomas, B. R.		Epsom College.
Wharton, A.		Bethany House School, Goudhurst.
Whitchurch, R. J.		Woolston College.
Wormald, G.		Sutton Park School, Surrey.
Chaloner, C.		Ampleforth College, York.
Loam, M.		Daventry Grammar School.
Melliss, E. McH.		Almondbury Grammar School.
Scott, A. A.	*d.*	University School, Hastings.
Shairp, H. F.		Grosvenor College, Ostende.
Staten, O. W.		Colet House, West Kensington.
Whittle, A.		Ampleforth College, York.
Brown, R. C.		Dean Close Memorial S., Cheltenh'm.
Dolman, A. J.		Irvine House, Derby.
Gilbert, S. A. M.		Private tuition.
Guppy, E.		Kingston School, Yeovil.
Kay, E. P.		Acad. of St. Paulinus, Catterick.
Long, W.		Ampleforth College, York.
Selfe, R. J.		Kent Coast College, Herne Bay.
Townshend, D. R.		Finsbury Park College, N.
Williams, P.		Tollington Park College, N.
Williamson, F. E.		Noncon. Gram. S., Bp. Stortford.
Couban, J.		Ampleforth College, York.
Dale, R. D.		Harborne Vicarage S., Birmingham.
Hoare, G. G. T.		Grammar School, Godalming.
Morton, I. G.		Yorkshire Society's School, S.E.
Russell, G. W.		Clare House School, Margate.
Smith, S. F. B.		Stationers' Company's School, E.C.
Sneath, E. C.		Barton School, Wisbech.
Stapley, G. J.		Horley Grammar School.
Thoms, F. G.		Private tuition.
Farwell, N. M.		Kilvinton House, Dover.
Gadd, S. C.		Park House School, Exeter.
Lowry, T. M.		Truro College.
Mackay, J. W.		Cambridge House School, Margate.
Barber, I. E.		Woodhouse Grove School.
Bryant, V. S.		Truro College.
Hewins, R. G.		K. Edwd. VI. S., Stratford-on-Avon.
Lambert, C. W.		Tollington Park College, N.
Mercer, B. A. M.		Schorne College, Winslow.
Needham, G. A.		Private tuition.
Pickersgill, E. B.		Woodhouse Grove School.
Rice, H.		Truro College.
Salmon, P.		S. John's Roy. Latin S., Buckingham.
Smith, W.		Ampleforth College, York.
White, F. C. H.		Grove House School, Highgate.
Wickes, P. A.		North London Collegiate School.
Hall, J. S.		Private tuition.
Modlin, R. H.		Argyle House School, Sunderland.
Davies, R.		Walton School, Llangollen.
Edgelow, A. W. H.		Bute House, Petersham.
Greenhous, C.		Acad. of St. Paulinus, Catterick.
Hardy, H. G.		Kurnella, Bournemouth.
Hills, F. E.		Wistaria House, Cheshunt.
Kaiser, W.		St. Joseph's Comm. Coll., Dumfries.
Phillips, C. A.		Private study.
Browne, J.		Ampleforth College, York.
Dawes, E.		Ampleforth College, York.
Evans, J.		Grammar School, Cardigan.
Geffroy, M.	*d.*	Hardwicke House School, Seaford.
Tracey, H. L.		Private study.
Turner, A. H.		Woolston College.
Chambers, R. L.		Woodhouse Grove School.
Cohen, L. F. W.		Singleton House, Newcastle-on-T.
Harvey, S. J. W.		Dunheved College, Launceston.
Hollings, G. P.		Middle Class School, Leeds.
Lee, A.		Bethany House School, Goudhurst.
McInerny, A.		St. Joseph's College, Brampton.
Offord, L. E.		College House S., West Croydon.
Simmons, J.		The Polytechnic Intermediate S., W.
Windus, E. M.		Grammar School, Ormskirk.
Barnard, H.		Private tuition.
Bass, E.		Apsley Road School, Clifton.
Bott, W. S.		University School, Hastings.
Campbell, A. S.		Summerfield School, Sheffield.
Davis, S. H.		The College, South Penge Park, S.E.
Davis, W. H.		Cheveley Hall School, Plymouth.
Dimock, E. C.		Private tuition.
Johnson, T.		St. Joseph's Acad., Kennington Rd.
Mellows, J. W.		Thorne Grammar S., Doncaster.
Packer, F. E.		Banham Grammar S., Attleboro'.
Scott, S.		Commercial S., Barrow-in-Furness.
Surfleet, H.		Southolme School, Gainsborough.
Tremeer, L. F.		Middle Class School, Barnstaple.
Woods, F. W.		Norfolk Park School, Maidenhead
Belilios, D. A.		Maida Vale School, W.
Carr, J. W.		Sandwich School.
Estcourt, H. E.		Private tuition.

BOYS, SECOND CLASS—*Continued.*

Hewit, F. S.	High School, Bromley, Kent.
Sherrington, J.	Wadham House School, Hove.
Tregarthen, J. H.	Green Hill School, Moseley.
Britton, H.	Private tuition.
Cole, C.	Mayall College, Herne Hill.
Creighton, J. A.	Halbrake S., Wandsworth Common.
Dieck, F. R.	Highbury Park School.
Field, A. E.	Oxford County School, Thame.
Golden, F. C.	Kent Coast College, Herne Bay.
O'Brien, J.	St. Joseph's Acad., Kennington Rd.
Spence, H.	Kersal Glen S. Higher Broughton.
Edwards, C. J.	Truro College.
Ellis, E. McK.	Private tuition.
Harrison, T. B.	Argyle House S., Sunderland.
Horton, W. A.	Midland Collegiate S., Edgbaston.
Jacobs, E.	Finchley House S., Finchley Rd.
Samson, C. P.	Grammar School, Chard.
Stewart, W. O.	Byron House School, Ealing.
Swanston, A. N. M.	Grosvenor College, Ostende.
Watson, H. C.	Stanley House, Margate.
Wells, A.	North London Collegiate School.
Barton, G. R.	Queen Elizabeth's S., Gainsboro'.
Burt, G. A.	Private tuition.
Day, J. J.	Almondbury Grammar School.
Dixon, A. A.	The Priory, Kew.
Hanson, E. K.	Summerfield School, Sheffield.
Husband, A. E. N.	East Cornwall College, Liskeard.
Kelly, A. C.	Stationers' Company's School, E.C.
Kemish, L.	Barton School, Wisbech.
Kennard, H. P.	St. John's College, Brixton.
Middlebrook, F.	Wesley College, Sheffield.
Murray, F.	Tooting College.
Steinmann, A.	Ampleforth College, York.
Tobin, J. A.	High School, New Brighton.
Walshe, F.	Salford Catholic Grammar School.
Williams, F. S.	Private tuition.
Worswick, R.	Ampleforth College, York.
Adams, C. E.	Rye College, Peckham Rye.
Allen, J.	Hall Gate School, Doncaster.
Arnold, J. S.	Collegiate School, Pontardawe.
Colmer, R. H.	Belfield School, Weymouth.
Gallewski, S.	Argyle House S., Sunderland.
Gange, E.	Private tuition.
Jollyman, A.	Finsbury Park College, N.
Richards, J.	Private study.
Ricketts, G. D.	Schorne College, Winslow.
Barton, S. *bk.*	S. John's Roy. Latin S., Buckingham.
Bernat, J.	St. Joseph's Comm. Coll., Dumfries.
Coley, E. J. W.	Lewisham House, Weston-s.-Mare.
Coulson, F.	Tollington Park College, N.
Flood, J.	St. Mary's College. Woolhampton.
Griffiths, H. M.	Belmont House, Bexley.
Lamb, M. H. M.	Grosvenor College, Ostende.
Moses, W. W.	Endowed Grammar S., Northwich.
Phillips, T. B.	Immanuel Coll., Streatham Comm.
Quittenden, H.	Mayall College, Herne Hill.
Stanley, F. S. *d.*	Private tuition.
Westropp, W.	Grammar School, Chard.
White, W. H.	Grove House School, Highgate.
Adalid, A. R. de P.	Baylis House, Slough.
Baehhoffner, C.	Tollington Park College, N.
Barnard, L.	Private tuition.
Bowden, R. C.	Tellham House, Brixton Hill.
Golding, D. H.	North Lond. High S. for Boys, N.W.
Hyland, E. K.	St. George's College, Weybridge.
Leigh, F.	Victoria Hall, Manchester.
Sharpe, C. M.	Rye Grammar School.
Slocombe, C. H.	Chiswick Collegiate School.
Thomas, H. M.	Haverfordwest Grammar School.
Trench, C. Le P.	Bethany House School, Goudhurst.
Blamire, L. W.	Private study.
Feast, E. M.	Schorne College, Winslow.
Humfrey, E.	Private tuition.
Lyon, E. W.	Grammar School, Ormskirk.
McInerny, Joseph	St. Joseph's College, Brampton.
Mickleethwait, J.	Grammar School, Belper.
Thompson, H.	Ashford Grammar School.
Wood, A. H.	St. Basil's, Hampstead.
Brown, W. L.	Oxford County School, Thame.
Burt, W.	Brighton Grammar School.
Marrian, A. E.	North London Collegiate School.
McAlister, P. A.	Immanuel Coll., Streatham Comm.
Morris, F. L.	High School for Boys, Maindee.
Nasmyth, D. K. L.	"Eastward Ho" Coll., Felixstowe.
Parlett, F.	St. James' Collegiate S., Jersey.
Smith, F. R.	Handel College, Southampton.
Sutherst, W. F. *d.*	Endowed Grammar S., Northwich.
Tomkins, C. A.	Holmwood, Bexhill.
Anderson, H. W.	Wirral College, Rock Ferry.
Bellamy, J. R.	Private tuition.
Brayn, P. H. G.	Whitchurch Grammar School.
Brown, W. K.	Stationers' Company's School, E.C.
Evans, W. T.	Collegiate School, Pontardawe.
Jamieson, G. A.	Private tuition.
Scott, A. R. W.	Gunnersbury College.
Birch, A. O.	Bethany House School, Goudhurst.
Bowyer, F.	High School, Anerley.
Deacon, A. F.	Dean Close Memorial S., Cheltenh'm.
Duncan, F. H.	Finchley House S., Finchley Road.
Ingle, H. E.	Highbury Park School.
McGennis, J. T.	North London Collegiate School.
Rogers, J. P.	Private tuition.
Tucker, W. H.	The College, Dover.
Ambrose, A.	Tooting College School.
Brockelbank, H.	Chiswick Collegiate School.
Carlé, G. H. T.	Summerleaze Coll. S., E. Harptree.
Foster, C. E.	Noncon. Gram. S., Bp. Stortford.
Graham, D.	Royal Gram. S., Newcastle-on-Tyne
Hazzledine, H. T.	Noncon. Gram. S., Bp. Stortford.
Peacock, E. J.	Mayall College, Herne Hill.
Platt, F. W.	Bussage House, Stroud.
Butcher, C. St. A.	Montrose College, Brixton Hill.
Eggleston, H.	The Collegiate S., Sunderland.
Hickman, G.	Dr. Morgan's End. S., Bridgwater.
Lawrey, A.	Truro College.
Miller, A. E.	New Hall College, Sutton Coldfield.
Solloway, F. G.	Brunswick House School, Windsor.
Swift, E. F.	Yorkshire Society's School, S.E.
Venables, B. C. S.	University School, Hastings.
Wildes, C. D. S.	Wadham House School, Hove.
Brown, J.	Private study.
Jackson, J.	Grammar School, Eccles.
Mumford, G. B.	Fir Lodge College, Sydenham.
Potter, H. A.	St. Edmund's Coll., Birmingham.
Wooff, F.	Private study.
Wroughton, A. O. B. *d.*	Private study.
Bartlett, S.	Montpelier, Paignton.
Moreton, R.	Private tuition.
Mousley, W. R.	Highbury Park School.
Sherborn, T. H.	Noncon. Gram. S., Bp. Stortford.
Warren, C. A.	University School, Hastings.
Bird, A. D.	Victoria Hall, Manchester.
Butters, C.	South Hackney College, N.E.
Dashper, F. C.	Private study.
Davies, A.	Gram. & Collegiate S., Carnarvon.
Mills, H. O.	2 St. Philip's Road, Surbiton.
Overy, A. E.	Heath House School, Horsmonden.
Parkes, H. A.	Tollington Park College, N.
Robertson, J. V. A. B.	The Southern College, Pannal Ash.
Routledge, E. R.	New Hall College, Sutton Coldfield.
Clark, A. J. T.	East Cornwall College, Liskeard.
Dudley, E. C.	Rye College, Peckham Rye.
Holmes, L. C.	Gram. & Collegiate S., Carnarvon.
Hubble, H. O.	Cleaves Endowed School, Yalding.
Inman, W.	Private tuition.
Milburn, E. W.	Archbishop Holgate's School, York.
Rose, C. F.	Coopers' Company's S., Stepney.
Smith, F.	Oxford House School, St. Albans.
Woabank, W. H.	Woodhouse Grove School.

SECOND CLASS.—3RD DIVISION.

Badger, E.	Dr. Morgan's End. S., Bridgwater.
Bedding, T.	Taplow Grammar School.
Bramwell, F. W.	Wesley College, Sheffield.
Kahrel, J. W.	Colet House, West Kensington.
Roberts, F. T.	Northfield, Margate.
Varley, G. H.	Bethany House School, Goudhurst.
Birt, A. R. W.	The College, South Penge Park, S.E.
Blackmore, P. L.	Wistaria House, Cheshunt.
Stanton, A. W.	St. John's College, Brixton.
Steven, J. D.	Montrose College, Brixton Hill.
Allard, L. W.	St. Oswald's College, Tynemouth.
Brims, C. W.	Royal Gram. S., Newcastle-on-Tyne.
Cotton, W.	Tooting College School.
Howard, H. J.	Thanet College, Margate.
Jenkins, E.	Kurnella, Bournemouth.
McAll, R. L.	Westbury House School, Worthing.
Scharschmidt, S. H.	Bethany House School, Goudhurst.
Vander Ben, W. G.	Grammar School, Chard.
Cave, W. A.	Noncon. Gram. S., Bp. Stortford.
Curry, C. G. O.	Stoke Preparatory S., Devonport.
Griffiths, J.	Old College School, Carmarthen.
Tipping, R. C.	K. Edwd. VI. S., Stratford-on-Avon.
Ambrose, D.	Tooting College School.
Barry, S.	Tooting College School.
Legg, J. C.	Truro College.
Mahony, E.	St. Joseph's Acad., Kennington Rd.
Tappenden, A. C.	Gunnersbury College.
Tredinnick, G.	Sandridge College, Hastings.
Wilcockson, H. C. E.	Waverley House, Eastbourne.
Chamberlain, H. H.	Thanet College, Margate.
Daglish, F. F.	Woodhouse Grove School.
Kelleher, E.	St. Joseph's Acad., Kennington Rd.
Pigeon, W. H.	Grammar School, Teignmouth.
Richardson, J.	Argyle House School, Sunderland.
Silverlock, H. B.	South Hackney College, N.E.
Gregory, J. G.	Truro College.
Kemmis, C. A. E.	Dean Close Memorial S., Cheltenh'm.
Lacy, J. S.	St. George's College, Weybridge.
Lister, F. S.	Barton School, Wisbech.
Pullar, E. J.	Immanuel Coll., Streatham Comm.
Spence, M.	Kersal Glen S., Higher Broughton.
Balding, H. L.	Stationers' Company's School, E.C.
Brown, B.	Redclyffe House, Sandown, I.W.
Burt, J. W.	Kingston School, Yeovil.
Carr, A. D.	Glenmohr School, Blackheath.
Cunningham, W. A.	Grammar School, Tamworth.
Hemsley, O. T.	Chiswick Collegiate School.
Horton, L. W.	Midland Collegiate S., Edgbaston.
Muddle, A. S.	Chiswick Collegiate School.
Murray, B. T.	Epsom College.
Phillips, T. O.	Haverfordwest Grammar School.
Rose, J. M.	Oxford County School, Thame.
Wheeler, E. A.	Private tuition.
Windsor, F. B.	Oxford County School, Thame.
Hebard, O. R.	Heath House School, Horsmonden.
Wood, S. D.	All Saints' School, Southend.
McEnery, J. A.	Tooting College School.
Woolridge, R. A.	Marlborough Grammar School.
Barker, P. D.	St. John's College, Luton.
Bevington, A.	Tollington Park College, N.
Croxford, C. H.	Stationers' Company's School, E.C.
Mitchell, J.	Tooting College.
Westlake, B. B.	Clewer House School, Windsor.
Grabham, R. J.	2 St. Philip's Road, Surbiton.
Lunnon, F. J.	Grove House School, Highgate.
Shirtliff, A. F.	Thanet Cottage, Margate.
Slyman, F. R.	Private study.
Tremearne, P. H. S.	Halstead Grammar School.
Wilson, H. E.	Haverfordwest Grammar School.
Anker, T.	Endowed Grammar S., Northwich.
Dickinson, D. J.	Wadham House School, Hove.
Higginbothom, R. A.	Colet House, West Kensington.
Isaac, E.	Old College School, Carmarthen.
Lewis, R. S.	High School, Bromley, Kent.
McInerny, John	St. Joseph's College, Brampton.
Kirkpatrick, C. R. S.	Private study.
Angus, W. O.	Old Elvet School, Durham.
Ball, E.	Grammar School, Ormskirk.
Humm, A. T.	Stationers' Company's School, E.C.
Robertson, J.	Noncon. Grammar S., Bp. Stortford.
Bouneviallc, C.	Tooting College School.
Clowes, E. F.	Norwich Grammar School.
Cottrell, J.	Grammar School, Chard.
Dixon, A. G.	The Priory, Kew.
Given-Wilson, H. H.	Private study.
Marlow, A.	St. Joseph's College, Brampton.
Milne, A.	South Hackney College, N.E.
Slack, G. B.	Noncon. Gram. S., Bp. Stortford.
Ayres, H. G.	Wesley College, Sheffield.
Bateman, J. B.	Kensington Pk. Coll., Notting Hill.
Bennion, G. F.	Marlborough Coll. S., Tuebrook.
O'Bryen, O.	St. Joseph's College, Brampton.
Stephenson, J.	Private study.
Campsall, W. H.	Private tuition.
Walton, H.	Wesley College, Sheffield.
Belchamber, J. T.	High School, Dorking.
Carter, W. B.	St. John's Choir S., St. Leonard's.
Cheffins, J. B. W.	Wesley College, Sheffield.
Smith, W.	Harlesden College, N.W.
Sulman, J. H.	Grove House School, Highgate.
Carpenter, H. F.	Stationers' Company's School, E.C.
Harries, J. L.	Old College School, Carmarthen.
Nicholls, R.	Southampton Boys' College.
Stoton, E. H.	83 Montpellier Road, Brighton.
Beilby, G. W.	The Southern College, Pannal Ash.
Hamilton, W. G.	Barton School, Wisbech.
Hill, E.	Theobald's College, Waltham Cross.
Apps, W. J. E.	Heath House School, Horsmonden.
Loseby, R. A.	Market Bosworth Grammar S.
Williams, T.	Theobalds College, Waltham Cross.
Davies, C. E.	Grove House School, Highgate.
Edie, H.	Byron House School, Ealing.
Wilkinson, T. H.	Private study.
Cautley, J. B.	Archbishop Holgate's S., York.
Davis, H. G.	Royal Gram. S., Newcastle-on-Tyne.
Fordham, S. H.	Private study.
Harrison, C. S.	Barton School, Wisbech.
Pledge, J. S.	Ashford Grammar School.
Marsh, H. G. C.	The Mount, Sheffield.
Saunders, L. F.	Private tuition.
Bensted, J. D.	Bethany House School, Goudhurst.
Griffiths, D. R. T.	Llandovery College.
O'Brien, C. A.	St. George's College, Weybridge.
McInerny, M.	St. Joseph's College, Brampton.
Taylor, F. J.	Penrhyn House S., Birmingham.
Cottam, H. P.	Private tuition.
Simms, E. T.	Grammar School, Chard.

THIRD CLASS—1ST DIVISION.

Payne, S. E. *d.*	North Lond. High S. for Boys, N.W.
Cooch, P.	The Polytechnic Intermediate S., W.
Havers, G. T.	76 Warwick Gardens, Kensington.
Lagarda, J. M. *f.*	Anglo-French High S., Hornsey.
Haigh, J. E. C. *d.*	North Lond. High S. for Boys, N.W.
Fuller, J. R.	St. Margaret's College, Lowestoft.
Hughes, E. F.	High School, Bromley, Kent.
Goodridge, A. H.	Oxford House School, St. Albans.
Barnett, A. W.	Truro College.
Dunkin, W. H. *bk.*	Truro College.
Turner, A. C.	Herne House, Margate.
Rayner, R. G.	Tollington Park College, N.
Drayson, A. P.	Glenwood House S., Winchmore Hill.
Weston, T. P.	Bethany House School, Goudhurst.
Upton, F.	St. Joseph's Acad., Kennington Rd.
Silverthorne, H. V.	Stationers' Company's School, E.C.
Turner, E.	The Polytechnic Intermediate S., W.
Burley, S.	The Polytechnic Intermediate S., W.
Pool, W. G.	Truro College.
Shaw, F. *d.*	The Bridge Trust S., Handsworth.
Brain, R. H.	Archbishop Holgate's School, York
Hosking, F.	Truro College.
Laithwaite, J.	St. Joseph's Comm. Coll., Dumfries.
Williams, E. T.	St. Catharine's School, Broxbourne.
Plater, A. J.	Cooper's Company's S., Stepney.
Tasker, H. C.	Taplow Grammar School.
Beeny, J.	Weston School, Bath.
Overweg, C. *ger.*	Anglo-German School, Brixton.
Hodgson, J. F.	Commercial S., Barrow-in-Furness.
Guymer, P. J. *d.*	St. Margaret's College, Lowestoft.
Mitchell, J. A.	Truro College.
Saut, R. J.	Mere House, Alsager.
Reeves, R. C.	Tudor Hall, Hawkhurst.
Stahl, J.	St. Joseph's Acad., Kennington Rd.
White, W. R.	University School, Hastings.
Sheaf, F. R.	Immanuel Coll., Streatham Comm.
Jessop, H. J.	Stationers' Company's School, E.C.
Rowton, W. C.	Grove House School, Highgate.
Swan, J. A. *d.*	The Bridge Trust S., Handsworth.
Keeble, W. T.	Stationers' Company's School, E.C.
Kühn, B. *ger.*	Anglo-German School, Brixton.
Lake, B.	Truro College.
Martin, T. H.	Mayall College, Herne Hill.
Ritchie, G.	Oxford County School, Thame.
Storie, E. G.	The High School, Finchley Rd., N.W.
Straub, J.	St. Joseph's Acad., Kennington Rd.
White, H.	Madras House, Loughton.
Wyse, H.	Woodhouse Grove School.
Baird, P. J.	Dudley Grammar School.
Edwards, G.	Grammar School, Redditch.
Fairburn, E. T.	Coopers' Company's S., Stepney.
Lister, H.	Holly Bank School, Cheetham Hill.
Priestman, H.	Ampleforth College, York.
Whitehead, G.	St. Joseph's Acad., Kennington Rd.
Benson, W. H.	Queen Elizabeth's S., Gainsboro'.
Jennings, F.	Coopers' Company's S., Stepney.
Lawrie, E. A.	Birchfield High S., Birmingham
Powell, J.	The College, Hendon.
Robertson, A. E. *bk.*	Thanet College, Margate.
Simmins, E. M.	Horley Grammar School.

BOYS, THIRD CLASS—*Continued.*

Vivian, G. T.		Dunheved College, Launceston.
Blake, A. R.		Seaford College.
Turner, F. T.		New Hall Coll., Sutton Coldfield.
Agate, F. G.		Lonsbury College, Upper Clapton.
Finn, E. F.		Bethany House School, Goudhurst.
Gates, W.		Seaford College.
Higman, W. H.		Grammar School, Belper.
Kelly, B. W.		St. George's College, Weybridge.
Pinckney, A. A.		St. Edmund's Coll., Birmingham.
Williams, P. G.	*d.*	Grammar School, Godalming.
Fincher, F. J.		Kentish Town School, N.W.
Hope, J. C.		Banham Grammar S., Attleboro'.
Bradley, J.		Dudley Grammar School.
Clague, J. B.		Woodhouse Grove School.
Flower, T. E. W.		K. Edwd. VI. S., Stratford-on-Avon.
Havers, C. H.		76 Warwick Gardens, Kensington.
Hume, W. R.		Coopers' Company's S., Stepney.
Knox, R. F.		Burlington House School, Balham.
Litt, J. V. T.		K. Edwd. VI. S., Stratford-on-Avon.
Rawlings, H. W. B.		Glenwood House S., Winchmore Hill.
Seaborn, M. B.		Birchfield High S., Birmingham.
Fairholme, E. G.		Rugby House School, Eastbourne.
Kellas, J. C.		Tollington Park College, N.
Quinn, C.		Ampleforth College, York.
Spalding, W. B.		Grosvenor College, Ostende.
Baker, R. S.		Fowey Grammar School.
Higgs, E. C.		Tellham House, Brixton Hill.
Holland, P.		Loughboro' College, Brixton.
Proctor, R. C.		Montrose College, Brixton Hill.
Rattenbury, O. A.		Woodhouse Grove School.
Roberts, W.		Dr. Morgan's End. S., Bridgwater.
Slack, A. E.		Midland Collegiate S., Edgbaston.
Smith, W. J.		Woodhouse Grove School.
Barr, G. A.		E. Dev. County S., Sampf'd Peverell.
Bayley, R. L.		Grafton House School, Manchester.
Calderon, C. A.		St. Joseph's College, Brampton.
Connolly, J.		St. Mary's College, Woolhampton.
Dobb, W. H.		Herne House, Margate.
Higgins, P.		Salford Catholic Grammar School.
Hitchcock, E. W.		Oxford House School, St. Albans.
Hope, E.		Claughton Coll. S., Birkenhead.
James, A. H.		Coopers' Company's S., Stepney.
Jones, D.		Old College School, Carmarthen.
Leason, C. W.		Tollington Park College, N.
Murray, E. D.		St. George's College, Weybridge.
Rorke, E. J.		St. George's College, Weybridge.
Thompson, C. O.		Bilton Grange School, Harrogate.
Barker, G. E.		Mere House, Alsager.
Brown, H. G. S.		St. John's College, Finsbury Park.
Constable, A.		Heath House S., Horsmonden.
Georges, C.		Tooting College.
Heath, W. R.		St. Elphin's, Westgate-on-Sea.
Hinchcliff, W. N.		Woodhouse Grove School.
Instone, A. C.		Tollington Park College.
Vallet, M.		Forest Hill Middle Class School.
Ballard, H. F.		Ascham College, Clacton.
Barber, G. H.		Board School, Holmfirth.
Barker, F.		Dudley Grammar School.
Boyan, J.		The Polytechnic Intermediate S., W.
Higgs, H.		Coopers' Company's S., Stepney.
Leary, G. E.		Ashted School, Birmingham.
Mulcahy, T.		St. Mary's College, Woolhampton.
Pinniger, F. B.		St. John's College, Finsbury Park.
Renaut, W. C.	*d.*	Highfield School, Chertsey.
Shaw, J. D.		St. George's College, Weybridge.
Smith, T. E.		The Bridge Trust S., Handsworth.
Twigg, F. G.		University School, Hastings.
Ambler, F. B.		Tollington Park College, N.
Arkell, T.		Dean Close Memorial S., Cheltenh'm.
Bettison, W. H.		Chiswick Collegiate School.
Callender, G. A. B.		Cavendish House S., Hammersmith.
Ellis, J. C.		Endowed Grammar S., Northwich.
Illingworth, J. P.		Almondbury Grammar School.
Newby, E. J.		Coopers' Company's S., Stepney.
Osmond, R.		Weston School, Bath.
Sopwith, J.		St. Oswald's College, Tynemouth.
Thomas, H. G.		Truro College.
Tripp, S. G.		Tollington Park College, N.
Valdez, E.		Victoria Hall, Manchester.
Aynsley, J.		Highbury Park School.
Brand, T. H.		Halstead Grammar School.
Carlebach, P.	*ger.*	Private study.
Clark, G. R.		Summerfield School, Sheffield.
Clay, S. J.		Tollington Park College, N.
French, F. W. H.		Coopers' Company's S., Stepney.
Larkin, A. H.		Bethany House S., Goudhurst.
Lemmens, G.		St. Mary's College, Woolhampton.
Payne, E. G.		Fowey Grammar School.
Redman, S. C.		Eastbourne Old School.
Still, A. L.		Emwell House School, Warminster.
Wickett, F.		Truro College.
Andrews, W. M.		Birchfield High S., Birmingham.
Burkle, P.		Acad. of St. Paulinus, Catterick.
Cressall, R.	*bk.*	Private study.
Hall, H. C.		Clare House School, Margate.
Harwood, H.		Chiswick Collegiate School.
Jones, F. M.		Dudley Grammar Schol.
Little, J. S.		East Cornwall College, Liskeard.
Moxon, W. J.		Almondbury Grammar School.
Peal, F. C.		Mattock Lane School, Ealing.
Roberts, F. T.		Tollington Park College, N.
Sadler, J. H.		St. Catharine's S., Broxbourne.
Sharpe, F. J.		Oxford House School, St. Albans.
Tripp, A. E.		Tollington Park College, N.
Tulley, G.		Heath House School, Horsmonden.
Waller, J.		St. Oswald's College, Tynemouth.
Williams, E. J.		University School, Hastings.
Wills, C. V.		Truro College.
Woodhill, T.		St. Elphin's, Westgate-on-Sea.
Binning, J.		Bilton Grange School, Harrogate.
Duncan, W. W.		Central Hill College, Up. Norwood.
Edwards, A.		Grammar School, Redditch.
Fowler, W. H.		Commercial School, Southborough.
Gubbins, G. F.		The College, South Penge Park, S.E.
Heraughty, T.		St. Joseph's Comm. Coll., Dumfries.
McClean, J. C.		Cotes Hall College, Eccleshall.
Nickels, W. J.		Tollington Park College, N.
Spike, F.		Glenwood House S., Winchmore Hill
Besley, W. E.		Heavitree Collegiate School, Exeter.
Elford, S. H.		Fowey Grammar School.
Haly, J.		Burlington House School, Balham.
Hickman, V. C. J.		Grammar School, Belper.
Luzarraga, C. J.		Baylis House, Slough.
Martin, H.		Bussage House, Stroud.
Philpot, L. D.		Montrose College, Brixton Hill.
Reardon, F. A.		St. Mary's College, Woolhampton.
Saunders, E. A.		University School, Hastings.
Spratt, J. L.		North London Collegiate School.
Underwood, L. S.		Tollington Park College, N.
Worsfold, J. L.		Sandwich School.
Bowker, C. F.		Norwich Grammar School.
Browning, G. F. R.		K. Edwd. VI. S., Stratford-on-Avon.
Dobson, F.		Bethany House School, Goudhurst.
Heath, G. F.		Taplow Grammar School.
Hill, P. P.		Queen Elizabeth's S., Gainsborough.
Howard, G. E.		Coopers' Company's S., Stepney.
Mash, H. J.		Bethany House School, Goudhurst.
Pain, H. B.		Coopers' Company's S., Stepney.
Peal, B. E.		Mattock Lane School, Ealing.
Pinniger, W. B.		St. John's College, Finsbury Park.
Quaile, E.		Claughton Coll. S., Birkenhead.
Ranwell, H. F.		South Hackney High School, N.E.
Sare, T. H.		Mayall College, Herne Hill.
Snowman, H.		Euston College, N.W.
Archer, R. E.		Private tuition.
Burman, J. H.		Seaford College.
Camm, R.		High School, Smethwick.
Cobb, G.		Salford Catholic Grammar School.
Dale, A. J.		Tollington Park College, N.
Hewitt, W. H. N.		Seaford College.
Sanderson, E. J.		Montrose College, Brixton Hill.
Sherriff, H. A. C.		The College, South Penge Park, S.E.
Bailey, C.		Endowed Gram. School, Northwich.
Bush, A. E.		Coopers' Company's S., Stepney.
Haworth, H.		Almondbury Grammar School.
James, A. B.		Schorne College, Winslow.
Plant, W. H.		Dudley Grammar School.
Rae, A.		Grafton House School, Manchester.
Saunders, L. L.		University School, Hastings.
Smith, S.		Coopers' Company's S., Stepney.
Tebbutt, A.		Market Harborough Grammar S.
Turner, R. B.		3 West Park Villas, Southampton.
Wells, H.		North London Collegiate School.
Wrenn, J. F.		St. George's College, Weybridge.
Bashforth, G. A.		Endowed Gram. School, Northwich.
Bishop, R.		St. John's College, Finsbury Park.
Browne, J. G. P.		Schorne College, Winslow.
Cartin, J.		Salford Catholic Grammar School.
Friedberg, P.		St. John's College, Finsbury Park.
Hartley, H. B.		Montrose College, Brixton Hill.
Hicks, V. A.		Tollington Park College, N.
Houston, J.		St. Joseph's Comm. Coll., Dumfries.
Hyde, G. F.		Philological School, Southsea.
Lord, E.		The College, Churwell, Leeds.
Marriott, A. E.		Bethany House School, Goudhurst.
Mason, H.		Thorne Grammar S., Doncaster.
Nightingale, F. G.		Dudley Grammar School.
Shaylor, S. J.		St. John's College, Finsbury Park.
Sladden, T. C.		Sandwich School.
Wilson, D.		Grammar School, Eccles.
Baverstock, H. B.		Seaford College.
Clark, C. J.		The Polytechnic Intermediate S., W.
Cole, H.		St. Oswald's College, Tynemouth.
Edmondson, A.		St. Joseph's Comm. Coll., Dumfries.
Immisch, M. A. T.		Oxford County School, Thame.
Jackson, G. P.		Almondbury Grammar School.
Kelly, J.		St. Mary's College, Woolhampton.
Richardson, J.		Middle Class School, Barnstaple.
Thornton, J. M.		Almondbury Grammar School.
Valenzuela, U. J.		St. George's College, Weybridge.
Brooks, G.		Hope House S., New Southgate.
Bury, H.		Ark House School, Banbury.
Castro, E. J.		Tooting College School.
Chambers, C. H.		Summerfield School, Sheffield.
Coleman, J.		Portsdown High S., Maida Vale, W.
Drayson, E. C.		Glenwood House S., Winchmore Hill.
Endacott, F.		St. John's Hospital School, Exeter.
Evans, J. R.		Old College School, Carmarthen.
Francis, P. A.		Emwell House School, Warminster.
Harvey, C.		Coopers' Company's S., Stepney.
Hathorn, J. C. M.		Grosvenor College, Ostende.
Madden, H. D.		North London Collegiate School.
McIlraith, J.		Commercial S., Barrow-in-Furness.
O'Shaughnessy, J.		Salford Catholic Grammar School.
Simpson, H.		Murton House School, Sunderland.
Staples, H.		Hardwicke House School, Seaford.
Brooke, J. R.		Highbury Park School.
Cockburn, J.		Grammar School, Rastrick.
Greenall, J. R.		Immanuel Coll., Streatham Comm.
Hicks, A. W.		St. George's Gram. S., Plymouth.
Keevil, A. H.		Bethany House School, Goudhurst.
Mason, W.		Thorne Grammar School, Doncaster.
Rowcliffe, J. A.		Old Trafford School, Manchester.
Smith, V.		Tooting College School.
Taylor, G. H.		St. John's College, Finsbury Park.
Atkinson, J. W.		Commercial S., Barrow-in-Furness.
Cantor, B. C. M.		Wadham House School, Hove.
Collacott, H. E.		Oxford County School, Thame.
Day, W. J.		Coopers' Company's S., Stepney.
Fry, W. B.		Montrose College, Brixton Hill.
Goddard, E.		Brent Hill Collegiate S., Hanwell.
Halliwell, J. S.		Grammar School, Eccles.
Heywood, A. S.		High Schools, Chorlton-cum-Hardy.
Kempthorne, G. C.		East Cornwall College, Liskeard.
Mogford, R. H.		St. Edmund's College, Birmingham.
Talbot, S.		Grammar School, Ormskirk.
Titterton, P. W.		Hamstead Hill S., Handsworth.
Cohen, G.		Mannering Road School, Liverpool.
Dabell, G. W.		Redclyffe House, Sandown, I. of W.
Dannatt, N.		Almondbury Grammar School.
Eastman, J. D.		Connellan College, Malvern.
Elmore, F.		Petherton School, Highbury.
Gamble, M.		Kersal Glen S., Higher Broughton.
Horn, J. F.		Grammar School, Godalming.
Kitchin, J. T.		Commercial S., Barrow-in-Furness.
Leigh, A. R.		Marlborough Coll. S., Tnebrook.
Murtough, L.		St. Mary's College, Woolhampton.
Newstead, G. H.		Seaford College.
Park, H. M.		Royal Gram. S., Newcastle-on-Tyne.
Quirke, H. C.		St. George's College, Weybridge.
Redfern, G. H.		St. John's College, Finsbury Park.
Roubandi, L. A.		Eastbourne Old School.
Sayer, H.		St. Margaret's College, Lowestoft.
Softley, F. G.		Grammar School, Godalming.
Sprawson, J.		Marlborough Grammar School.
Vine, F.		Tollington Park College, N.
Wilkin, S. S.		Noncon. Gram. S., Bp. Stortford.
Archer, H. O.		North Lond. High S. for Boys, N.W.
Blackmore, H. R.		Board S., Wellington, Somerset.
Brown, G.		St. Mary's College, Woolhampton.
Crisp, E. A.		St. Margaret's College, Lowestoft.
Dale, A. C.		Harborne Vicarage S., Birmingham.
Fetherstone Haugh, H.		High School, Anerley.
Frings, V.		St. Mary's College, Woolhampton.
Halford, W. H.		Ashby School, Walsall.
Harris, A. H.	*d.*	Private study.
Heineman, M.		The Polytechnic Intermediate S., W.
Hinchliffe, F.		Almondbury Grammar School.
Hine, A. T.		Coopers' Company's S., Stepney.
Maden, F.		St. John's Coll., Grimsargh, Preston.
Mawson, R.		Ampleforth College, York.
Merrin, A. W.		Tollington Park College, N.
Murgatroyd, F.		Woodhouse Grove School.
Newton, E. Y.		Tollington Park College, N.
Parker, J. H.		Bethany House School, Goudhurst.
Radford, F. T.		Coopers' Company's S., Stepney.
Raincock, H.		St. Catharine's School, Broxbourne.
Rossiter, E.		Weston School, Bath.
Rutt, G. M.		St. John's College, Finsbury Park.
Savage, C. A.		K. Edwd. VI. S., Stratford-on-Avon.
Yates, H. W.		Cambridge House School, Margate.
Barber, W. R.		Seaford College.
Barker, E. A.		Dudley Grammar School.
Brown, W. C.		Royal Gram. S., Newcastle-on-Tyne.
Clissold, J. H. N.		St. Joseph's Comm. Coll., Dumfries.
Daphne, F.		Alwyne House, Canonbury.
Eames, S. P.		Grammar School, Chard.
Ford, E. B.		University School, Hastings.
Gullachsen, L. W.		St. Oswald's College, Tynemouth.
Happold, G.		Commercial S., Barrow-in-Furness.
Hargrave, F. E. W.		Baylis House, Slough.
Holmyard, E.W.	*mu.*	Brighton Modern School.
Kelly, A. A.		University School, Stroud Green.
Philps, F. J.		Tollington Park College, N.
Sippe, A. H.		Montrose College, Brixton Hill.
Skinner, G. H.		Truro College.
Squibb, E. J.		Kingston School, Yeovil.
Surman, B.		Weston School, Bath.
Thomson, H. R. W.		St. John's College, Finsbury Park.
Beale, R. H.		Fowey Grammar School.
Bettinson, G.		Classical and Comm. S., Stamford.
Brooks, G. H.		Commercial School, Southborough.
Bucknall, H.		Ampleforth College, York.
Calderon, R. A.		St. Joseph's College, Brampton.
Cornish, C. V.		Fowey Grammar School.
Deacon, W. G.		Sandwich School.
Gill, A. J.		Montrose College, Brixton Hill.
Hertslet, L. E.		Tollington Park College, N.
Holford, H.		Woodhouse Grove School.
Hopkins, G. P.		St. John's College, Finsbury Park.
Humphreys, H. J.		Grammar School, Godalming.
Jones, W. M.		Montrose College, Brixton Hill.
Mitchell, G. R.		Seaford College.
Morrissy, E.		Baylis House, Slough.
Newitt, J.		Oxford County School, Thame.
Orr, F. W.		Seaford College.
Overy, E. I.		University School, Hastings.
Slater, A. C.		Cotes Hall College, Eccleshall.
Smith, S.		Bethany House School, Goudhurst.
Speed, E.		Mayall College, Herne Hill.
Spring, F. C.		Collegiate S., Southgate Road, N.
Vincent, C.		The Polytechnic Intermediate S., W.
Williams, A.		Bethany House School, Goudhurst.
Young, P. E.		Chiltern House S., High Wycombe.
Audré, W. F.		Glenwood House S., Winchmore Hill.
Hannay, W. S.		University School, Stroud Green.
Haskell, W.		Grammar School, Ormskirk.
Hobbs, F.		Tollington Park College, N.
Houghton, H.		Almondbury Grammar School.
James, A.		Highfield School, Chertsey.
Kidner, H. R.		Bethany House School, Goudhurst.
Pike, R. D.		Schorne College, Winslow.
Rush, C. J.		The Grammar School, Eye.
Sharp, H. J.		Cooper's Company's S., Stepney.
Stroud, A. J.		Tollington Park College, N.
Alexander, J. P.		High School, Dorking.
Austin, W. C.		New Hall Coll., Sutton Coldfield.
Berry, J.		K. Edwd. VI. S., Stratford-on-Avon.
Brickwell, J. R.		University School, Hastings.
Carruthers, A.		Commercial S., Barrow-in-Furness.
Craig, J.		Grafton House School, Manchester.
Goddard, H. L.		North London Collegiate School.
Greene, W. C. L.		Ivy Bank, Southampton.
Heaton, A.		S. Hackney High School, N.E.
Hoitt, A. H.		Schorne College, Winslow.
Jackson, J. A. G.		North Lond. High S. for Boys, N.W.
Lewis, J.		Oxford House School, St. Albans.
McAdam, J. J.		Tooting College School.
Mist, E. A.		Oxford House School, St. Albans.
Olander, E.		Chiswick Collegiate School.
Osmond, G. H.		University School, Hastings.

BOYS, THIRD CLASS—*Continued.*

Praed, H.	Grosvenor College, Ostende.
Preece, A.	Dudley Grammar School.
Quilliam, S.	High School, New Brighton.
Scott, F. L.	University School, Hastings.
Sellers, G. B.	Tollington Park College, N.
Styles, W. K.	Noncon. Gram. S., Bp. Stortford.
Tully, J.	St. Joseph's Acad., Kennington Rd.
Waters, A. E.	S. John's Roy. Latin S., Buckingh'm.
Webster, P. C. B.	Noncon. Gram. S., Bp. Stortford.
Barrett, A. M. *d.*	Private study.
Black, J. S.	St. John's College, Finsbury Park.
Carter, J. S.	Woodhouse Grove School.
Dickson, J. S.	Tollington Park College, N.
Fowler, A.	Bethany House School, Goudhurst.
Gray, W. R.	Roy. Gram. S., Newcastle-on-Tyne.
Harris, F. N.	Mount Radford School, Exeter.
Hoskings, A. R.	Belmont House, Lee, S.E.
Howison, W.	Argyle House School, Sunderland.
Johnson, F.	Wesley College, Sheffield.
Livermore, E. R.	College House School, Braintree.
Marsh, R.	Clifton Park School, Birkenhead.
Matmrin, A. E.	Epsom College.
Maxfield, A. H.	Emwell House School, Warminster.
McDonald, G. R.	E. Dev. County S., Sampford Peverell
McIntosh, E.	Woodhouse Grove School.
Mitchell, J. B.	Thorne Grammar S., Doncaster.
Osborne, H.	Almondbury Grammar School.
Remington, J. W.	Market Harborough Grammar S.
Roberts, O.	Gram. & Collegiate S., Carnarvon.
Smith, G. E.	Dudley Grammar School.
Soppit, J. D.	Kent Coast College, Herne Bay.
Spencer, C. W.	Wesley College, Sheffield.
Tweedy, T. V.	Endowed Grammar S., Northwich.
Westrup, P.	Heath House School, Horsmonden.
White, E. M.	Haverfordwest Grammar School.
Winterton, J. H.	Southolme School, Gainsborough.
Armitage, W.	South Hackney High School, N.E.
Chandler, P. E.	East Cornwall College, Liskeard.
Clegg, A.	Grammar School, Altrincham.
Davies, J. N.	Market Harborough Grammar S.
Dawson, J.	Ampleforth College, York.
Edwards, P. H.	Tooting College School.
Gandy, A. *d.*	Endowed Grammar S., Northwich.
Green, M. B.	Private study.
Harrison, F. H.	St. Catharine's School, Broxbourne.
Hubble, T. W.	Cleaves Endowed School, Yalding.
Hue, W. P.	Cowfield Grammar S., Horsham.
Jeffery, E.	Private tuition.
Kean, A.	Ampleforth College, York.
Marchant, F. G.	Grammar School, Godalming.
Pearce, C. L. St. J.	South Hackney High School, N.E.
Roberts, H. H.	Llanelly Academy.
Sears, H. G.	Bethany House School, Goudhurst.
Shaw, F.	Grammar School, Rastrick.
Shemilt, E.	Cotes Hall College, Eccleshall.
Thomas, W. H.	Truro College.
Turner, C. E.	K. Edwd. VI. S., Stratford-on-Avon.
Wellington, C. J. R.	Fowey Grammar School.
Wilkes, S. S.	Ashford Grammar School.
Angell, R. W.	Private study.
Botting, H. T.	Highfield School, Chertsey.
Carter, S. K.	Tollington Park College, N.
Clark, F. G.	Coopers' Company's S., Stepney.
Croft, R.	Private tuition.
Devreux, F.	St. Mary's College, Woolhampton.
Fort, J. T.	Private tuition.
French, H.	Grammar School, Redditch.
Glen, W. K.	Schorne College, Winslow.
Maddox, D. C.	Private tuition.
Minter, H. J.	Eastbourne Old School.
Parkin, J. W.	Grammar School, Belper.
Pickering, F.	Acad. of St. Paulinus, Catterick.
Walton, A. E.	University School, Hastings.
Whitehorn, H. A. A.	St. Oswald's College, Teignmouth.
Worthington, A.	Private study.
Yeomans, J. E.	Tollington Park College, N.
Benson, J. M.	Summerfield School, Sheffield.
Brindley, C. W.	St. George's College, Weybridge.
Cole, F. E.	Banham Grammar S., Attleboro'.
Cracknell, A. P.	The Grammar School, Eye.
Dankes, F. W.	Herne House, Margate.
Davies, J. O.	Swansea College.
Deer, E. A.	K. Edwd. VI. S., Stratford-on-Avon.
Dodson, F. R.	Vermont College, Lower Clapton.
Dutton, F.	Cotes Hall College, Eccleshall.
Eglen, A. D.	Wirral College, Rock Ferry.
Fowler, A.	Kilham Grammar School, Hull.
Gammage, G. H.	University School, Hastings.
Haydon, T. S.	Tollington Park College, N.
Healey, P. E.	Market Harborough Grammar S.
Hill, W. T.	Private tuition.
Isaac, F. L.	83 Montpellier Road, Brighton.
Johnson, C. L.	Montrose College, Brixton Hill.
Jones, O. D.	Gram. & Collegiate S., Carnarvon.
Langley, W. L.	Fowey Grammar School.
Minson, W. L.	Noncon. Gram. S., Bp. Stortford.
Pearson, C. B.	Tollington Park College, N.
Pugh, S. O.	University School, Hastings.
Ramsden, T.	Almondbury Grammar School.
Rawlinson, W. H.	Gravesend Proprietary School.
Renshaw, S.	Old Trafford School, Manchester.
Ruddock, J. D.	Woodhouse Grove School.
Russell, F. W.	Chiltern House S., High Wycombe.
Thomas, M. C.	Highbury Park School.
Wright, W. C.	Whitchurch Grammar School.
Blake, G. A.	Chiltern House S., High Wycombe.
Booth, H. F.	Clare House School, Margate.
Clark, D. H.	Immanuel Coll., Streatham Comm.
Dawson, B.	Brighton House Coll. S., Oldham.
Eggleton, T. H.	Chiltern House S., High Wycombe.
Foden, F.	New Hall Coll., Sutton Coldfield.
Holland, S. E.	Dudley Grammar School.
Holroyd, J. A.	Almondbury Grammar School.
Ince, P. C.	South Hackney High School, N.E.
Johnstone, J.	Princes' Rd. High S., Liverpool.
Jones, A. R.	The Schools, Shrewsbury.
Jones, F. A.	1 Lisburne Villas, Torquay.
Lancaster, G. M.	Almondbury Grammar School.
Levick, J. C.	Eton House School, Sheffield.
Mathias, V. W. S.	High Schools, Chorlton-cum-Hardy
Nightingale, A. E. *bk.*	Thanet College, Margate.
Nixon, H. C.	Noncon. Gram. S., Bp. Stortford.
Ratcliffe, P. W.	Sandwich School.
Rickett, H. H.	University School, Hastings.
Robinson, R. W.	Collegiate School, Blackpool.
Smith, W. G.	Herne House, Margate.
Williams, D.	Cotes Hall College, Eccleshall.
Agnew, G.	Harborne Vicarage S., Birmingham.
Andrews, R. C.	Middle Class S., High Wycombe.
Blackall, A.	Schorne College, Winslow.
Bonner, T. C. A.	Schorne College, Winslow.
Brind, A. M.	Market Bosworth Grammar School.
Charles, A. A. D.	Private tuition.
Clark, H. J.	Oxford County School, Thame.
Coulden, G. P.	Finsbury Park College, N.
Davey, W. R.	East Cornwall College, Liskeard.
Dupigny, L.	Tooting College School.
Gill, E. L.	College House S., West Croydon.
Hall, C. F.	Bradmore College, Chiswick.
Hencke, F.	Immanuel Coll., Streatham Comm.
Johnstone, J. W.	Private tuition.
Kennard, D. A.	Private tuition.
Lamb, H.	South Hackney College, N.E.
McDowall, W. A.	Coopers' Company's S., Stepney.
Meller, J. N.	Bethany House School, Goudhurst.
Mooney, R. K.	Schorne College, Winslow.
Morter, H. A.	University School, Hastings.
Muddle, S. S.	Chiswick Collegiate School.
Mugford, A. L. T.	Private tuition.
Muil, W. E.	Bilton Grange School, Harrogate.
Mumford, W. E.	Leytonstone College.
Patterson, A. R. D.	83 Montpellier Road, Brighton.
Philpott, G. A.	Independent College, Taunton.
Robins, C. F.	Mayall College, Herne Hill.
Saunders, E. F.	Highfield School, Chertsey.
Taylor, H.	Anglo-German School, Brixton.
Tyte, W. L.	Kingston School, Yeovil.
Walker, T. F.	Oxford County School, Thame.
Waller, B. H.	Handel College, Southampton.
Williams, R. J.	Seaford College.
Wilson, G.	Belmont House, Bexley.
Worsfold, H. H. H.	Sandwich School.
Aldrich, C. F.	The Grammar School, Eye.
Aspinall, J.	Salford Catholic Grammar School.
Bewick, J. D.	Royal Gram. S., Newcastle-on-Tyne.
Borissow, G. B.	Seaford College.
Dales, A.	Tollington Park College, N.
Grant, F. E.	Tollington Park College, N.
Kilsby, F. M.	Highfield School, Chertsey.
Pittock, H. W.	High School, Dorking.
Premm, F.	Weston School, Bath.
Rose, H.	N. Lond. Med. Col. Rochester Sq. N.W
Spedding, J. D.	The College, Churwell, Leeds.
Stott, J. E.	Almondbury Grammar School.
Thomas, J. R.	Walton School, Llangollen.
Turner, G. A.	St. Catharine's S., Broxbourne.
Walsh, C.	St. Mary's College, Woolhampton.
Walton, E.	Hamstead Hill S., Handsworth.
Watt, D. Y.	Private study.
Blewitt, B.	Herne House, Margate.
Busch, O. J.	Private tuition.
Coussens, C. L.	St. John's Choir S., St. Leonards.
Cunliffe, J. W.	High School, Dorking.
Davey, T. J.	Deacon's School, Peterborough.
Davis, T.	Almondbury Grammar School.
Donaldson, R. A.	Leytonstone College.
Ellis, A.	Coopers' Company's S., Stepney.
Evans, H.	High Schools, Chorlton-cum-Hardy
Foxon, M. H.	Wesley College, Sheffield.
Francis, J. E.	Montrose College, Brixton Hill.
Frewer, B.	Endowed Grammar S., Northwich.
Goadby, H.	Royal Gram. S., Henley-on-Thames.
Griffin, A. B.	Highfield School, Chertsey.
Grose, W. T.	Truro College.
Harold-Barry, E. D.	St. George's College, Weybridge.
Hill, D.	St. Oswald's College, Tynemouth.
Jenkins, E. P.	Haverfordwest Grammar School.
Jones, N. S.	All Saints' School, Southend.
Kinnear, W.	St. Oswald's College, Tynemouth.
Lavy, E. E.	Highbury Park College.
Liversidge, A.	Queen Elizabeth's S., Gainsborough.
Miller, F. W.	Market Harborough Grammar S.
Morley, A.	Independent College, Taunton.
Noonan, L.	St. Joseph's College, Brampton.
Pritchard, C.	Tooting College School.
Soar, H.	The College, Hendon.
Stead, E. G.	Collegiate School, Blackpool.
Tillott, S.	The Grammar School, Eye.
Ward, P. H.	Birchfield High S., Birmingham.
Warren, W. R.	University School, Hastings.
Bailey, G.	St. John's College, Brixton.
Bentham, A.	Grammar School, Ormskirk.
Brown, R.	Oxford House School, St. Albans.
Cockshut, P.	Highbury Park School.
Crozier, H.	Woodhouse Grove School.
Desmond, C. H.	St. Catharine's School, Broxbourne.
Gilman, W. S.	3 West Park Villas, Southampton.
Green, L. B.	Mattock Lane School, Ealing.
Hedley, G. W.	Royal Gram. S., Newcastle-on-Tyne.
Heelas, W. L. H.	Bussage House, Stroud.
Lawry, J. L.	Truro College.
Llewellyn, F.	St. Basil's, Hampstead.
Lloyd, H.	Coopers' Company's S., Stepney.
Macdonald, A. R. W.	Heath House School, Horsmonden.
Miller, T.	Wesley College, Sheffield.
Muckle, W.	Weston School, Bath.
Pearson, W. H.	Werneth Academy, Oldham.
Potts, S. B.	Temple College, Forest Gate, E.
Roberts, E. E.	Mannering Road School, Liverpool.
Silva, A. L. O.	Private tuition.
Thorpe, A.	The College, Herne Bay.
Tweddell, G.	Royal Gram. S., Newcastle-on-Tyne.
Warne, J.	Truro College.
Watts, G. F.	Grammar School, Ormskirk.
Wesson, C. F.	K. Edwd. VI. S., Stratford-on-Avon.
Woodward, C. O.	Grammar School, Redditch.

THIRD CLASS.—2ND DIVISION.

Bond, E. R. T.	Schorne College, Winslow.
Bruzand, A. S.	Private tuition.
Coggan, C. A.	Montrose College, Brixton Hill.
Dowding, S. E. H.	Norfolk Park School, Maidenhead.
Fowler, W. G.	Oxford County School, Thame.
Haswell, F.	St. Oswald's College, Tynemouth.
Hawley, J. H.	St. John's College, Finsbury Park.
Heaphy, H.	Grammar School, Redditch.
Kemp, W. M.	Market Harborough Grammar S.
Lamb, E. M.	Tooting College School.
Moody, A. P. H. *d.*	North Lond. High S. for Boys, N.W.
Moore, J.	Marlborough Coll. S., Tuebrook.
Mott, G. A.	Alwyne House, Canonbury.
Parker, A. C.	Anglo-French High S., Hornsey.
Pike, G. H.	Glenwood House S., Winchmore Hill.
Rees, J. G.	Grammar School, Cardigan.
Riley, O.	Archbishop Holgate's School, York.
Simmonds, C. F.	Walden House School, Herne Bay.
Sly, S. H.	University School, Hastings.
Torr, P.	Granton College, Liverpool.
Young, B.	Oxford County School, Thame.
Allen, L.	Bethany House School, Goudhurst.
Allkin, H. W.	Denbigh Grammar School.
Barrett, A.	Noncon. Gram. S., Bp. Stortford.
Bartlett, F. G.	Brunswick House School, Windsor.
Beal, J. E.	Wesley College, Sheffield.
Brayn, R. C. H.	Whitchurch Grammar School.
Briggs, C.	Thorne Grammar School, Doncaster.
Butchart, R. P. O.	Argyle House School, Sunderland.
Carpenter, D.	Grammar School, Cardigan.
Clifford, A.	K. Edwd. VI. S., Stratford-on-Avon.
Crompton, J. H.	Kilham Grammar School, Hull.
Elliott, J. G.	Market Harborough Grammar S.
Gilbert, G. H.	Classical and Comm. S., Stamford.
Howell, E. C.	Kingston School, Yeovil.
Martin, M. T.	Brent Hill Collegiate S., Hanwell.
Maxwell, W.	Belmont, Worthing.
Nicholson, B. W.	Truro College.
Read, A. H.	Halstead Grammar School.
Richardson, A. H. H.	Herne House, Margate.
Ryder, L. S.	St. Edmund's Coll., Birmingham.
Shandley, E.	Collegiate School, Blackpool.
Vertigen, H. T.	Banham Grammar S., Attleboro'.
Walker, P. G.	1 Beech Terr., Fairfield, Liverpool.
Ward, L. J.	Chiltern House S., High Wycombe.
Wells, F. P.	Walden House School, Herne Bay.
Wheatley, F.	Kent Coast College, Herne Bay.
Widdicombe, A.	Heavitree Collegiate S., Exeter.
Winterbotham, R.	Bussage House, Stroud.
Young, H. A.	Mayall College, Herne Hill.
Bullett, W. J.	Byron House School, Ealing.
Byles, H. H.	Noncon. Gram. S., Bp. Stortford.
Champion, S.	Channel View School, Clevedon.
Clarke, W. A.	Leytonstone College.
Clay, A.	St. Mary's College, Woolhampton.
Clube, E. H.	Chiswick Collegiate School.
Dignasse, F. J.	Thanet College, Margate.
Frank, E. E.	Bilton Grange School, Harrogate.
Gardner, H. M.	St. Elphin's, Westgate-on-Sea.
Gawler, C.	Queen's College, Taunton.
Griffin, G. E.	North Lond. High S. for Boys, N.W.
Hamblen, B. T.	Kingston School, Yeovil.
Harrison, J. G.	Highfield School, Chertsey.
List, W. E.	St. John's College, Finsbury Park.
Lockhart, P. W.	Gravesend Proprietary School.
Mayo, A.	Market Bosworth Grammar School.
Mitchell, E. Y.	High School, Bromley, Kent.
Orford, H. J.	Market Bosworth Grammar School.
Perryman, A. M.	Grove House School, Highgate.
Power, J.	Salford Catholic Grammar School.
Snape, G. F.	Private tuition.
Stevenson, H. R.	Old Trafford School, Manchester.
Swain, J.	Emwell House School, Warminster.
Williams, C. H.	Commercial S., Barrow-in-Furness.
Bush, J. P.	Wesley College, Sheffield.
Chrisp, H.	Argyle House School, Sunderland.
Clutten, C. B.	Woodhouse Grove School.
Cox, S. F.	Baylis House, Slough.
Eames, F. H.	Grammar School, Chard.
Ellis, H. L.	Theobald's College, Waltham Cross.
Feiling, R. E.	Clare House School, Margate.
Fox, E. J.	Highbury House S., St. Leonards.
Galpin, A. H.	Wadham House School, Hove.
Greaves, R. H.	Grosvenor College, Ostende.
Hitchin-Kemp, W.	North Lond. High S. for Boys, N.W.
Irwin-Packington, W.	Madras House, Loughton.
Izdebski, S.	St. Mary's Hall School, Cardiff.
Johnson, F. W. L.	Montrose College, Brixton Hill.
Kemp, W.	Exmouth College.
Manning, C.	St. Mary's College, Harlow.
Pilch, S.	Walden House School, Herne Bay.
Pitman, C.	Dr. Morgan's End. S., Bridgwater.
Reynolds, J. M.	Truro College.
Sanders, R. S. McC.	North Lond. High S. for Boys, N.W.
Shirley, F. O.	Grammar School, Rastrick.
Smith, J. J.	Coopers' Company's S., Stepney.
Symmonds, W.	Montrose College, Brixton Hill.
Taylor, E. R.	Sandwich School.
Toye, P. W.	Kent Coast College, Herne Bay.
Vinson, H.	University School, Hastings.
Ward, A.	Theobalds College, Waltham Cross.
Westacott, J. B.	North London Collegiate School.
White, F.	Almondbury Grammar School.

BOYS, THIRD CLASS—*Continued.*

Wilson, F. H.	Noncon. Gram. S., Bp. Stortford.
Winter, S. J.	K. Edwd. VI. S., Stratford-on-Avon.
Agate, J. E.	Clarendon Road School, Eccles.
Bateman, F.	Cotes Hall College, Eccleshall.
Bell, W.	St. George's Gram. S., Plymouth.
Bennett, R. A.	University School, Hastings.
Cloud, A. T.	Private tuition.
Cohen, V. M.	Portsdown High S., Maida Vale, W.
Davies, G.	Collegiate School, Pontardawe.
Davies, J.	Collegiate School, Pontardawe.
Deakin, C. E.	Summerfield School, Sheffield.
Deer, G. R.	K. Edwd. VI. S., Stratford-on-Avon.
Druce, S. H.	Taplow Grammar School.
Hartley, J. E.	New Hall Coll., Sutton Coldfield.
Inman, C. W.	Almondbury Grammar School.
James, J.	Grammar School, Cardigan.
Lovesy, C. W.	Montrose College, Brixton Hill.
Lucas, E. H.	Handel College, Southampton.
Mackenzie, E. H. H. W.	Schorne College, Winslow.
McMahon, E. H.	The Polytechnic Intermediate S., W.
Philip, R.	Marlborough Coll. S., Tuebrook.
Pointing, T.	Weston School, Bath.
Rollason, A. P. H.	Noncon. Gram. S., Bp. Stortford.
Ronch, F.	St. Elphin's, Westgate-on-Sea.
Silles, J.	Private tuition.
Tattershall, S. E.	Tollington Park College, N.
Vaughan, S.	87 Montpellier Road, Brighton.
Weston, E. P.	Coopers' Company's S., Stepney.
Wilson, F. A.	Argyle House School, Sunderland.
Youngman, F. A.	Kurnella, Bournemouth.
Barnes, T.	The Collegiate School, Sunderland.
Beswick, G. E.	Werneth Academy, Oldham.
Boyd, C.	University School, Stroud Green.
Brenton, J.	Mount Radford School, Exeter.
Bruce, W.	Waterloo Coll., Waterloo, Liverpool.
Cohen, L.	Argyle House School, Sunderland.
D'Abadie, L. J.	Tooting College School.
Delany, L.	Salford Catholic Grammar School.
Gratton, J. F.	Cotes Hall College, Eccleshall.
Green, A	The College, Hendon.
Harold-Barry, P. P.	St. George's College, Weybridge.
Herbert, S.	Sillwood Rd. High School, Brighton.
Hunt, W. A. E.	New Hall Coll., Sutton Coldfield.
Kenworthy, J. M.	Old Trafford School, Manchester.
Lee, F. P.	Highbury Park School.
Moxon, R.	"Brudenell," Tunbridge Wells.
Ormrod, E.	High School, New Brighton.
Phillips, W. L.	Grammar School, Cardigan.
Richards, H. J.	Noncon. Gram. S., Bp. Stortford.
Rose, W. R.	Sandwich School.
Rowe, R.	Fowey Grammar School.
Sinclair, L. E.	Woodhouse Grove School.
Smith, C. W.	Highbury Park School.
Stratton, R.	Herne House, Margate.
Swingler, J.	St. Joseph's College, Brampton.
Taylor, F. H.	Temple College, Forest Gate, E.
Taylor, T. E. L.	Montpelier, Paignton.
Tompsett, F. J.	Heath House School, Horsmonden.
Vincent, E.	St. John's College, Brixton.
Webber, T. A.	Kimberley Grammar S., Falmouth.
Wheeler, H. F.	Seaford College.
Wilson, R. L.	Kilham Grammar School, Hull.
Abell, B. T.	Exmouth College.
Brown, A. D.	Woodhouse Grove School.
Davies, W.	Old College School, Carmarthen.
Death, C.	Banham Grammar S., Attleboro'.
Frank, A. S.	Bilton Grange School, Harrogate.
Gibbs, F. B.	K. Edwd. VI. S., Stratford-on-Avon.
Girod, F.	Tooting College.
Henwood, C. C.	St. John's College, Finsbury Park.
Humphries, E. E.	Kent Coast College, Herne Bay.
Jeffery, R. G.	Cheveley Hall School, Plymouth.
Kaye, A.	Almondbury Grammar School.
King, M. H.	Finsbury Park College, N.
Kinloch, E.	St. Mary's Hall School, Cardiff.
Marsh, C. A.	High School, Dorking.
Meade, W.	Glencoe, Anglesey, Gosport.
Monkman, R. W.	Oxford County School, Thame.
Oxley, W.	Ivy Bank, Southampton.
Randall, E. G.	University School, Hastings.
Reay, O. W.	All Saints' School, Southend.
Richman, R. W.	Oxford County School, Thame.
Rickett, J. T.	Grammar School, Belper.
Robinson, W.	Theobalds College, Waltham Cross.
Rutter, J. S. R.	Grammar School, Eccles.
Santos, P. M. C.	Private tuition.
Shoolbred, C.	Tooting College School.
Thomas, G.	Tower House S., Newton Abbot.
Trapp, C. E.	Finsbury Park College, N.
Weale, H.	Tooting College School.
Barrett, E.	Mere House, Alsager.
Chandler, A.	East Cornwall College, Liskeard.
Cocks, J.	Trafalgar House S., Winchester.
Connor, W.	Ampleforth College, York.
Coulton, C. H.	Bethany House School, Goudhurst.
Croaker, S. G.	Taplow Grammar School.
Dare, H.	Halstead Grammar School.
Doré, E. E. H.	Grove House School, Highgate.
Dunbar, S. T.	East Cornwall College, Liskeard.
Fuller, F.	Rye Grammar School.
Gibb, J. F.	Noncon. Gram. S., Bp. Stortford.
Heath, H. W.	St. Elphin's, Westgate-on-Sea.
Hodge, T. V.	Ancaster House S., St. Leonards.
Holden, J. S.	Woodhouse Grove School.
Lane, T.	K. Edwd. VI. S., Stratford-on-Avon.
Low, J.	Royal Gram. S., Newcastle-on-Tyne.
Mackenzie, A.	Kurnella, Bournemouth.
Maggs, H.	Dr. Morgan's End. S., Bridgwater.
Newman, J.	Grammar School, Cardigan.
Newton, W. H.	Montpelier, Paignton.
Poole, O.	Halstead Grammar School.
Ray, L. W.	North London Collegiate School.
Scoones, W.	South Hackney College, N.E.
Smith, C. J.	Tufnell Park Terrace S., Holloway.
Snelling, E. E.	Highfield School, Chertsey.
Southgate, G. M.	Tollington Park College, N.
Sutcliffe, H.	Bilton Grange School, Harrogate.
Thomas, W. H.	Parkyvelvet Gram. S., Carmarthen.
Thompson, W. T.	High School, Smethwick.
Tonge, C.	Mannering Road School, Liverpool.
Westbrook, W. E.	Trafalgar House S., Winchester.
Bailey, J. S.	Summerfield School, Sheffield.
Bergersen, S. H.	High School, Dorking.
Black, A. M.	Halbrake S., Wandsworth Common.
Brown, W.	New Hall Coll., Sutton Coldfield.
Cotterill, A. T.	Birchfield High S., Birmingham.
Davey, W.	Waterloo Coll., Waterloo, Liverpool.
Davis, G.	St. Mary's College, Woolhampton.
Dey, J.	Willow House College, Walsall.
Greenwood, E.	Petherton School, Highbury.
Head, T. H.	Bilton Grange School, Harrogate.
Heptonstall, F.	Ampleforth College, York.
Homer, H. G. V.	University School, Hastings.
Hopper, W. F.	Sandwich School.
Kelsey, G. B.	Sandwich School.
Lewns, A. T.	Rye Grammar School.
Lloyd, T. W.	Coopers' Company's S., Stepney.
Lodge, J. L.	Almondbury Grammar School.
Lockhart, K.	Noncon. Gram. S., Bp. Stortford.
Miall, H. E.	Fir Lodge College, Sydenham.
Mundy, A. J.	Kingston School, Yeovil.
Nutley, C. E.	Westfields, Winchester.
Reed, E.	University School, Hastings.
Rothwell, H.	Moravian Boys' S., Manchester.
Steweni, G. H.	Mere House, Alsager.
Taylor, G. S.	Woodhouse Grove School.
Todd, W.	Archbishop Holgate's S., York.
Warren, S.	Bethany House School, Goudhurst.
Watson, E.	Summerfield School, Sheffield.
Wilson, T. H.	K. Edwd. VI. S., Stratford-on-Avon.
Arbuthnot, A. C.	Private tuition.
Barré, P.	Salford Catholic Grammar School.
Biddlecombe, W. R.	University College School, W.C.
Brunyee, J. J.	Thorne Grammar S., Doncaster.
Chiles, T.	Weston, School, Bath.
Clensy, E. R.	Queen's College, Streatham.
Evans, J. R.	Tooting College School.
Evans, R. F.	Harborne Vicarage S., Birmingham.
Farrar, G. H. H.	Brighton House Coll. S., Oldham.
Garner, A. J.	Taplow Grammar School.
Gaskill, J. M.	St. Elphin's, Westgate-on-Sea.
Gaylard, S.	Kingston School, Yeovil.
Gilford, C.	Weston School, Bath.
Gill, B. J.	The College, Churwell, Leeds.
Hooper, C. W.	Bethany House School, Goudhurst.
Leese, W.	Tollington Park College, N.
Peet, W.	Grammar School, Ormskirk.
Rees, A.	Woodhouse Grove School.
Roberts, E. B.	North Camberwell High Schools.
Shaw, E. A.	83 Montpellier Road, Brighton.
Vergnaud, A.	St. Joseph's Comm. Coll., Dumfries.
Watkinson, A.	Farnworth Grammar School.
West, J. E.	Tooting College School.
White, A. A.	Willow House College, Walsall.
Williams, F. H.	The Southern College, Pannal Ash.
Williams, W. J.	E. Dev. County S., Sampford Peverell
Allen, E. V.	K. Edwd. VI. S., Stratford-on-Avon.
Anderson, D.	South Hackney College, N.E.
Archer, H. L.	Gravesend Proprietary School.
Ayling, A. C.	Highbury Park School.
Browne, W. R.	Grammar School, Chard.
Earle, E. H.	Kimberley Grammar S., Falmouth.
Everest, A.	Sillwood Rd. High School, Brighton.
Hale, F. M.	Taplow Grammar School.
Harding, L. J.	South Hackney High School, N.E.
Hodgson, J. C.	Byron House School, Ealing.
Kennard, D. H.	Private tuition.
Kidney, R. C. S.	Private tuition.
Meeres, S. M. H.	Schorne College, Winslow.
Ring, E.	St. Joseph's Acad., Kennington Rd.
Sherras, H.	The College, Herne Bay.
Simpson, E. H.	Grafton House School, Manchester.
Smith, P. H.	University School, Hastings.
Smith, W.	Oxford County School, Thame.
Sorby, E.	Mere House, Alsager.
Turnbull, J.	Royal Gram. S., Newcastle-on-Tyne.
Weston, N.	Hardwicke House School, Seaford.
Wilkinson, R.	Tooting College.
Williams, E. J.	Parkyvelvet Gram. S., Carmarthen.
Abrams, C. W.	Bedford Road School, Clapham.
Clapham, E. W.	Halstead Grammar School.
Clayton, F. J.	K. Edwd. VI. S., Stratford-on-Avon.
Collins, A. F.	High School, Dorking.
Danby, C.	Kilham Grammar School, Hull.
Davey, F.	St. Mary's College, Woolhampton.
Drayson, C. A.	Coopers' Company's S., Stepney.
Goodchild, E.	High School, Anerley.
Gulliford, C.	Dr. Morgan's End. S., Bridgwater.
Haigh, W. N.	North Lond. High S. for Boys, N.W.
Hammock, S. G.	Leytonstone College.
Humphreys, H. B.	The Grammar School, Holyhead.
Hyland, W. L.	Mayall College, Herne Hill.
Jones, H. B.	Old Trafford School, Manchester.
Kendal, A. B.	K. Edwd. VI. S., Stratford-on-Avon.
Leaman, F. G.	Enwell House School, Warminster.
Morrogh, J.	St. Joseph's College, Brampton.
O'Neil, F.	St. Joseph's Comm. Coll., Dumfries.
Parry, D.	Grammar School, Cardigan.
Pescod, W. T.	The Polytechnic Intermediate S., W.
Robertson, G. W.	Enwell House School, Warminster.
Roos, R.	Taplow Grammar School.
Smith, F.	Kersal Glen S., Higher Broughton.
Smith, H. G.	Holmwood, Bexhill.
Spicer, F. W.	Waterloo Coll., Waterloo, Liverpool.
Spiller, A. B.	Montrose College, Brixton Hill.
Staple, J. H.	Kingston School, Yeovil.
Stewart Brown, B.	Harborne Vicarage S., Birmingham.
Theobald, E. J. W.	Schorne College, Winslow.
Wiltshire, A.	Mayall College, Herne Hill.
Ashfield, G.	K. Edwd. VI. S., Stratford-on-Avon.
Barber, E. H.	St. Edmund's Coll., Birmingham.
Bishop, H. C.	The College, Herne Bay.
Bodman, J. C.	Bilton Grange School, Harrogate.
Bowman, G.	Old Trafford School, Manchester.
Bridge, A. E.	Grammar School, Ormskirk.
Brown, H.	19 Trafalgar Road, Birkdale.
Colbourne, R. B.	K. Edwd. VI. S., Stratford-on-Avon.
Cooke, A. D. S.	Private tuition.
Denston, T. H.	New Hall Coll., Sutton Coldfield.
Drury, A.	Southolme School, Gainsborough.
Fase, B. F.	St. John's Choir S., St. Leonards.
Gordon, F.	Noncon. Gram. S., Bp. Stortford.
Harkness, G. F. I.	Herne House, Margate.
Hofland, W. H.	Truro College.
Johnson, C.	Queen Elizabeth's S., Gainsborough.
Josephs, W. W.	St. Catharine's School, Broxbourne.
Kerr, R. H.	St. George's College, Weybridge.
Knapp, A. F.	Chiswick Collegiate School.
La Mothe, J. S.	Baylis House, Slough.
McEwen, J. S.	Grosvenor College, Ostende.
O'Hea, R. J.	Tooting College School.
Pilkington, H.	High School, Chorlton-cum-Hardy.
Reeves, J. T.	North London Collegiate School.
Reid, F. H.	Tollington Park College, N.
Shepherd, H.	Market Bosworth Grammar School.
Stowell, L.	Tooting College School.
Thomas, D. G. M.	Schorne College, Winslow.
Thomas, H. A. T.	Truro College.
Thomas, T. C.	High School, Bromley, Kent.
Tod, J.	Weston School, Bath.
Turner, C. P.	St. Catharine's School, Broxbourne.
Wilcockson, C.	Waverley House, Eastbourne.
Buck, T.	Montrose College, Brixton Hill.
Carr, G.	Seafield Acad., Newcastle-on-Tyne.
Catley, J. C.	East Cornwall College, Liskeard.
Chantler, J. W.	Bethany House School, Goudhurst.
Doughty, C. W.	Gravesend Proprietary School.
Dudfield, C. G.	Summerfield School, Sheffield.
Falconer, E. W.	Schorne College, Winslow.
Feven, A.	Dr. Morgan's End. S., Bridgwater.
Fitton, A. E.	Almondbury Grammar School.
Folson, H.	The College, Herne Bay.
Gabriel, C. C.	Tollington Park College, N.
Hallett, N. G.	New Hall Coll., Sutton Coldfield.
Hartshorne, J. A.	Market Bosworth Grammar School.
Heyes, T.	Granton College, Liverpool.
Jarvis, W.	Truro College.
Jones, A. L.	Tredegar Grammar School.
Kerridge, F. C.	Holly Bank School, Cheetham Hill.
Knight, P.	East Finchley College.
McBreen, P. E.	Salford Catholic Grammar School
Moss, L. B.	Herne House, Margate.
Newell, H.	Endowed Grammar S., Northwich.
Nugent, A.	Park House School, Gravesend.
Pierpoint, L.	Chiswick Collegiate School.
Raymond, F.	Tooting College School.
Reid, G.	St. Joseph's Comm. Coll., Dumfries.
Robinson, W.	The Southern Coll., Pannal Ash.
Stokes, F. E.	Mount Radford School, Exeter.
Stubbs, H. T.	Truro College.
Trickett, A.	Grammar School, Ormskirk.
Williams, E.	University School, Hastings.
Windus, G. A.	Grammar School, Ormskirk.
Winslow, C. R. D.	Seaford College.
Allen, G. W.	Banham Grammar S., Attleboro'.
Batten, J. H. S.	Private study.
Bickerstaffe, R. G.	Collegiate School, Blackpool.
Brown, J. H.	The Polytechnic Intermediate S., W.
Burnham, E. J.	Bethany House School, Goudhurst.
Cantor, A. A.	Wadham House School, Hove.
Chambers, C. T. C.	Seaford College.
Clarke, F. G.	Trafalgar House S., Winchester.
Edwards, F.	Tollington Park College, N.
Fryd, F. W.	Temple College, Forest Gate, E.
Godwin, H.	Hartley Institute, Southampton.
Harrison, F. R.	High School, New Brighton.
Hayward, P.	Weston School, Bath.
Hearn, R. E.	The Grammar School, Eye.
Hebron, W. A.	The High School, Thirsk.
Ives, A. J.	Temple College, Forest Gate, E.
Lee, J.	Dr. Morgan's End. S., Bridgwater
Llewellyn, A.	St. Basil's, Hampstead.
Mawson, H. O.	Oxford County School, Thame.
Millard, P. J.	Blenheim House School, Farcham.
Palmer, G. H.	All Saints' School, Southend.
Payne, A. E.	Highfield School, Chertsey.
Reed, E.	Bussage House, Stroud.
Richardson, J. A.	The Priory, Kew.
Sadler, E. R. H.	St. Catharines School, Broxbourne.
Smart, E.	St. John's College, Brixton.
Talbot, W. E.	Dr. Morgan's End. S., Bridgwater
Tory, F. B.	Kingston School, Yeovil.
Walton, A.	Eton House School, Hull.
Watson, L. S.	Kent Coast College, Herne Bay.
Webb, D. U.	Herne House, Margate.
Welch, J. H. F.	Whitchurch Grammar School.
Wieland, P. A.	Schorne College, Winslow.
Williams, W. J.	The Grammar School, Holyhead.
Worthington, A.	Old Trafford School, Manchester.
Wykes, H. A.	K. Edwd. VI. S., Stratford-on-Avon.
Bailey, H. J.	Summerfield School, Sheffield.
Bartrum, G.	Weston School, Bath.
Bruce, W. E.	Tooting College School.
Burman, W. E.	Seaford College.
Butcher, H.	K. Edwd. VI. S., Stratford-on-Avon.
Crew, A. O.	Collegiate School, Tetbury.
Dawson, E. N.	Wesley College, Sheffield.
Eaton, W.	Market Harborough Grammar S.
Edwards, C.	St. John's College, Finsbury Park.
Gallop, E.	Emanuel School, Wandsworth.
Hardcastle, C. A.	St. John's College, Finsbury Park.

BOYS, THIRD CLASS—*Continued.*

Hawkey, T.	Truro College.
Hines, A.	Ampleforth College, York.
Hum, F. C.	Tottenham Middle Class School, N.
Murphy, A.	St. Joseph's Acad., Kennington Rd.
Nichols, G. B.	St. Oswald's College, Tynemouth.
Poore, L. A.	Alwyne House, Canonbury.
Price, J. C.	43 Maryon Road, Charlton, S.E.
Purton, L.	Madras House, Loughton.
Richie, F. F.	Clare House School, Margate.
Rider, L. H.	Highfield School, Chertsey.
Stanley, C. G.	Gravesend Proprietary School.
Steele, E. S.	81 Minerva Terrace, Hull.
Strohmenger, A. P.	Tollington Park College, N.
Way, E. G.	Heavitree Collegiate S., Exeter.
Weston, S. J.	University School, Hastings.
Wonnacott, F. T.	Kimberley Grammar S., Falmouth.
Yates, G. H.	Mere House, Alsager.
Chambers, F.	Almondbury Grammar School.
Cocks, J.	St. Catharine's School, Broxbourne.
Collins, B. M.	Sutton Park School, Surrey.
Comley, J.	Comm. School, Barrow-in-Furness.
Crosby, H. M.	E. Dev. County S., Sampford Peverell.
Cross, H.	Woodhouse Grove School.
Denny, A.	Queen's College, Taunton.
Desvignes, F. G.	St. George's College, Weybridge.
Farrar, W. W.	Queen Elizabeth's S., Gainsboro'.
Flood, S. J.	Tooting College School.
Gale, F. R.	St. Mary's College, Harlow.
Gray, S. B.	Noncon. Gram. S. Bp. Stortford.
Hague, J.	Archbishop Holgate's School, York.
Horsman, W. G.	University School, Hastings.
Jay, R. H.	Wilson College, Cazenove Road, N.
Mills, J. E.	Taplow Grammar School.
Morrissy, E. V.	Baylis House, Slough.
Parker, J.	Ampleforth College, York.
Pike, G. L.	Schorne College, Winslow.
Piper, J. F.	Kurnella, Bournemouth.
Proctor, F. W.	The Polytechnic Intermediate S., W.
Rogerson, W. C.	Endowed Grammar S., Northwich.
Sanders, J. J.	Oxford County School, Thame.
Simpson, R. R.	Royal Gram. S., Newcastle-on-Tyne.
Wallace, W. H.	Private tuition.
Williamson, A. A.	St. Oswald's College, Tynemouth.
Adds, W. T. F.	High School, Sutton, Surrey.
Bell, C. B.	High School, Bromley, Kent.
Dadson, H. H.	Herne House, Margate.
Derrick, C.	Grammar School, Chard.
Garcia, A.	Portsdown High S., Maida Vale, W.
Gawne, J. R.	Granton College, Liverpool.
Grace, R. W. F.	Gravesend Proprietary School.
Green, P.	St. John's College, Brixton.
Hallett, E. P.	St. John's Choir S., St. Leonards.
Harding, J. C.	20 West Cliff, Preston.
Hipkins, E. L.	Dudley Grammar School.
Little, G. D.	Private tuition.
Mancantelli, J. R.	Royal Gram. S., Newcastle-on-Tyne.
Ollis, G. T.	Hanham Court School, Bristol.
Parry, T.	St. Asaph Grammar School.
Phillpott, S. W.	High School, Bromley, Kent.
Prangley, R. D.	Southampton Boys' College.
Preston, G. W. D.	60 Granville Park, Blackheath.
Sadler, J.	St. Mary's College, Woolhampton.
Simpson, W. T.	Collegiate School, Blackpool.
Steed, H. P.	Sandwich School.
Stiles, G.	St. Elphin's, Westgate-on-Sea.
Turner, A. R.	Loughboro' College, Brixton.
Wendover, E. V.	University School, Hastings.
Woodward, C. H.	Montpelier, Paignton.
Dabell, A. F.	Redclyffe House, Sandown, I. of W.
Dale, E.	Endowed Grammar S., Northwich.
Druce, L. V.	Taplow Grammar School.
Edwards, R.	Waterloo Coll., Waterloo, Liverpool.
Ellis, E.	Bussage House, Stroud.
Fawcett, N. L.	Oxford County School, Thame.
Hammond, E. N.	Tufnell Park Terrace S., Holloway.
Hardcastle, A.	St. John's College, Finsbury Park.
Hayes, G. E.	81 Minerva Terrace, Hull.
Holderness, S.	Brunswick House School, Windsor.
Jennings, N. B. A.	Kurnella, Bournemouth.
Littlejohn, A. T.	Anglo-French High S., Hornsey.
Lock, R. F.	Grammar School, Chard.
Merry, H.	Kilburn Middle Class School.
Orr, T. S. D.	Brunswick House School, Windsor.
Osborne, W. H.	Queen Elizabeth's S., Gainsborough.
Overy, F. M.	University School, Hastings.
Parkhouse, T.	The College, Hendon.
Rice, C. F.	Truro College.
Russell, T. E. W.	Clarendon House School, Brighton.
Schloss, H. M.	83 Montpellier Road, Brighton.
Soper, P. F.	Waverley House, Eastbourne.
Warmington, G. E. D.	Highbury House S., St. Leonards.
Brooks, J. W.	High School, Dorking.
Brown, H. J.	Woodhouse Grove School.
Burnell, E. G.	Bethany House School, Goudhurst.
Dixon, G. W.	Bethany House School, Goudhurst.
Green, F.	Argyle House School, Sunderland.
Jones, A. L.	Brunswick Wesleyan S., Liverpool.
Kennedy, L.	St. Joseph's Acad., Kennington Rd.
Lightfoot, J.	Taplow Grammar School.
Mansel, W.	Granton College, Liverpool.
Michie, A. F.	Chiswick Collegiate School.
Murray, J.	Weston School, Bath.
Mutch, R. S.	Brixton Grammar School.
Powell, C.	Ampleforth College, York.
Richardson, C.	Hall Gate School, Doncaster.
Seddon, W.	Academy of St. Paulinus, Catterick.
Sturdee, F. H.	Norton College, Luton.
Taylor, W. A.	Werneth Academy, Oldham.
Tolfree, P.	Endowed Grammar S., Northwich.
Weston, E.	Summerfield School, Sheffield.
Whiffen, S.	High School, New Brighton.

THIRD CLASS.—3RD DIVISION.

Abson, P.	Private tuition.
Aston, F.	Harborne Vicarage S., Birmingham.
Bottone, A. E. R.	Private study.
Brook, A. V.	Tollington Park College, N.
Brunyee, N.	Thorne Grammar S., Doncaster.
Carrington, T. L. S.	Summerfield School, Sheffield.
Chinn, P.	Weston School, Bath.
Culver, E. A.	Herne House, Margate.
Davis, E. J.	Taplow Grammar School.
Freeland, J. D.	Tooting College School.
Gowar, W. J.	Taplow Grammar School.
Harris, E.	Plymouth Public School.
Hart, J.	Portsdown High S., Maida Vale, W.
Hore, R. B.	Ancaster House S., St. Leonards.
Jones, S. H.	Jun. S., Independent Coll., Taunton.
Melhuish, J. W.	Tooting College School.
Pierce, C.	Granton College, Liverpool.
Quirk, L.	Tooting College School.
Richards, W. H.	Kingston School, Yeovil.
Shackell, T. A.	St. Mary's Hall School, Cardiff.
Stainton, A. W. S.	St. Edmund's Coll., Birmingham.
Stevenson, C. M.	Westbury House S., Worthing.
Townsend, T. W. S.	Temple College, Forest Gate, E.
Tully, J.	St. Joseph's Acad., Kennington Rd.
Woodward, F. T.	Truro College.
Beard, A.	Oxford House School, St. Albans.
Clark, T. B.	Banham Grammar S., Attleboro'.
Darby, S. G.	Tollington Park College, N.
Dixon, E. A.	Wesley College, Sheffield.
Dowson, E.	Hall Gate School, Doncaster.
Eadie, D.	Hamstead Hill S., Handsworth.
Elliott, R. E.	Wistaria House, Cheshunt.
Frith, H. S.	Brunswick House School, Windsor.
Grout, A. L.	Kent Coast College, Herne Bay.
Haslam, H. C.	North Lond. High S. for Boys, N.W.
Hensman, T. H.	Chiswick Collegiate School.
Hook, F. C.	Kingston School, Yeovil.
Hutchence, A.	Halbrake S., Wandsworth Common.
Kidney, W.	Private tuition.
Lamb, F. M.	Grosvenor College, Ostende.
Meakin, S. A. B.	Wesley College, Sheffield.
Osborn, P. J.	Noncon. Gram. S., Bishop Stortford.
Peatfield, W. H.	Brighton Modern School.
Pownall, W. B.	Colet House, West Kensington.
Pratt, C. W.	Noncon. Gram. S., Bishop Stortford.
Seale, R.	Schorne College, Winslow.
Shettle, R. D.	The Grammar School, Eye.
Skilbeck, F. W.	Wesley College, Sheffield.
Smith, N.	St. John's College, Brixton.
Stevens, E. J.	Gravesend Proprietary School.
Walsh, W.	Salford Catholic Grammar School.
Wigfield, F. P.	St. Oswald's College, Tynemouth.
Worswick, T.	Ampleforth College, York.
Afriat, I.	Portsdown High S., Maida Vale, W.
Birchall, W.	St. Joseph's Comm. Coll., Dumfries.
Brodie, C. A.	North London Collegiate School.
Butcher, W.	High School, Anerley.
De Santy, F.	Grove House School, Highgate.
Fishwick, F. W.	Herne House, Margate.
Heath, W. H.	Sandwich School.
Holloway, W. E.	Highfield School, Chertsey.
Johnson, J.	Academy of St. Paulinus, Catterick.
Klopfer, F.	St. Mary's College, Woolhampton.
Lister, W.	High School, Leeds.
Lowe, J.	Cambridge House School, Wigan.
Martin, G.	St. Mary's College, Woolhampton.
Meade, W. M.	St. George's College, Weybridge.
Pearson, T.	University School, Hastings.
Robertson, R. F.	High School, Dorking.
Robinson, H.	Bilton Grange School, Harrogate.
Rodgers, A.	Werneth Academy, Oldham.
Sikes, G. H.	Queen Elizabeth's S., Gainsborough.
Simmonds, W. H.	Coopers' Company's S., Stepney.
Smith, H. D.	Enwell House School, Warminster.
Stidolph, J. H.	Commercial School, Southborough.
Symington, H. L.	Noncon. Gram. S., Bishop Stortford.
Van Dort, E. M.	Highbury House S., St. Leonards.
White, E. B.	Herne House, Margate.
Woodcock, H.	Grammar School, Ormskirk.
Adams, G.	Halstead Grammar School.
Amoore, G. S.	Collett House, Bournemouth.
Cotton, W.	Highfield School, Chertsey.
Coulden, W. A.	Finsbury Park College, N.
Gettings, H. S.	Private tuition.
Gordon, J.	St. Joseph's Comm. Coll., Dumfries.
Griffin, E. G.	Sandwich School.
Harding, R. H.	Theobalds College, Waltham Cross.
Harington, B.	High School, Anerley.
Hollings, A.	Almondbury Grammar School.
James, J.	Llanelly Academy.
Johnson, W.	St. Joseph's Acad., Kennington Rd.
Leigh, R.	Private tuition.
Lodge, R. D.	Woodhouse Grove School.
McKay, W.	Granton College, Liverpool.
Morley, G. H.	Noncon. Gram. S., Bishop Stortford.
Mortimer, J.	St. Mary's Hall School, Cardiff.
O'Neill, J. J.	St. Joseph's High School, Cardiff.
Oyler, A.	Wistaria House, Cheshunt.
Palchin, T.	Theobalds College, Waltham Cross.
Pitts, C.	Banham Grammar S., Attleboro'.
Plank, J. W.	Grammar School, Chard.
Randall, W. G.	University School, Hastings.
Roddick, A.	Weston School, Bath.
Seed, F.	St. Mary's College, Woolhampton.
Segar, E.	Grammar School, Ormskirk.
Shield, G. W.	St. George's College, Weybridge.
Soames, F. O.	Schorne College, Winslow.
Steer, E.	Hoe Grammar School, Plymouth.
Thomas, H. J.	Collegiate School, Blackpool.
Walker, R. O'K.	Waterloo Coll., Waterloo, Liverpool.
Westbrook, R. J.	Kurnella, Bournemouth.
Wheldon, M. L.	Priory House School, Bridlington.
Wilcockson, H. W.	Waverley House, Eastbourne.
Baker, F. M.	Queen Elizabeth's S., Gainsborough.
Brierley, F. J.	Handel College, Southampton.
Buckingham, J.	Redenhall Comm. S., Harleston.
Challacombe, A. B.	High School, Dorking.
Cusel, E.	Mayall College, Herne Hill.
Fiske, R. P.	Oxford County School, Thame.
Greenway, G.	Dudley Grammar School.
Gregory, T.	Seafield Acad., Newcastle-on-Tyne.
Hickson, G. R. S.	Summerfield School, Sheffield.
Hobson, A. U.	Royal Gram. S., Newcastle-on-Tyne.
Humphreys, G. D.	Gravesend Proprietary School.
Jarry, L. H.	Tollington Park College, N.
Mason, E. A.	Woodhouse Grove School.
McRae, H. St. G. M.	Tufnell Park Terrace S., Holloway.
Meikle, W.	Granton College, Liverpool.
Niall, E. M.	Tooting College School.
Tennant, F. W.	Granton College, Liverpool.
Wilson, W. A.	Trafalgar House S., Winchester.
Abbott, C. W.	Halstead Grammar School.
Banks, W. G.	Holly Bank School, Cheetham Hill.
Banwell, F.	Kingston School, Yeovil.
Bonner, L. A.	Herne House, Margate.
Bowen, J.	Parkyvelvet Gram. S., Carmarthen.
Brake, E. Y.	Kingston School, Yeovil.
Brice, D.	Kent Coast College, Herne Bay.
Clark, W. D.	Summerfield School, Sheffield.
Dawson, F. W.	Erdington College.
Fase, S. H.	St. John's Choir S., St. Leonards.
Fitch, F. J. A.	St. John's College, Brixton.
Foster, A. S.	Coopers' Company's S., Stepney.
Frost, J.	Weston School, Bath.
Gookey, A. De V.	Private study.
Hayne, A. R. N.	Ger. and French Coll., Wandsworth.
Hiller, H. J.	Coopers' Company's S., Stepney.
Joscelyne, A. T. C.	Private tuition.
Knight, J. H.	The College, Herne Bay.
Lennon, W.	St. Joseph's Acad., Kennington Rd.
Mackie, D. S.	Montrose College, Brixton Hill.
Meadows, S. F.	Grammar School, Altrincham.
Milner, A. G.	Taplow Grammar School.
Mitchell, A. F.	Commercial School, Southborough.
Moore, C.	Tooting College School.
O'Hagan, C.	Academy of St. Paulinus, Catterick.
Oliphant, R. H.	Private tuition.
Primavesi, E.	Tooting College School.
Ralph, P. H.	Halstead Grammar School.
Richardson, D. A.	Tooting College School.
Robson, E.	Mannering Road School, Liverpool.
Singleton, M. L.	Taplow Grammar School.
Spencer, E. W.	Wesley College, Sheffield.
Tasker, E. A.	Taplow Grammar School.
Tress, D. H. W.	7 Sussex Square, Brighton.
Tyler, H.	St. Mary's College, Woolhampton.
Wakeley, L. D.	North Camberwell High Schools.
Wild, J. G.	Noncon. Gram. S., Bishop Stortford.
Wilkinson, J. W.	Queen Elizabeth's S., Gainsborough.
Alcock, G.	Connellan College, Malvern.
Aylmer, G.	Fir Lodge College, Sydenham.
Bell, W. R. G.	Temple College, Forest Gate, E.
Brown, T.	St. John's College, Finsbury Park.
Hallas, C. E. W.	Almondbury Grammar School.
Harper, H. H.	Leamington Collegiate School.
Hildreth, H. R.	St. John's College, Finsbury Park.
Homan, A.	Theobalds College, Waltham Cross.
Jay, J. E.	High School, Dorking.
Merefield, L.	St. Mary's College, Woolhampton.
Micklethwait, R.	Grammar School, Belper.
Morrison, G. W.	Fir Lodge College, Sydenham.
Robertson, G.	Weston School, Bath.
Snell, D.	St. Mary's Hall School, Cardiff.
Wiszniewski, B. G.	Schorne College, Winslow.
Cooper, C. A.	Stanwell House, Brondesbury.
Coulshed, W.	Cambridge House School, Wigan.
Dibb, W. R.	Schorne College, Winslow.
Elliott, F.	Highfield School, Chertsey.
Emary, A. M.	Bastion House, Gloucester.
Estcourt, F. A.	Private tuition.
Gedge, J. S.	Western Grammar S., Brompton.
Hague, J. F.	20 West Cliff, Preston.
Hawgood, F. E.	Grove House School, Highgate.
Hawkins, S. C.	Tooting College School.
Mannington, E.	Sundridge College, Hastings.
Marks, C. F. H.	Petherton School, Highbury.
Nicol, A. W. R.	Tottenham Middle Class School, N.
O'Beirne, H.	Ampleforth College, York.
Palmer, H. L.	Stanley House, Margate.
Pasfield, S.	Madras House, Loughton.
Phillips, H. E.	Immanuel Coll., Streatham Comm.
Pigé, G. H.	South Hackney High School, N.E.
Ward, W. H.	Bilton Grange School, Harrogate.
Wiltshire, H. E.	K. Edwd. VI. S., Stratford-on-Avon.
Betts, S.	Moldova House School, Clapham.
Cocq, R. D. R.	Herne House, Margate.
Cooling, P. J.	New Hall Coll., Sutton Coldfield.
Crawford, S. H. W.	Herne House, Margate.
Cutforth, J. A.	Cherville College, Romsey.
Fox, S. S.	Werneth Academy, Oldham.
Garle, J. L.	Herne House, Margate.
Green, A. G.	Taplow Grammar School.
Hardy, E. G.	The Polytechnic Intermediate S., W.
Harmen, E.	Taplow Grammar School.
Harper, A.	Seafield Acad., Newcastle-on-Tyne.
Hartley, P. T.	Montrose College, Brixton Hill.
Jones, B. O'C.	Private tuition.
Lever, J.	Salford Catholic Grammar School.
Mann, E.	Waverley House, Eastbourne.
Persse, G. S.	Handel College, Southampton.
Phillips, M.	St. Asaph Grammar School.
Plummer, F. G.	University School, Hastings.
Sharpe, G. M.	The College, Churwell, Leeds.
Smith, F.	Academy of St. Paulinus, Catterick.
Spain, J.	Academy of St. Paulinus, Catterick.
Staples, A. B.	Oxford House School, St. Albans.

BOYS, THIRD CLASS—*Continued.*

Tucker, G.	Taplow Grammar School.
Walker, T. W.	Collegiate School, Tetbury.
Wood, J. C.	20 West Cliff, Preston.
Young, N. H.	St. John's Roy. Latin S., Buckingham
Browning, S.	Bussage House, Stroud.
Burnside, V. L.	Temple College, Forest Gate, E.
Connell, W. G.	Queen Elizabeth's S., Gainsborough.
Davison, G. H.	The Grammar School, Holyhead.
Garton, G.	Weston School, Bath.
Goodman, R.	St. George's Grammar S., Plymouth.
Green, S.	81 Minerva Terrace, Hull.
Gurd, I.	St. Mary's College, Woolhampton.
Harper, F. C.	Cherville College, Romsey.
Keane, G. E.	Fir Lodge College, Sydenham.
Murray, R.	Granton College, Liverpool.
Potter, H. C.	Emmanuel Coll., Streatham Comm.
Ramsker, C. G.	Thorne Grammar S., Doncaster.
Staples, M. G.	Oxford House School, St. Albans.
Stimson, H. G.	Halstead Grammar School.
Wardle, W.	Academy of St. Paulinus, Catterick.
Watkin, B.	St. John's College, Brixton.
Andrew, P.	Sundridge College, Hastings.
Bray, J.	Truro College.
Briggs, W. H.	Summerfield School, Sheffield.
Challis, J. E.	College House School, Braintree.
Conway, N.	Ampleforth College, York.
Daw, G. H.	Dunn Foundation S., Crediton.
Johnson, G.	Theobalds College, Waltham Cross.
Miller, W. G. H.	Kingston School, Yeovil.
Murray, B. W.	South Hackney College, N.E.
Ruffle, R. H.	Mayall College, Herne Hill.
Sargant, H.	Woodhouse Grove School.
Sayer, D.	The Polytechnic Intermediate S., W.
Sudbury, A. W.	Halstead Grammar School.
Warner, A.	St. Catharine's School, Broxbourne.
Watson, J. A. H.	Waterloo Coll., Waterloo, Liverpool.
Work, T.	Weston School, Bath.
Avery, E.	Private tuition.
Beckwith, C. D.	Northfield, Margate.
Beecroft, W.	Taplow Grammar School.
Birch, E. H.	Waterloo Coll., Waterloo, Liverpool.
Clay, W. A.	Banham Grammar S., Attleboro'.
Coad, R.	Truro College.
Cousins, G.	College House School, Braintree.
Davies, H. L.	Jun. S., Independent Coll., Taunton.
Davis, H. H.	Grove House School, Highgate.
Duck, J.	St. Joseph's Acad., Kennington Rd.
Elmore, J.	Petherton School, Highbury.
Gray, J.	Commercial School, Astwood Bank.
Hastilow, F.	New Hall College, Sutton Coldfield.
Herbert, S.	St. Elphin's, Westgate-on-Sea.
Kamienski, W. A.	Finchley House S., Finchley Road.
Lake, J. W.	Southolme School, Gainsborough.
Milner, A.	The High School, Thirsk.
Pain, C.	Devonshire Lodge, Wandsworth.
Park, L. S.	Woodhouse Grove School.
Ramsey, G.	Theobalds College, Waltham Cross.
Thomas, J. A.	Parkyvelvet Gram. S., Carmarthen.
Voss, E. O.	Waverley House, Eastbourne.
Willows, F. G.	Southolme School, Gainsborough.
Allison, R.	St. Bede's College, Sunderland.
Chapman, H. J.	Schorne College, Winslow.
Clare, E. A.	Schorne College, Winslow.
Currie, E.	Halstead Grammar School.
Davey, G. F. St. J.	Schorne College, Winslow.
Davies, W. J.	Old College School, Carmarthen.
Hankin, J.	Grammar School, Ormskirk.
Herne, G.	Weston School, Bath.
Johnson, F.	Kent Coast College, Herne Bay.
Kershaw, A. G.	Grove House School, Highgate.
Mein, T.	St. Mary's Hall School, Cardiff.
Rowlands, R. B.	The Grammar School, Holyhead.
Stedman, H.	Hardwicke House School, Seaford.
Taylor, J. S.	Queen Elizabeth's S., Gainsborough.
Williams, W. N.	Truro College.
Banfield, W. F.	Kingston School, Yeovil.
Bapty, F. L.	Finchley House S., Finchley Road.
Crofts, A. H.	High School, Dorking.
Day, F. E.	Taplow Grammar School.
Delf, P. J.	Taplow Grammar School.
Dyson, E.	Thorne Grammar S., Doncaster.
Foster, E.	Wesley College, Sheffield.
Gibbs, S. J.	Brighton Modern School.
Golden, F. S.	Kent Coast College, Herne Bay.
Green, R.	St. Mary's College, Woolhampton.
Huddy, H.	Bethany House School, Goudhurst.
Jager, H. S.	Northfield, Margate.
Jones, V.	Mannering Road School, Liverpool.
Kincey, J. R.	Taplow Grammar School.
Magnus, T. A.	Fir Lodge College, Sydenham.
Middlewood, C. E.	Kilham Grammar School, Hull.
Numeley, W. A.	Market Harborough Grammar S.
Ross, D.	Handel College, Southampton.
Sillence, E. W.	Cherville College, Romsey.
Skilbeck, T.	Wesley College, Sheffield.
Tyrrell, E.	Waterloo Coll., Waterloo, Liverpool.
Wales, C. E.	Ilkley College.
Whitehead, J.	St. Joseph's Acad., Kennington Rd.
Wood, E. C.	Rugby House School, Eastbourne.
Bailey, J. H. W.	Handel College, Southampton.
Bates, A.	Academy of St. Paulinus, Catterick.
Bryan, J. L.	Kurnella, Bournemouth.
Bubb, C. H.	Bussage House, Stroud.
Bunkall, J. D.	Noncon. Gram. S., Bishop Stortford.
Chappell, H.	Victoria Collegiate School, Erith.
Clark, A. M.	Queen Elizabeth's S., Gainsborough.
Crowley, W. St. L.	Montpelier, Paignton.
Darbyshire, W.	Academy of St. Paulinus, Catterick.
Dawber, E.	Queen Elizabeth's S., Gainsborough.
Hardwick, C. W.	High School, Sutton, Surrey.
Harrington, J.	Tooting College School.
Hewlett, F. R.	Colet House, West Kensington.
Hitching, P. M. B.	St. Elphin's, Westgate-on-Sea.
Joseph, B.	Portsdown High S., Maida Vale, W.
Lobley, F.	Queen Elizabeth's S., Gainsborough.
Morgan, V. J.	Taplow Grammar School.
Shadbolt, A. E.	Tollington Park College, N.
Taylor, C. H.	Sandwich School.
White, T.	Tooting College School.
Wickett, S.	Truro College.
Williams, J. C.	Private tuition.
Bagnall, G.	Salford Catholic Grammar School.
Gill, H. B.	Dudley Grammar School.
Lawler, J.	Academy of St. Paulinus, Catterick.
Le Marchand, M. M.	Private tuition.
Lynch, M. C. C.	Schorne College, Winslow.
Newell, S. M.	Waterloo Coll., Waterloo, Liverpool.
Saunders, G.	St. Mary's College, Woolhampton.
Spurr, G.	Hall Gate School, Doncaster.
Bath, G. E.	Taplow Grammar School.
Brophy, H.	Tooting College School.
Cunnah, A. W.	Bradmore College, Chiswick.
Davis, W.	Bethany House School, Goudhurst.
Howroyd, J. E.	Bilton Grange School, Harrogate.
Hugo, C.	St. Mary's College, Woolhampton.
Hunt, A.	Halstead Grammar School.
Jager, L. E.	Northfield, Margate.
Jose, W. G.	Montpelier, Paignton.
Laight, G.	Grammar School, Redditch.
Mansfield, T.	Weston School, Bath.
Marshall, H. P.	Erdington College.
Mitchell, R.	Weston School, Bath.
Morrish, R. G.	Truro College.
Mynett, W. A.	Taplow Grammar School.
Rayner, G. H.	Rugby House School, Eastbourne.
Roche, F.	Whitchurch Grammar School.
Cameron, C. M. M.	Schorne College, Winslow.
Ebdon, W.	St. Bede's College, Sunderland.
Howard, A.	St. Mary's College, Woolhampton.
Hughes, E.	Grammar School, Cardigan.
Leigh, E. W.	Private tuition.
Lewis, H.	Highfield School, Chertsey.
Messiter, L. W.	Sundridge College, Hastings.
Milles, G. H.	Waterloo Coll., Waterloo, Liverpool.
Noakes, G. E.	2 Church Road, Birkenhead.
Phillips, P.	Harlesden College, N.W.
Raworth, C.	Weston School, Bath.
Shaw, W.	Almondbury Grammar School.
Thwaites, B.	Exmouth College.
Bradley, J. B.	Dudley Grammar School.
Davis, W.	Weston School, Bath.
Hawkins, C. S.	Kingston School, Yeovil.
Hensman, G.	Mary St. House School, Taunton.
Howat, D. W.	Dudley Grammar School.
Ingram, D. S.	Kurnella, Bournemouth.
Kenny, W.	St. Mary's College, Woolhampton.
Muse, J. W.	Royal Gram. S., Newcastle-on-Tyne.
Spensley, A. P.	Priory House School, Bridlington.
Starkey, J.	Endowed Grammar S., Northwich.
Tait, H. E.	High School, Bromley, Kent.
Thackray, P. W.	Cotes Hall College, Eccleshall.
Varley, H. F. F.	Devonshire Lodge, Wandsw'th Com.
Apps, E. M.	Arundel House S., West Malling.
Carroll, C.	St. Mary's College, Woolhampton.
Clarke, C.	Weston School, Bath.
Cleave, P. W.	Halbrake S., Wandsworth Common.
Greenwood, H.	Ampleforth College, York.
Hollingsworth, H. J.	Temple College, Forest Gate, E.
Letch, A. D.	College House School, Braintree.
McKenna, G.	St. Joseph's Acad., Kennington Rd.
Morgan, T. A.	Comm. School, Barrow-in-Furness.
Mullens, H.	Anglo-French High S., Hornsey.
O'Keefe, T.	St. Joseph's College, Brampton.
Rather, W. G.	Taplow Grammar School.
Shaw, J.	Almondbury Grammar School.

[*The following obtained Special Certificates, having each obtained a General Certificate at a former Examination.*]

Acfield, J. E.	*a.*	Southampton Boys' College.
Carter, W.	*bk.*	Woodhouse Grove School.
Guerrier, F. E.	*f. ger.*	Tollington Park College.
Lazenby, J. W.	*bk.*	Woodhouse Grove School.
Lenfestey, G. H.	*d.*	Private tuition.
Rowe, W. F.	*bk.*	Collegiate School, Penzance.
Stevens, A. G.	*d.*	Private tuition.
White, H. M.	*bk.*	Loughboro' College, Brixton.

PASS LIST OF CANDIDATES FOR CERTIFICATES OF PROFICIENCY IN MERCANTILE SUBJECTS.

Carter, W.	Woodhouse Grove School.
Crabtree, G. H.	Woodhouse Grove School.
Gaywood, F. E.	Anglo-French High School, Hornsey.
Lazenby, J. W.	Woodhouse Grove School.
Smith, B. S.	Woodhouse Grove School.

GENERAL CLASS LIST—GIRLS.

(*For list of abbreviations see page* 352.)

FIRST CLASS.—HONOURS DIVISION.

Burgis, C. M.	*s. f. ger.*	Stamford Hill High School, N.
Bromley, A. E.	*a. f.*	Stamford Hill High School, N.
Wilkins, E.	*e. a. bk. nat.*	Private study.
Richardson, L. M.	*e. ger.*	The College, Huddersfield.
Newlyn, C. E.	*e. l. d.*	Harrietsham Villa, Slough.
Grierson, A.	*a.*	7 Hyde Terrace, Tollington Pk.
Radford, A.	*s. f. nat. d.*	Fairfield College, Exmouth.
Nicholls, E. J.	*a.*	Brownhills House, Southampton.
Leese, G.	*e. d.*	Wintersdorf, Southport.
Joslin, E. M.	*a.*	Wintersdorf, Southport.
Underdown, L.	*s. e. mu.*	Wm. Gibbs, High S., Faversham.
Leese, H.	*e.*	Wintersdorf, Southport.
Clarkson, F. T.		Rosemont Girls' S., Bishopston.
Klamborowski, M. A. B.		Old Vicarage S., Clare, Suff'lk
Patching, M.	*s. e. d.*	Jerningham House, Tunb. Wells.
Berry, K.		The College, Huddersfield.
Davis, F. M.	*s.*	Ladies' College, Goudhurst.

FIRST CLASS.—PASS DIVISION.

Rippman, M. C.	*e. f. ger.*	Manor Mount S., Forest Hill.
Shaw, K. M. B.	*e. f. ger. i.*	Wintersdorf, Southport.
Scott, E. M.	*s. e. f.*	Priory House, York.
Noble, I.	*d.*	Wintersdorf, Southport.
Stainer, B. M.	*f. mu.*	Glenholme, Basingstoke.
Topham, G.	*s. e.*	Priory House, York.
Weston, A.		Ladies' College, Goudhurst.
Cooper, M. E.	*mu.*	Malden House S., New Malden.
Whiting, E.	*s. e. mu.*	Wm. Gibbs, High S., Faversham.
Hogan, K. S. L.		High S. for Welsh Girls, Ashford.
Marshall, E. G.		The College, Huddersfield.
Blydt, E. B.	*ger. d.*	Collegiate High S., Didsbury.
Rossiter, C. M.	*d.*	Uppingham High S. for Girls.
Stephens, M. S.	*s.*	Private study.
Buckley, E. F.		Wintersdorf, Southport.
Ryan, E. M.	*f. ger. bk.*	Trinity House, Halstead.
Candler, A. R.	*ger.*	Private tuition.
Frearson, A.	*e.*	Sunny Bank, Haulgh.
Hughes, K. M.		High S. for Welsh Girls, Ashford.
Smart, M. E.	*s.*	High S. for Welsh Girls, Ashford.
Routley, M. L.		Red Maids' School, Bristol.
Stanley, E. C.	*e. d.*	Wintersdorf, Southport.
Seal, F. J. E.		Cleveland College, S. Hackney.
Watson, A.	*s. e.*	Wintersdorf, Southport.
Amery, M. D.	*s.*	Ellerker College, Richmond Hill.
Jones, C. H.	*e. f. ger.*	High S. for Welsh Girls, Ashford.
Craddock, L. M.		Stamford Hill High School, N.
Kirk, L. H.		The College, Huddersfield.
Partlo, M.	*f.*	Westholme, Maidenhead.
Kemp, A.	*e. f.*	Wintersdorf, Southport.
Tyler, T.		Bishopsgate Girls' School, E.C.
Dannatt, E. C. H.		The College, Huddersfield.
Haslam, S. E.	*d. mu.*	Uppingham High S. for Girls.
Davis, E. B.	*mu.*	Ladies' College, Water Orton.
Sedgwick, V. M. H.	*ger.*	The College, Huddersfield.
Brown, L. M.		Belmont, Dover.
Davis, C. I.	*ger.*	Goat St. Coll., Haverfordwest.
Scarborough, A. M.	*s.*	Private study.
Trench, K. E.	*ger.*	Blenheim House, Bournemouth.
Willis, H.	*ger.*	High School, New Brighton.
Hughes, E.	*s. ger. d.*	Howell's School, Denbigh.
Matthews, F. D.		Higher Tranmere High School.
Shenton, J.		Ellerker College, Richmond Hill.
Bull, E.		The Laurels, Wetherden.
Elliott, A. F.		Manor Mount S., Forest Hill.
Greaves, E. D.	*mu.*	Wintersdorf, Southport.
Heanley, K.	*e.*	Private study.
Carter, M.		Wintersdorf, Southport.
Hulbert, F.	*ger.*	Private study.
Lumgair, M. C.		Higher Tranmere High School.
Mote, C. R. A.	*nat.*	Manor Mount S., Forest Hill.
Perkins, M. B.		Uppingham High S. for Girls.
Burkill, N. K.		Cambridge Coll., Twickenham.
Rossiter, G. M.		Uppingham High S. for Girls.

GIRLS, FIRST CLASS—*Continued.*

Allsop, H. C.	*s.*	Jerningham House, Tunb. Wells.
Davis, M. L.		Olney House, Hastings.
Davey, L. M.		Westgate House S., Peterboro'.
Oakey, J.	*bk.*	Private tuition.
Parkinson, F. L.		Trinity House, Halstead.
Hulbert, E.	*ger.*	Private tuition.
Varwell, G. J.		36 Balmoral Rd., Fairfield, L'pool.
Long, A.		Ladies' School, Gordonville, Coleraine.
Bridgland, B.		Jerningham Houes. Tunb. Wells.
Griffiths, A. E.		High S. for Welsh Girls, Ashford.
Vanes, M.		Private study.

SECOND CLASS.—1ST DIVISION.

McNeile, A. H.	*d.*	Church of England High S., Byfleet.
Henderson, A.		Gravesend Proprietary School.
Kirby, E.	*f.*	Private tuition.
Hobday, M.		Wm. Gibbs' High S., Faversham.
Mathieson, M. L.	*nat.*	Cleeve House S., South Hackney.
Brailsford, M. R.	*s.f.*	Wintersdorf, Southport.
Wermelinger, P. E.	*f. ger.*	Private study.
Le Mare, M. R.		Stamford Hill High School, N.
Underdown, G.		Wm. Gibbs' High S., Faversham.
Taylor, M. A.		Broomfield High S., Manchester.
Bartholomew, C. G.		Fonthill College, Gt. Malvern.
Gange, B.		Welby House, Ramsgate.
Goodyear, J. E.		Castle Hill Ladies' S., Maidenhead.
Starkey, A.		London Orphan Asylum, Watford.
Whiting, M.		Wm. Gibbs' High S., Faversham.
Crawford, A. H.		Ladies' S., Gordonville, Coleraine.
FitzHerbert, E.	*ger.*	Blenheim House, Bournemouth.
Tomkins, A. L.		Gravesend Proprietary School.
Unkles, M. L.		Ellerker College, Richmond Hill.
Hunt, G.		Wm. Gibbs' High S., Faversham.
McNeile, E. R.		Church of England High S., Byfleet.
Britten, L. M.		Com.&Coll. Training S., Maidenhead.
Lloyd, B. E.	*d.*	Manor Mount School, Forest Hill.
Coulson, M. C. E.		Stroud Green High School, N.
McNeile, A. M.	*f. mu.*	Church of England High S., Byfleet.
Pitt, E.		The College, Huddersfield.
Spencer, E. B.		Datchelor Coll. S., Camberwell.
Dampier, C. M.		Palmer's Endowed School, Grays.
Okey, G. E. H.		Brownhills House, Southampton.
Dunn, A. E.		Stroud Green High School, N.
Smith, E. G.		Finchley Girls' School, N.
Cotton, C. H.		Welby House, Ramsgate.
Payne, I. E.	*nat.*	Burlington Mid. Class Girls' S., W.
Barker, A. G.	*nat.*	Bridport High School.
Hall, L. M.		Western House School, Nottingham.
Hurrell, A. H.	*f. ger.*	Searsdale House, Streatham Hill.
Boyce, F. M.		London Orphan Asylum, Watford.
Lloyd, A. E.	*ger.*	Hr. Tranmere High School.
Mosby, E. G.		Clifton House, Swinton.
Heaton, P.		The College, Huddersfield.
Prince, M. E.		Private tuition.
Wigdahl, H.		Convent S., Brompton Square, S.W.
Wotherspoon, A. H.	*d.*	Stroud Green High School, N.
Taylor, N.		Private tuition.
Alexander, W.		7 Hyde Terrace, Tollington Park.
Johnson, E.		7 Hyde Terrace, Tollington Park.
Abbott, L. M.		Ladies' College, Goudhurst.
Harvey-Jellie, M.		Morley College, Brockley, S.E.
King, K. F. C.		St. George's Coll., W. Hampstead.
Aldham, J. E.		Lewisham College, S.E.
Allen, B.		Broomfield High S., Manchester.
Eldridge, E. A. M.		Hamilton College, Sidcup.
Ellis, L. A.		Woodland House School, Thirsk.
Klamborowski, F. C. S.		Old Vicarage School, Clare, Suffolk.
Taylor, M. E.		Stroud Green High School, N.
Astle, E. M.		Melrose, Lowestoft.
Barnett-Smith, M. M. J.		Lewisham College, S.E.
Simon, S. S.		Wintersdorf, Southport.
Willcox, M. M.	*d.*	Private tuition.
Christie, R.		S.W. London College, Clapham Rise.
Humphreys, E. G.		Gravesend Proprietary School.
Banee, V. M.		Southampton Girls' College.
Dutton, A. B.		Private tuition.
Wilkinson, B. A.		Glebe Land School, Rochdale.
Baker, M. A.		Private tuition.
Hill, E.		London Orphan Asylum, Watford.
Ledgerwood, M. F.		Private study.
Walser, A.		Stroud Green High School, N.
Carpmael, Isabel.		Private tuition.
Wiles, E. B.		Lady Holles's School, Hackney.
White, I. E.		High S. for Welsh Girls, Ashford.
Haigh, M. L.		Fern Lea, Manchester.
Holme, L.		Stroud Green High School, N.
Mearns, L. B.	*a.*	Ladies' S., Gordonville, Coleraine.
Dunn, C. A.		St. Heliers, Stamford Hill, N.
Brewis, E. E.		Ladies' College, Goudhurst.
Carter, M.		Boldmere College, Erdington.
Davies, E. E.		Hill House College, Haverfordwest.
McGowan, A. G.		Wintersdorf, Southport.
Ure, W. E.	*d.*	Finchley Girls' School, N.
Ainley, M. E.		The College, Huddersfield.
Ashby, B. M.		Wintersdorf, Southport.
Collins, E.	*f.*	Abingdon College, Kensington.
Cregeen, A. A.		Holmeroft, Bromley, Kent.
Mitchell, S. H.		Victoria College, Belfast.
Court, E. C.	*e.*	Princess Helena College, Ealing.
Edwards, M.		York House, Kilburn Priory.
Rubie, K. M.		Hamilton College, Sidcup.
Walker, G. P.		Clarendon College, Tufnell Park, N.
Buscall, C. A.		Lady Holles's School, Hackney.
Lee, A. M.		Private tuition.
Morton, A. E.		High S. for Welsh Girls, Ashford.
Player, E.		Holmeroft, Bromley, Kent.
Swanwick, E. M.	*ger. d.*	Private tuition.
Tepper, P. E.		Tooting High School, S.W.
Andrews, C. E.		High School, Radcliffe, Manchester.
Batten, G. A. M.		Private tuition.
Holt, N.		St. Winifred's S., Southampton.
Paine, R. I.		The Ridgway School, Enfield.
Bourne, E. M. D.		Wylde Green School, Birmingham.
Cremer, J.		Wm. Gibb's High S., Faversham.
Dolby, E. M.		Private study.
Ducker, B. S.		Onslow Hall School, Fulham.
Goddard, M. L.		Gravesend Proprietary School.
Alcock, M.		Priory House, York.
Bushell, L.		Westbourne House S., Chiswick.
Kent, F.		Leith House, Acton.
Lewis, F. A.		Abbotsford Ladies' School, Bristol.
Simpson, L.		Victoria College, Belfast.
Watkinson, M.		Woodland House School, Thirsk.
Went, G. M.		Private tuition.
Bray, M.		Thorncliffe, Bournemouth.
Halstead, M. A.		The College, Huddersfield.
Lancaster, M.		Melbourne House College, Clapton.
Richards, L. G.		Lansdown House, Stroud.
Timms, G.		Tudor House, Brixton Road.
Braddock, E. B.		Broomfield High S., Manchester.
Crawford, A. J. D.		Manor Mount School, Forest Hill.
Fraser, H. E.		Belle Vue House, Hurstpierpoint.
Gilbert, A. K. M.		Fairfield, Cotham Park, Bristol.
Jenkins, G.		Oakhurst, Ealing.
Osborne, A. M.	*nat.*	Datchelor Collegiate S., Camberwell.
Taylor, L.		Private tuition.
Edington, E. G.		Pemberton College, Highgate Hill.
Rose, E.		Manor Mount School, Forest Hill.
Breach, M.		South Bristol Girls' High School.
Miller, B. A.		Lady Holles's School, Hackney.
Armstrong, E. M. S.		Church of England High S., Byfleet.
Burton, I.		Wintersdorf, Southport.
Ede, M. B.	*d.*	Collegiate High School, Didsbury.
Haxell, E. M.		The Climb, Forest Hill, S.E.
Lazenby, H. E.		Priory House, York.
Milliken, A. M. M.		Ladies' S., Gordonville, Coleraine.
Thorpe, B.		Church House, Stoke Newington.
Bennett, M.		Clevedon High School.
Collier, R.		Field House Coll., Heaton Chapel.
Early, E. H.		Wintersdorf, Southport.
Hope, M. E.		Camperdown, West Dulwich.
Hart, D. S. B.		Belmont, Dover.
Coates, A.		Camperdown, West Dulwich.
McFaul, M. K.		S. Joseph's Conv., Claylands Rd., S.W
Carpmael, Ida.		Private tuition.
Doman, A. E.		Cambridge House, Chichester.
Turner, M.		Lewisham College, S.E.
Gamble, J. E.		Lewisham College, S.E.
George, B.		Private study.
Haydon, G.		Bridport High School.
Hockey, S. F.	*d.*	Maidenhead High School.
MacArthur, M. C.		Ormond House, Paignton.
Radford, L.		Fairfield College, Exmouth.
Ravaison, I. F.		Maida Vale College, W.

SECOND CLASS.—2ND DIVISION.

Britten, E. E.		Com. & Coll. Training S., Maidenhed.
Burrows, E.	*bk.*	The Hall, Billingborough.
Judge, E. F.		Chess Vale House School, Chesham.
Ravaison, E. M.		Maida Vale College, W.
Boffin, M. W.		Abbotsford College, Stroud.
Cole, M. J.		Banham Grammar S., Attleboro'.
Horton, K.		Harborne Ladies' College.
Cole, A.		Private study.
Martin, M. E.		Stroud Green High School, N.
Newton, E. E. F.	*s.*	Private tuition.
Sessel, M. F.		Pembal House, West Brighton.
Sparshott, A. L.		Brownhills, House, Southampton.
Wallis, C. M.		Private tuition.
Bagshaw, M.		Norwood College, Withington.
Barbour, M. E.		Victoria College, Belfast.
Britten, J. M.		Com.&Coll. Training S., Maidenhead.
Legg, A.		Girton House, Yeovil.
Moore, M.		Victoria College, Belfast.
Radcliff, E. G.		36 Balmoral Rd., Fairfield, L'pool.
Williams, A.		Stratford Abbey College, Stroud.
Bowman, M.		Jerningham House, Tunbridge Wells.
Cressall, L.		Finchley Girls' School, N.
Ede, F. C.		Collegiate High School, Didsbury.
Holder, M.		High School, Tewkesbury.
Kemp, A. M.		Wintersdorf, Southport.
Kendon, E. A.		Ladies' College, Goudhurst.
Richardson, E. T.		Malden House S., New Malden.
Hall, K. E.		Cambridge House, Warminster.
Hamilton, M. R.		Church of England High S., Byfleet.
Heron, M.		Marlowe House, Southall Green.
Strutt, E. C. M.		9 Kingsgate Street, Winchester.
Tidmarsh, E. G.		10 Darnley Road, Notting Hill.
Elder, M.		Southolme High S., Whalley Range.
Hannay, M. I. F.		Stamford Hill High School, N.
Klamborowski, V. B. G.		Old Vicarage School, Clare, Suffolk.
Littlewood, H.		The College, Huddersfield.
Mitchell, J. F. C.		Lewisham College, S.E.
Ward, E. C.		Ellerker College, Richmond Hill.
Barrett, R.		Stratford Abbey College, Stroud.
Hammill, E. M.		Leam House School, Kensington.
Hereford, V. S.		Malden House S., New Malden.
Langdale, E.		Craigholm, Buxton.
Patching, A.		Jerningham House, Tunbridge Wells.
Buckland, F. E.		Ryeford Hall, Stonehouse, Glos.
Phillips, M.		St. Winifred's S., Southampton.
Redpath, R.		Trebovir House S., Earl's Court.
Roberts, A. E.		Fern Villa, Hayling Island.
Barber, E. I.		Girton House, Yeovil.
Crossley, L.		Priory House, York.
Curling, C.		Wm. Gibbs' High S., Faversham.
Ford, A. M. M.		138 Osborne Road, Forest Gate.
Poole, M. A.		Wellington Rd. School, Camborne.
Scott, J.		Camperdown, West Dulwich.
Toy, H. I.		George Green School, Poplar.
Wardale, E.		London Orphan Asylum, Watford.
Gething, E. M.		3 Arthur Terrace, Prestwich.
Hunt, M.		Camperdown, West Dulwich.
McMullen, L.		Tudor House, Brixton Road.
Powell, F. K.		1 Royal York Crescent, Clifton.
Tapp, E. A.		Private tuition.
Andrews, M.		Lewisham College, S.E.
Blackman, F. M.		Brownhills House, Southampton.
Blackwell, A. H.		Curzon House School, Portsmouth.
Brice, E. M.		Westbourne House S., Chiswick.
Groves, M. E.		Wintersdorf, Southport.
Harris, S. L.		17 Tavistock Place, Plymouth.
Hemsley, C. E.		Chiswick High School for Girls.
MacKenzie, M. H.		Craigholm, Buxton.
Sanderson, K.		Craigholm, Buxton.
Smith, F. A.		Holdstock Coll., Upper Holloway.
Taylor, L. E.		Private tuition.
Barber, M. N.		16 Edward Street, Sheerness-on-Sea.
Mack, J. F.		Ladies' S., Princess Gdns., Belfast.
Margarson, E. A.		Fairfield House S., East Dereham.
Packer, E.		Wm. Gibbs' High S., Faversham.
Peachey, B. M.		Essex House S., Woodford Green.
Richardson, M.		Knightsville College, Lewisham.
Smith, A.		Field House Coll., Heaton Chapel.
Wise, L.		Stratford Abbey College, Stroud.
Bartlett, K.		High School, Crewkerne.
Hall, G.		St. Heliers, Stamford Hill, N.
Jones, A. M.		Dr. Williams' School, Dolgelly.
Morgan, F.		Stamford Hill High School, N.
Nye, M. M.		Bromley Preparatory School, Kent.
Adams, E. M.		South Bristol Girls' High School.
Baines, F.		Cashiobury House, Southend.
Bishop, A. M. J.		S. Joseph's Conv., Clayland's Rd. S.W
Brown, E. A. R.		Lady Holles's School, Hackney.
Cracknell, E. M.		Melbourne House College, Clapton.
Ford, A. E.		7 Clapton Square, N.E.
Garnham, C. A. L.		39 Central Hill, Upper Norwood.
Kentfield, E. M.		Alexandra House S., Newport, I.W.
Knowles, J. M.		4 Chapel Street, Devonport.
Peat, E.		Chertsey House, Red Hill.
Pells, L.		Melrose, Lowestoft.
Symonds, E. P.	*bk.*	Collegiate S., Ealing Rd., Brentford.
Blackwell, A. M.		South College, Kettering.
Emery, K.		Plas Menai School, Upper Bangor.
Gay, M. M.		Brownhills House, Southampton.
Gibson, K.		Grammar School, Rastrick.
Hunt, M.		Riversdale, Acock's Green, B'ham.
Nash, M. H.		Keswick House, Blackheath.
Stanes, M. I.		High Class S., Greystone, Yeovil.
Weatherly, E.		South London College, Brixton Rd.
Westren, E. M.		Moravian Ladies' S., E. Tytherton.
Arundell, E.		Westholme, Maidenhead.
Berry, J.		Wm. Gibb's High S., Faversham.
Butlin, F.		7 Hyde Terrace, Tollington Park.
Henderson, A. M.		Private tuition.
Higgins, E.	*d.*	Edgeworth House S., Finsbury Pk.
Hindley, M.		Beech House School, Eccles.
Moth, E.		Private tuition.
Schwind, M.		Collegiate High School, Didsbury.
Wood, E.	*d.*	Private tuition.
Collison, M.		Camperdown, West Dulwich.
Edmondson, A.		Norwood College, Withington.
Jenkins, A. M.		Gravesend Proprietary School.
Kough, P. C.		Manor Mount School, Forest Hill.
Rooker, A.		Plas Menai School, Upper Bangor.
Briggs, E.		Private tuition.
Collard, F.		South London College, Brixton Rd.
Cooper, M.		Cheltenham Public Day School.
Edwards, M.		Wm. Gibbs' High S., Faversham.
Poley, L. W.		Searsdale House, Streatham Hill.
Prince, I. G.		Private tuition.
Vialou, B.		7 Hyde Terrace, Tollington Park.
Beamish, W. M.		East Finchley High School, N.
Jordan, R. F.		Collegiate High School, Didsbury.
Jotham, E. H.		Cashiobury House, Southend.
Matthews, E. G.		Stamford Hill High School, N.
Perkin, R. A.		Betley Ladies' College.
Smith, F. H.		The Hollies, Malvern.
Wilson, F. L.		Cambridge House, Chichester.
Wright, P. A.		Homeleigh, Egham.
Anderson, M. H.		Manor Mount School, Forest Hill.
Burnham, E. M.		Ladies' College, Goudhurst.
Dunn, M.		Wm. Gibbs' High S., Faversham.
Hartley, W. J.	*d.*	Plas Menai School, Upper Bangor.
Kerr, M. B.		Manor Mount School, Forest Hill.
King, L.		Curzon House School, Portsmouth.
McMaster, S.		Victoria College, Belfast.
Shrapnel, B. A.		44 Angell Road, Brixton.
Trounce, M. M.		7 Clapton Square, N.E.
Wates, D. R.		Private tuition.
Wilson, G.		Sefton House, West Derby.
Wood, A. E.		Claremont House, N. Kensington, W.
Wood, F.		High S., Queen's Coll., Birmingham.
Belfield, L.		Norwood House, Liverpool.
Cholerton, F.		Irvine House, Derby.
Courtenay, E. M.		Belgrave House, Bowdon.
Dobie, B.		Camperdown, West Dulwich.
Everill, W. M.		Curzon House School, Portsmouth.
Hunt, M. C.		Maidenhead High School.
Jolly, C. F. J.		St. John's College, Brixton.
MacGregor, I. H.		Finchley Girls' School, N.
Noakes, E. M.		2 Church Road, Upton, Birkenhead.
Underwood, F.		7 Hyde Terrace, Tollington Park.
Warburton, M. T.		Grove House, Heaton Chapel.
Wheeldon, N. B.		Craigholm, Buxton.
Fisher, E. E.		Gravesend Proprietary School.
Hooper, C. M.		St. Kilda, Reigate.
Quilliam, H. M.		High School, New Brighton.
Stace, F. M.		Westbourne House S., Chiswick.
Waters, E.		Jerningham House, Tunbridge Wells
Webb, E.		Collegiate School, Waltham Cross.
Beaumont, A.		Oak Hill, Huddersfield.
Esdaile, F. L.		"Highfield," Highbury Place, N.
Goldney-Cary, E.		Stratford Abbey College, Stroud.
Hill, E. A.		Grove House, Heaton Chapel.
Maskell, F.		Braemar College, Stroud Green.
Needham, F. G.		Private tuition.

GIRLS, SECOND CLASS—*Continued.*

Panton, M. E.	Southolme High S., Whalley Range.
Smith, J.	The College, Huddersfield.
Clay, D.	141 Bridge Street, Gainsborough.
Clutten, E.	St. Mary's School, Bungay.
Green, F.	High S., Queen's Coll., Birmingham.
Lovell, E. J.	Airedale House S., Gravesend.
Oake, E. S.	Private study.
Phillips, M. J.	S. W. London Coll., Clapham Rise.
Wilkerson, J. M.	Castle Hill Ladies' S., Maidenhead.
Bass, S.	South Bristol Girls' High School.
Day, M. E.	Queen's College, Twickenham.
Harrison, A.	Trebovir House S., Earl's Court.
Lynch, H. M. R.	High School, Notting Hill.
Stapleton, C.	Church House, Stoke Newington.
Traill, E. E.	Glebe Place S., Stoke Newington.
Beusted, K. A.	Holt House School, Fakenham.
Day, K. E.	Stamford Hill High School, N.
Etheridge, A.	Private tuition.
Lucas, R. M.	*f.* Private tuition.
Nash, B. M.	Russell House S., Wandsworth Com.
Whitford, M. E.	Amble Cottage, Streatham.
Ansell, G.	Stanmore College, Balham.
Branford, A.	Wm. Gibb's High S., Faversham.
Edwards, W.	Burlington Ho. S., Redland, Bristol.
Ellis, C. M.	Cecile House Coll. S., Crouch End, N.
Fitch, E. M.	Westholme, Maidenhead.
Jones, S.	South Bristol Girls' High School.
McClenaghan, M.	Cumberland Lodge, Croydon.
Pearse, W. M.	Cambridge House, Chichester.
Snowball, A. D.	Brookside School, Darlington.
Wall, E. M.	The College, Huddersfield.
Bevan, L. G.	Bastion House, Gloucester.
Cook, M. C.	Kensington House, York.
Jackson, F. S.	North London Collegiate S., N.W.
James, E.	1 Royal York Crescent, Clifton.
Johnson, B. M.	"Elmhurst," Broxbourne.
Price, E. B.	The Climb, Forest Hill, S.E.
Whale, B.	Avenue School, Winchester.
Bell, J. E.	Melbourne House Coll., Clapton.
Collier, E. M.	Private tuition.
Corby, F. I.	Private study.
Dimock, G. E.	Maida Vale College, W.
Franklyn, K.	Elm House School, Ealing Dean.
Green, M. E. O.	Collegiate House, Leicester.
Hatton, E.	High S., Queen's Coll., Birmingham.
Martin, E. S.	Oxford College, Gunnersbury.
Morgan, E.	17 Tavistock Place, Plymouth.
Paull, V.	Wellington Rd. School, Cambourne.
Wotherspoon, M. J.	Private tuition.
Colson, C. C.	Lewisham College, S.E.
Jones, E. G.	"Ronhilda" Ladies' School, Rhyl.
Meinertzhagen, J. M.	Lewisham College, S.E.
Menpes, M.	The Lowestoft High School.

SECOND CLASS.—3RD DIVISION.

Alcock, H. E. E.	St. Mary's School, Bungay.
Cook, M. E.	Wanstead High Grade School.
Crane, A. C.	Ladies' School, Litcham, Norfolk.
Farndale, M. E.	Kensington House, York.
Lambert, M. G.	Falcon House, Whitby.
Lidbetter, C.	Ladies' College, Water Orton.
Radclyffe, S.	Burlington Middle Class Girls' S., W.
Winship, E. M.	St. Winifred's S., Southampton.
Beale, M. R.	Burlington Ho. S., Redland, Bristol.
Haughton, P.	Chorley Grammar School.
Lucas, E.	Welby House, Ramsgate.
Smith, O.	Kingston School, Hull.
Adam, A. M.	Airedale House School, Gravesend.
Cozens, K.	The Hollies, Malvern.
Rudderforth, E. L.	Cambridge House, Warminster.
Trist, E. A.	31 Torrington Place, Plymouth.
Bishop, C. M. G.	S. Joseph's Conv., Claylands Rd., S.W
Cumberland, E. C.	Stamford Hill High School, N.
Flewker, G.	The Beeches, Wolverhampton.
Hart, E. M.	Stroud Green High School, N.
Innes, M. C.	Holdstock Coll., Upper Holloway.
Sanford, A. E.	Tunbridge House S., Twickenham.
Archer, E. F.	4 Jersey Villas, Hounslow.
Aumonier, L. N.	Victoria House Coll., Up. Tooting.
Creasey, E.	South College, Kettering.
Daw, A. H.	Marlborough College, Exeter.
Say, E. M.	5 Bradninch Place, Exeter.
Stephenson, R. A. O.	Uppingham High School for Girls.
Wood, F. M.	Private study.
Baskerville, B.	Lonsdale S., Coventry Pk., Streath'm
Lorimer, C.	Tinwald, Rock Ferry.
Bennett, A. E.	Goat Street College, Haverfordwest.
Haslam, C. M.	Uppingham High School for Girls.
Heins, A. M.	Harley House School, Hereford.
Myers, M.	Copthorne, W. Brighton.
Owles, E. C.	Osmond House, Botesdale, Diss.
Snellgrove, G.	Fern Bank, Wandsworth Common.
Townsend, R. H.	Grove House, Heaton Chapel.
Carse, L.	Victoria College, Belfast.
Chadwick, M.	Glebe Land School, Rochdale.
Cruse, A. F.	Cambridge House, Warminster.
Davis, F.	Elgin College, Maida Vale, W.
Dawson, E. C.	Elizabethan School, Framlingham.
Hope, J. I.	Warlaby House School, Lee, S.E.
Hutt, M. M.	Edengale, Lowestoft.
Walton, H.	Grove House, Heaton Chapel.
Wehlisch, H. G.	The Beeches, Wolverhampton.
Curle, M. A.	Grove House, Southend.
Dean, A.	2 Albert Road, Birkdale.
Hodge, G.	17 Tavistock Place, Plymouth.
Holdsworth, A.	The College, Huddersfield.
Paine, N. E.	The Ridgway School, Enfield.
Warner, E.	Elmhurst, Broxbourne.
Nicol, G. R. B.	St. Kilda, Reigate.
Raundrup, S.	Collegiate High School, Didsbury.
Sargeant, L.	31 Brigstock Rd., Thornton Heath.
Smith, H. J.	Keswick House, Blackheath.
Geymet, F. M.	High S. & Kindergarten, Hastings.
Steavenson, M. F.	18 St. Ann's Villas, Notting Hill.
Stocken, E. M.	Keswick House, Blackheath.
Wastle, J. A.	78 Waterloo Road, Blyth.
Dunn, K. E.	Cambridge College, Twickenham.
Evans, E. A. F.	Clarence House, Filey.
Green, K. A.	St. Heliers, Stamford Hill, N.
Kinder, E.	The College, Huddersfield.
Knowling, S.	Clapham Park Ladies' College, S.W.
Lambert, I.	Collegiate High School, Didsbury.
Milnes, A. E.	The College, Huddersfield.
Shepherd, M.	Ellerker College, Richmond Hill.
Bennett, E. A.	Chorley Grammar School.
Comely, L. A.	Harborne Ladies' College.
Fowler, F.	Riversdale, Acock's Green, B'ham.
Haslam, N. G.	Uppingham High School for Girls.
Ramsay, M. J.	Finchley Girls' School, N.
Wood, L. W.	Berwick House School, Bath.
Blanning, L.	Norton Villa, Midsomer Norton.
Boswell, I. M.	Anglo-French School, Leamington.
Genge, T.	High School for Girls, Tisbury.
Ingleby, E. M.	The Terrace School, Chesterfield.
James, F.	St. Margaret's, Cardiff.
Mitchell, M. K.	Woodville House S., Birchington.
Yates, K.	The Beeches, Wolverhampton.
Coghill, A. I.	Princess Helena College, Ealing.
Garrood, G.	Cambridge House, Clifton, York.
Lewis, F. G.	Cambridge House, Warminster.
Woolf, M.	Pombal House, West Brighton.
Wyborn, R. E.	Private study.
Allen, J. A.	Collegiate House, Leicester.
Armour, M. S.	Russell House School, Wandsworth.
Candy, A. M.	Berwick House School, Bath.
Chamberlain, L.	High School, Herne Bay.
Connell, M. C.	Hillersdon House, Barnes.
Dean, E. G.	Hawthorn House, Clapham.
Ingram, E. J.	Danehurst, Sidcup.
Kirk, F. E.	Clifton House School, Leamington.
Miller, E. M.	Cecile Ho. Coll. S., Crouch End, N.
Cleare, M. M.	7 Clapton Square, N.E.
Copinger, E. G.	The Grange School, Davyhulme.
Salisbury, L. E.	Merion House, Brierley Hill.
Stewart, G.	Cheltenham Public Day School.
Curwen, E.	Wintersdorf, Southport.
Gookey, E. I.	Private study.
Phillips, H. E.	Keston H., Lady Margaret Rd., N.W.
Hutchens, M. E.	Granville House, Hornsey Rise.
Kent, A.	Handsworth High School.
Marshall, G. A.	Lewisham College, S.E.
Dines, A.	Wanstead High Grade School.
Guinan, C.	2 Albert Road, Birkdale.
Lawner, M. K.	Private tuition.
Murray, L.	S.W. London Coll., Clapham Rise.
Branthwaite, E. T.	Cambridge College, Twickenham.
Greene, M. R.	Paignton High School for Girls.
Hawkins, E. E.	The Hollies, Handsworth.
Manley, K. A.	Palmers' Endowed School, Grays.
Miles, M. M.	Private tuition.
Wescott, A.	Winford Villa School, Bristol.
Huston, E. M.	Elizabethan School, Framlingham.
Leach, F. J.	Carlton House School, Eccles.
Parsons, J. M.	St. Leonards, Seaton, Devon.
Roofe, I. L.	Market House School, Reepham.
Wills, J.	7 Hyde Terrace, Tollington Park.
Morris, L. M. E.	11 Frederick Place, Clifton.
Bond, E. L.	Private tuition.
Hamer, E.	Norwood College, Withington.
Lawson, J.	Rathmore, Clifton.
Moon, E. L.	Strood Hill School, Rochester.
Joachim, D.	Trebovir House S., Earl's Court.
Woodman, H.	Private tuition.
Morris, R.	Mornington House, Clapham Road.
Young, A. M.	Wavertree Academy, Liverpool.
Wilcox, K. E.	Oxford College, Gunnersbury.
Wilson, E.	Girton House, West Brighton.
Horsley, M. F.	East Finchley High School, N.
Jones, S. J.	Plas Menai School, Upper Bangor.
McAllister, E. A.	Higher Tranmere High School.
Pagenkopf, M.	Buckland House, Axminster.
Passingham, N.	Elgin School, Chepstow Villas, W.
Peck, E. J. G.	Highfield School, Harrogate.
Prior, M.	Cumberland Lodge, Croydon.
Bertram, S.	Camperdown, West Dulwich.
Buckley, A. H.	Mount Pleasant, Barnsley.
Storey, M.	Southolme High S., Whalley Range.
Dobson, L.	Ladies' S., Antrim Road, Belfast.
Haslip, A.	Cashiobury House, Southend.
Hayton, M.	Wm. Gibbs' High S., Faversham.
Whetham, M.	Bridport High School.

THIRD CLASS.—1ST DIVISION.

Lee, A. M. M. *ger.*	The College, Huddersfield.
Lamb, C. M.	St. Dunstan's College, Eastbourne.
Esplin, M. *d.*	Wintersdorf, Southport.
Von Eckardt, M. T. E. *f. ger.*	La Haye, Hastings.
Thomas, M.	Camperdown, West Dulwich.
Alsop, L. S.	Private study.
Ness, M. B.	The High School, Darlington.
Boddam, M. *ger.*	Camperdown, West Dulwich.
King, F. E.	Milford House, Abergavenny.
Lee, I.	Ladies' College, Goudhurst.
Salter, E. M.	St. George's College, W. Hampstead.
Stent, S. M.	31 Brigstock Rd., Thornton Heath.
Underwood, M. C.	Private study.
Fox, A. A. De C. *ger.*	Blenheim House, Bournemouth.
Deck, A.	High Class School, Beeeles.
Warrington, M.	Wintersdorf, Southport.
Davis, M. J.	Ladies' College, Goudhurst.
Pike, M. M. M.	Higher Tranmere High School.
Walton, D. M.	Ringstead School, Catford.
Edwards, C.	La Retraite, Balham, S.W.
Hope, E. M.	Private tuition.
Mead, M. B.	Cashiobury House, Southend.
Figgess, K.	Holmcroft, Bromley, Kent.
Johns, R. H.	Girls' Collegiate S., Carmarthen.
Perry, F.	Wood Vale High S., Forest Hill
Pitcher, J.	Wm. Gibbs' High S., Faversham.
Patterson, M. W.	Lewisham College, S.E.
Taylor, L.	Private tuition.
Bartle, M. G. *d.*	Holt House School, Fakenham.
Williamson, A. L.	The Roystons, Chiswick.
Davis, M. H.	Manor Mount School, Forest Hill.
Kendall, E. M. *d.*	Breakspear College, Brockley, S.E.
Lake, E. A.	9 Kingsgate Street, Winchester.
Perrott, E. M.	Grattan House, Great Malvern.
Clissold, E.	Private tuition.
Glover, C. H. M.	Sefton House, West Derby.
McClymont, A.	Hartfell College, Southport.
Trimmer, L.	Areville College, Rhyl.
Wheeler, J. E.	Breakspear College, Brockley, S.E.
Hamilton, K. A.	Dutfield House, West Norwood.
Jelly, A. G.	Private tuition.
Davies, E.	Girls' Collegiate S., Carmarthen.
Pennock, E.	Tooting High School, S.W.
Simms, F.	Cashiobury House, Southend.
Bowkett, H.	Beech House School, Eccles.
Buchanan, E.	S.W. London College, Clapham Rise.
Davey, S. E. R.	Westgate House S., Peterborough.
Elliott, A.	Wm. Gibbs' High S., Faversham.
Longhurst, M.	Claremont, Margate.
Monestier, L.	Warwick House, Brixton Hill.
Pain, E.	Chiswick High School for Girls.
Smith, M. A.	Betley Ladies' College.
Boveington, E. L.	Breakspear College, Brockley, S.W.
Cooley, M. H.	The Chauntry, Tuxford.
Fœlix, A. L. P.	Highbury and Islington High S., N.
Gregory, L.	Emwell House School, Warminster.
Potous, E. A.	Chiswick High School for Girls.
Caddy, M. F.	Stroud Green High School, N.
Dismorr, V. B.	Gravesend Proprietary School.
Fielden, A.	Hartfell College, Southport.
Kendall, A. E.	Breakspear College, Brockley, S.E.
Humby, H.	Stroud Green High School, N.
Gardner, C. M.	Stroud Green High School, N.
Russell, M. M.	St. Bernard's Coll. S., Southsea.
Styles, K. L.	Stroud Green High School, N.
Cross, F.	Newnham House, Sherborne.
Lehmann, M. L.	Hawthorns, Ealing Common.
Milligan, G.	Higher Tranmere High School.
Thomas, F. L.	Breakspear College, Brockley, S.E.
Walters, M.	The Elms, North Walsham.
Watson, M. F.	The Climb, Forest Hill, S.E.
Heath, F. C.	Raincliffe College, New Barnet.
Hill, A. K.	Emwell House School, Warminster.
King, A.	Stroud Green High School, N.
Mackey, M. B.	Ladies' S., Gordonville, Coleraine.
Perry, E. P. *d.*	Private tuition.
Sprange, D.	London Orphan Asylum, Watford.
Williams, L.	136 Brooke Rd., Stoke Newington.
Aldwinckle, G. E.	Highbury & Islington High S., N.
Cooper, E. S.	Stroud Green High School, N.
Hoskins, F.	High S., Queen's Coll., Birmingh'm.
Houston, G. J.	Ladies' S., Gordonville, Coleraine.
Joel, C. W.	Lady Holles's School, Hackney.
Küpli, E. A.	Stroud Green High School.
Paul, M. S.	Chesterfield Lodge, Highgate, N.
Piper, M. E.	Irvine House, Derby.
Simes, A. M.	Lady Holles's School, Hackney.
Spence, A. M.	10 Wallace Terrace, Ryton-on-Tyne.
Thurston, A. *d.*	Elizabethan School, Framlingham.
Fraser, M. J.	Ladies' Collegiate School, Belfast.
Mansell, L. F. C. F.	Tooting High School, S.W.
Newdick, F. H.	Stroud Green High School, N.
Catley, E.	Stroud Green High School, N.
Elliott, G. A.	Glebe Land School, Rochdale.
Gutteridge, M. O.	Gravesend Proprietary School.
Harding, A. A.	Whetstone House, Hr. Tranmere.
Leake, C.	Stratford Abbey College, Stroud.
Peace, M. F.	Wintersdorf, Southport.
Tait, E. H.	Higher Tranmere High School.
Wilson, D. W.	Victoria College, Belfast.
Branford, M.	Wm. Gibbs' High S., Faversham.
Colman, M.	Collegiate High School, Didsbury.
Keene, M. E.	The Vicarage S., Clapham Common.
Milledge, W.	Manor Mount School, Forest Hill.
Smith, G. M.	Emwell House School, Warminster.
Warren, M. P.	44 Angell Road, Brixton.
Ash, A. E.	S.E. Dist. Coll., Kennington Pk. Rd.
Boyd, G. E.	Higher Tranmere High School.
Darch, G. E. T.	Prospect House School, Stechford.
Dore, L. V.	Stroud Green High School.
Harris, M. E.	S.W. London College, Clapham Rise.
Hartley, L.	St. Margaret's, Montpelier, Bristol.
Lorrain, E. L.	Hill House College, 202 Brixton Hill.
Lucas, E.	Grove House, Heaton Chapel.
Parkinson, F. M.	Private tuition.
Tilsley, M. L.	Glengarry, Birkdale.
Williams, E. A.	Whetstone House, Hr. Tranmere.
Wright, B. W.	Girton House, Liverpool.
Dunstan, G. K.	Lady Holles's School, Hackney.
Fox, M. E.	Stroud Green High School, N.
Gamble, K. M.	3 Arthur Terrace, Prestwich.
Grant, A. M.	Stroud Green High School, N.
Hawkes, L. H.	The Hollies, Handsworth.
Jones, E. A.	Higher Tranmere High School.
Lawson, M. M.	Stroud Green High School, N.
Lee, H. M.	Holt House School, Fakenham.
Palin, M.	Stratford Abbey College, Stroud.
Pullen, F. E.	Lady Holles's School, Hackney.
Stainforth, F. E.	Stroud Green High School, N.
Syer, R. M.	Highfield, Highbury Place, N.
Bailey, E.	Ladies' Coll., Savile Park, Halifax.
Bickell, E. M.	The College, Huddersfield.
Clark, A. M.	Whitville College, Nottingham.
Ellis, M. C.	The Ridgway School, Enfield.
Hunton, A. E.	Clifton House School, Bracknell.
Moss, N. E.	Lady Holles's School, Hackney.

GIRLS, THIRD CLASS—*Continued.*

Siebdrat, H. E.	Highbury & Islington High S., N.
Stone, L.	Abbotsford College, Stroud.
Anderson, A.	Lewisham College, S.E.
Bowmer, L.	North Camberwell High Schools.
Branton, E. M.	Finsbury College, Camden Rd., N.
Freeberne, M. M.	Whetstone House, Hr. Tranmere.
Hele, M. W.	High School for Girls, Carlisle.
Ironside, E. M.	Fulham Park College, S.W.
Kell, M. I.	Private tuition.
Kelly, G. E.	Stroud Green High School, N.
Mercer, A. M.	Higher Tranmere High School.
Milne, E.	Knightsville College, Lewisham
Taylor, E. M. S.	Whetstone House, Hr. Tranmere.
Bainbridge, L. F.	Stroud Green High School, N.
Carter, M.	Stroud Green High School, N.
Phillips, E. M.	Stroud Green High School, N.
Pudney, E. J.	East Sandfield House, Guildford.
Truscott, L.	31 Torrington Place, Plymouth.
Ballantine, A. L.	Blenheim House, Bournemouth.
Carpmael, H.	Private tuition.
Dowding, J. L.	Moravian Ladies' S., E. Tytherton.
Grove, F. A.	Lewisham College, S.E.
Humberstone, E.	Stratford Abbey College, Stroud.
King, E.	3 Park Villas, Salisbury.
Law, A.	Girton House, Liverpool.
Moore, K. E.	Lady Holles's School, Hackney.
Oldfield, H.	London Orphan Asylum, Watford.
Phillips, M. C.	Girls' Collegiate S., Carmarthen.
Priestley, E.	The College, Huddersfield.
Tatham, L.	3 Arthur Terrace, Prestwich.
Carey, E. B.	Church of England High S., Byfleet.
Carr, E.	The Camp Hill House S., Wordsley.
Cull, M. E.	Manor Mount School, Forest Hill.
France, M. I.	Private tuition.
Greaves, E. M.	Ellerker College, Richmond Hill.
Hedley, C. *mu.*	Vale House, Whalley.
Paul, J. E.	Bridport High School.
Rogers, B.	London Orphan Asylum, Watford.
Rowlinson, E.	Park House School, Bowdon.
Weniger, E. L. B. M.	London College, Stratford.
Baines, V. H.	Grattan House, Great Malvern.
Dunn, W.	Wm. Gibbs' High S., Faversham.
Frith, E. S.	Lady Holles's School, Hackney.
Hobbs, G. O.	Burlington House, Redland, Bristol.
Lawrence, L.	Lady Holles's School, Hackney.
McCaw, M.	Ladies' Coll. S., Banbridge, co. Down
Oakey, F.	Private tuition.
Patching, S.	Wm. Gibbs' High S., Faversham.
Stone, L. M.	Highbury & Islington High S., N.
Symmons, M. A.	Holmcroft, Bromley, Kent.
Varwell, E.	Marlborough College, Exeter.
White, M. B.	High School for Girls, Carlisle.
Chalk, E. E.	Manor Mount School, Forest Hill.
Copestake, L.	Stroud Green High School, N.
Gray, H. K.	St. Margaret's, Montpelier, Bristol.
Hayward, M. E.	The Vicarage S., Clapham Common.
Paddon, F. A.	Private tuition.
Ross, H. I.	Beech House School, Eccles.
Stephenson, E. A.	Eton Park College, S. Hampstead.
Sylvester, O. W.	Ladies' School, Martock.
Wendt, H. M.	Manor Mount School, Forest Hill.
Allen, E. M.	Brownhills House, Southampton.
Baker, E. I.	Orford College, Walthamstow.
Benson, C. M.	Stainsby Ho., St. John's Hill, S.W.
Deacon, C. A. *d.*	Finchley Girls' School, N.
Edwards, E. M.	Stroud Green High School, N.
Hart, J.	The Laurels, Alexandra Rd., N.W.
Henry, C.	Ladies' Coll. S., Banbridge, co. Down
Hope-Murray, W.	Camperdown, West Dulwich.
Lawson, B.	Rathmore, Clifton.
Livingston, K.	8 North Terr., Newcastle-on-Tyne.
Master, M. E. S.	Private tuition.
Musson, C. J.	Private tuition.
Oldham, M.	Grove House, Heaton Chapel.
Spence, M.	Lady Holles's School, Hackney.
Spurgeon, E. C.	Cambridge House School, Leyton.
Stevens, J. A. M.	Clarence House School, Brighton.
Surman, J. C.	Moseley Ladies' College.
Sweatman, C. E.	High School for Girls, Tisbury.
Townsend, C.	Private tuition.
Woodall, F. L.	141 Bridge Street, Gainsborough.
Wright, E. M.	Breakspear College, Brockley, S.E.
Fowke, F. C.	Stoneygate College, Leicester.
Hobday, G.	Wm. Gibbs' High S., Faversham.
Price, V. F.	Bridge House, Trowbridge.
Skinner, K.	Cambridge House School, Leyton.
Townsend, H.	Private tuition.
Wright, K. M.	Church of England High S., Byfleet.
Abraham, A. S. M.	Ladies' S., Gordonville, Coleraine.
Andrews, G.	Ladies' Coll., Savile Park, Halifax.
Barnard, M. E.	Ladies' College, Newton Abbot.
Bearman, K.	Lady Holles's School, Hackney.
Bolton, M.	Stoneygate College, Leicester.
Bouts, F. M.	Tudor House, Brixton Road.
Burrow, M. A.	Mornington House, Clapham Rd.
Cotton, E. W.	Highbury & Islington High S., N.
Dunscombe, E. A.	Dresden Villa, Redland, Bristol.
Gilbert, K. M.	Private tuition.
Griggs, G. H. M.	Montgomery House Coll., Dalston.
King, G. J. S.	St. George's Coll., W. Hampstead.
McLewin, B. M.	Elson House, Leytonstone.
Moore, M. A.	Higher Tranmere High School.
Slater, E. M.	Stroud Green High School, N.
Stephenson, A.	Meadowlands, Ashton-on-Mersey.
Trehern, G. E.	Guildford College, Surrey.
Walton, M. P.	Ringstead School, Catford.
Field, D. E.	High S. & Kindergarten, Hastings.
Hirst, B.	The College, Huddersfield.
Honeyfield, F. M.	Girton House, Yeovil.
Palmer, L. G.	Lady Holles's School, Hackney.
Price, A. L.	Campden Hill Coll., Kensington.
Reitz, F. A.	Lady Holles's School, Hackney.
Robertson, M. I.	Private tuition.
Wolsey, E.	Belgrave House School, Lee, S.E.
Wood, E. G.	The Hollies, Handsworth.
Brewitt, N. L.	London College, Stratford.
Done, M.	Rushford House S., Longsight.
Falcon, I. *d.*	Trebovir House S., Earls Court.
Forsaith, W.	136 Brooke Rd., Stoke Newington.
George, E.	Abbotsford College, Stroud.
Jacquot, C.	Ladies' College, Newton Abbot.
Kennett, E.	Wm. Gibbs' High S., Faversham.
Lucas, M.	Walton High School, Liverpool.
Plummer, E. M.	Wintersdorf, Southport.
Royall-Minus, R. A.	Maidenhead High School.
Scott, A. A.	Palmer's Endowed School, Grays.
Shuter, J. E.	Ladies' College, Goudhurst.
Stokes, M.	3 Snowdon Terrace, Oundle.
Bath, M.	Holmcroft, Bromley, Kent.
Hodgkinson, E.	Nantly House College, Hounslow.
Millin, E. A.	Maidenhead High School.
Plummer, E. M.	Luton High School for Girls.
Rutkowski, S.	25 Rhodes Street, Halifax.
Smith, M. A.	Surbiton High School.
Soul, A. H.	Durham House S., Crouch End.
Spencer, M. C.	Private tuition.
Stephenson, F. M.	Uppingham High School for Girls.
Thompson, A. C.	Donamon House, Hull.
Thompson, E. M. H.	Wintersdorf, Southport.
Beard, M. F. E.	Newcastle House, Lewes.
Browne, C.	Edgeworth House S., Finsbury Pk.
Locke, A. E. G.	Princess Helena College, Ealing.
Pennock, A. M.	Tooting High School, S.W.
Plumb, E. M.	Anglo-French School, Leamington.
Powell, F. M.	The Vicarage S., Clapham Common.
Sanders, I. M.	School for Girls, Ford, Devonport.
Saunders, D. K.	Chiswick High School for Girls.
Schofield, E.	Stroud Green High School, N.
Smith, H. S.	Skye Villa, West Cowes.
Smith, S. A.	The Camp Hill House S., Wordsley.
Toeque, C. B. K.	Private tuition.
Armstrong, L. M.	Somerville Ho., Newcastle-on-Tyne
Austin, A. M.	Hurst House, Watford.
Blunden, E. L.	Skye Villa, West Cowes.
Bussey, A.	Ashley Terr. S., Walton-on-Thames.
Dale, E. M.	Higher Tranmere High School.
Davis, M. E.	Ladies' College, Goudhurst.
Edwards, E. L.	Sterndale School, Wallington.
Eskell, L. L. C.	Onslow Hall School, Fulham.
Heard, M. G.	Private tuition.
Heather, G. F.	New Prospect House, Southampton.
Humphrey, L.	Chertsey House, Red Hill.
Nathan, A.	Lady Holles's School, Hackney.
Park, M. E.	Heathfield House, Norton Malton.
Plummer, M.	Wintersdorf, Southport.
Skinner, C. M.	High S., Queen's Coll., Birmingham.
Thomas, M. J.	Hill House College, Haverfordwest.
Thornhill, M. C.	Oxford House School, St. Albans.
Tyrer, F. T.	Holmcroft, Bromley, Kent.
Williams, K.	Fern Bank, Wandsworth Common.
Bridge, E.	Farington College, Blackpool.
Chisholm, C.	Broomfield High S., Manchester.
Cyriax, A. A. B.	Highbury & Islington High S., N.
Dampney, M. C.	Bridport High School.
Davy, L. R.	George Green School, Poplar.
Dobie, A.	Camperdown, West Dulwich.
Field, M. E.	Avon Villa School, Bowdon.
Fraser, I. C. E.	Belle Vue House, Hurstpierpoint.
Gray, C. M.	Lady Holles's School, Hackney.
Harvey, E.	Edendale College, Brixton.
Irwin, K.	Ladies' S., Princess Grdns., Belfast.
Jemson, I. M. E.	Elson House, Leytonstone.
Keith, A. E. L.	Private study.
Lawrence, R. E.	Private tuition.
Maunder, K. I.	Private tuition.
Milner, A.	The College, Huddersfield.
Pierpoint, C. M.	Chiswick High School for Girls.
Salwey, I. B.	Elmhurst, Broxbourne.
Sidebottom, M.	Glebe Land School, Rochdale.
Sutton, E. E.	8 Eskdale Terr., Newcastle-on-Tyne.
Sweeting, M.	Private tuition.
Turner, E. E.	The Vicarage S., Clapham Common.
Turner, E. J.	Cambridge House, Clifton, York.
Weatherill, E.	Eversley High School, Eastbourne.
Wellburn, R.	Craigholm, Buxton.
Wood, O. D.	Newnham House, Sherborne.
Wright, F. J.	The Elms, North Walsham.
Yates, A. L.	Milford House, Abergavenny.
Young, H. A.	Lady Holles's School, Hackney.
Bailey, A. K.	St. John's College, Brixton.
Bateman, J.	136 Brooke Rd., Stoke Newington.
Biggs, L. E.	Westholme, Maidenhead.
Brau, M. L.	Darwen College, Buckhurst Hill.
Coles, E. S.	Lady Holles's School, Hackney.
Gimson, H.	Chiswick High School for Girls.
Green, E.	"Elmhurst," Broxbourne.
Grout, A. B.	16 Edward St., Sheerness-on-Sea.
Gwyther, D.	Newnham House, Sherborne.
Hatschek, O.	Private tuition.
Heller, R.	Copthorne, West Brighton.
Nightingale, K.	St. Kilda, Reigate.
Phillips, B. B.	Vernon House S., Craven Pk., N.W.
Phipos, H. A.	Worcester House Coll., Hackney.
Shaw, M. F.	Highbury & Islington High S., N.
Tolley, K. H.	The Beeches, Wolverhampton.
Ainsworth, S.	Lady Holles's School, Hackney.
Amato, H. M. V.	Private tuition.
Brearley, A. A.	Chorlton House Acad., Leamington.
Leggett, F. A.	Luton High Schools for Girls.
Maxwell, I. R.	Finchley Girls' School, N.
Millard, A. F.	Lady Holles's School, Hackney.
Morley, E. M.	Oxford College, Gunnersbury.
Nicholls, F.	Elm House School, Ealing Dean.
Oliphant, J. E.	Private tuition.
Palmer, E. M.	Eagle College, Hornsey.
Powell, C. F.	Ferrers College, New Wandsworth.
Rudd, C. K.	Broomfield High S., Manchester.
Sellers, M.	Private tuition.
Walker, J.	Keswick House School, Putney.
Waltz, M. C.	Cashiobury House, Southend.
Worsley, J.	Elgin College, Maida Vale, W.
Bamforth, C.	Ladies' S., Chequer St., St. Albans.
Beith, B.	Norwood College, Withington.
Boughton, W.	7 Hyde Terrace, Tollington Park.
Branford, F.	Wm. Gibbs' High S., Faversham.
Bunting, E.	Private tuition.
Ensor, H. F.	Ladies' S., Gordonville, Coleraine.
Frood, I.	Walton High School, Liverpool.
Mansell, M. G.	Tooting High School, S.W.
Mathieson, H. M.	Cleeve House S., South Hackney.
Pearce, K. E.	St. Kilda, Reigate.
Pinck, A.	Glebe Land School, Rochdale.
Richards, L. E.	Glebe Land School, Rochdale.
Robinson, A. C.	Surbiton High School.
Varley, E.	The College, Huddersfield.
Walker, M.	Mowbray Place S., Sowerby, Thirsk.
Webbe, E. H.	Edengale, Lowestoft.
Wright, E. M.	Eton Park College, S. Hampstead.
Blok, S. E.	13 Wallace Road, Canonbury.
Bond, J. A.	Lady Holles's School, Hackney.
Brunt, I. C. G.	Glebe Place S., Stoke Newington.
Carver, L.	Mowbray Place S., Sowerby, Thirsk.
Davies, J. E.	The Laurels, Clapham Rise.
Edmeston, S. M.	Harcourt Lodge, Anerley.
Hicks, A. E. B.	Dorville House, Fowey.
Hunt, A.	South College, Kettering.
Johnston, W. J.	The Roystons, Chiswick.
Lewis, C. M.	Girls' Collegiate S., Carmarthen.
Roberts, A.	The Collegiate School, Oswestry.
Stansfield, F. A.	Queen's College, Haverstock Hill.
Turnor, M.	Private tuition.
Vickers, H. M.	Private tuition.
Walter, E. R.	Marlow House, Southall Green.
Westrop, E.	Clapham Park Ladies' College, S.W.
Wilson E. C.	Fulham Park College, S.W.

THIRD CLASS.—2ND DIVISION.

Atkinson, E.	78 Waterloo Road, Blyth.
Barber, H.	16 Edward St., Sheerness-on-Sea.
Barber, I. M.	Friars House, Hereford.
Barfoot, C. F.	Maidenhead High School.
Bhose, A. H.	George Green School, Poplar.
Brawn, H. M.	High S., Queen's Coll., Birmingham.
Clarke, M. T.	Lady Holles's School, Hackney.
Clunes, M. S. S.	Dorville House, Fowey.
Currie, E. McD. C.	Cambridge House, Warminster.
Davies, E.	Walton School, Llangollen.
Dodds, E. C. M.	Dresden Villa, Redland, Bristol.
Edmunds, M.	The Collegiate School, Oswestry.
Hemms, H.	Cheltenham Public Day School.
Hogg, M. C.	Melbourne House College, Clapton.
Hutchinson, A. J. M.	Paignton High School for Girls.
Kirk, L.	Sterndale School, Wallington.
Mellin, E. B. P.	Higher Tranmere High School.
Pocock, E.	La Retraite, Balham, S.W.
Stevens, A. M.	Homeleigh, Egham.
Studdert, M.	Blenheim House, Bournemouth.
Thomason, F.	Nantly House College, Hounslow.
Thorowgood, I. M.	Private tuition.
Wason, H. O.	Berwick House School, Bath.
Webb, L. E. R.	Ladies' S., West St., Buckingham.
White, C.	Elm Lodge, Petersham.
Williams, H. M.	Gravesend Proprietary School.
Wyatt, M. A.	Girton House, Yeovil.
Adams, K.	Winford Villa School, Bristol.
Bailey, H. S.	Stockwell High School for Girls.
Bawden, M.	Seaton House School, Mutley.
Bell, S. B. J.	Private tuition.
Benians, E. E.	Bethany House School, Goudhurst.
Bowie, D.	8 North Terr., Newcastle-on-Tyne.
Brook, E. W.	Somerville Ho., Newcastle-on-Tyne.
Burridge, M.	34 Emma Place, Stonehouse.
Collins, N.	Fitzroy Collegiate School, W.
Curteis, H.	Trebovir House S., Earls Court.
Elliott, M. M.	Manor Mount School, Forest Hill.
Gabbett, M. C.	Highfield, Highbury Place, N.
Imbert, A. E.	Hill House Coll., 202 Brixton Hill.
Jones, A. L.	Collegiate High School, Didsbury
Jones, H. M.	Clifton House School, Bracknell.
Jordan, A. E.	St. John's College, Brixton.
Lippold, H.	The Laurels, Nottingham.
Lunham, A. S.	Victoria College, Belfast.
Milbourn, M.	Walton High School, Liverpool.
Milburn, I.	Pierremont Crescent S., Darlington.
Morpeth, A.	Somerville Ho., Newcastle-on-Tyne.
Morris, V. M.	Belgrave House, Clevedon.
Parez, M. C. N.	High School for Girls, Carlisle.
Rayment, A.	Danehurst, Sidcup.
Salmon, R. A.	Lady Holles's School, Hackney.
Stevens, E.	Elm House School, Ealing Dean.
Turner, R.	Vale House, Whalley.
Woodward, A. M.	Private tuition.
Belton, C.	Whitville College, Nottingham.
Blows, E. M.	Palmer's Endowed School, Grays.
Boorman, E. E.	Heath Cottage, Horsmonden.
Bristow, L.	Private tuition.
Cole, E. S.	Ladies' College, Frenchay.
Colyer, O.	Wm. Gibb's High S., Faversham.
Comely, E.	Castle Hill Ladies' S., Maidenhead.
Daw, M. L.	Marlborough College, Exeter.
Esse, L. E.	Claremont House, N. Kensington.
Furlong, D. C.	Lady Holles's School, Hackney.
Gabb, C. G.	Fulham Park College, S.W.
Glover, A. I.	7 Clapton Square, N.E.
Goodman, B. E.	11 Stopford Place, Stoke, Devon.
Harris, S.	Copthorne, West Brighton.
Holme, E.	Areville College, Rhyl.
Hopkinson, E. H.	The College, Huddersfield.
Jones, M. A.	The Hall, Montpellier, Cheltenham.
Lea, M. A. S.	Hill House Coll., 202 Brixton Hill.
Luffe, L. E.	Plymouth House, Landport.

GIRLS, THIRD CLASS—*Continued.*

Maw, L. B.	Leam House School, Kensington.
Milne, E.	Collegiate High School, Didsbury.
Riddel, N.	Norwood College, Withington.
Symonds, A.	Holmcroft, Loughton.
Trench, B.	Wm. Gibbs' High S., Faversham.
Archibald, A. F.	Denmark College, Wimbledon.
Bowkett, H. E.	George Green School, Poplar.
Clelan d, M.	Ladies' Collegiate School, Belfast.
Coulter, E. M.	St. Winifred's S., Southampton.
Done, L. B.	Raincliffe College, New Barnet.
English, A.	8 North Terr., Newcastle-on-Tyne.
Falkner, E. F.	Mornington House, Clapham Road.
Flower, L.	Chorlton House Acad., Leamington.
Gummerson, M. L.	The Old House, Brigg.
Halket, E. C.	George Green School, Poplar.
Jacka, M.	Windsor High School, Liverpool.
King, A.	Private tuition.
Larkins, C. L.	Melford House, Leyton.
Mackinder, F. E.	Westgate House S., Peterborough.
Nash, T. P. R.	Private tuition.
Piper, E.	7 Hyde Terrace, Tollington Park.
Roberts, C. A.	Windsor High School, Liverpool.
Simon, M. H. A.	Wintersdorf, Southport.
Southwell, M. F.	Finsbury Coll., Camden Road, N.
Stacey, D.	The Chantry, Tuxford.
Symmons, A. M.	Private tuition.
Taylor, J. E.	The Vicarage S., Clapham Common.
Chambers, E. A.	6 HighfieldGrove North,RockFerry
Curling, E.	Wm. Gibbs' High S., Faversham.
Eidmann, B.	Henley House, Penarth.
Houghton, A. M.	Meadowlands, Ashton-on-Mersey.
Howland, F. M.	Grove Park College, Lee, S.E.
Jennings, F.	Wm. Gibbs' High S., Faversham.
Middleton, S. A.	Manor Mount School, Forest Hill.
Pinsent, M.	Betley Ladies' College.
Porritt, L.	The College, Huddersfield.
Richardson, A. M.	Manor Mount School, Forest Hill.
Rodick, M.	Grove Park College, Lee, S.E.
Rose, E. F.	Rokeby Lodge School, Lee.
Scott, E. M.	Palmer's Endowed School, Grays.
Tavender, A.	Marlborough College, Exeter.
Baker, A.	The Laurels, Wetherden.
Beaumont, M.	Oak Hill, Huddersfield.
Blundell, J. E.	King Street Seminary, Southwell.
Bott, G.	S.W. London Coll., Clapham Rise.
Burkitt, E.	Private tuition.
Clark, M. R.	Holmcroft, Loughton.
Cornell, M.	Abbotsford College, Stroud.
Daft, A.	King Street Seminary, Southwell.
Graham, M.	Ladies'Coll.S.,Banbridge,co.Down.
Griffith, H. C.	Elwy Hall School, Rhyl.
Handley, F. J.	Stamford Hill High School, N.
Hansen, H. M.	Skye Villa, West Cowes.
Haynes, M. A.	Hamilton House S., Warrington.
Jones, C. E.	The Vicarage S., Clapham Common.
Kenyon, H. M. B.	Oriel Bank, Davenport, Stockport.
Merchant, F.	St. Dunstan's College, Eastbourne.
Norquoy, A. P.	High Schools,Chorlton-cum-Hardy
Payne, M. E.	Spring Garden S.,Stockton-on-Tees.
Pick, M. E.	Mowbray Place S.,Sowerby,Thirsk.
Pollard, E. M.	Tudor House, Hackney.
Pughe, M.	The Collegiate School, Oswestry.
Reeve, M. M.	The Elms, North Walsham.
Riches, I. E.	Paignton High School for Girls.
Shea, L.	Surbiton High School.
Windibank, M.	Holmcroft, Loughton.
Barley, M. J.	Woodland House School, Thirsk.
Brougham, L.	Nantly House College, Hounslow.
Buckley, W. W.	Love Lane House, Denbigh.
Clarke, E. M.	Irvine House, Derby.
Gilbert, A.	Betley Ladies' College.
Godwin, C.	Private study.
Hardie, M.	Southolme High S.,Whalley Range.
Haydon, I. N.	Bridport High School.
Humphreys, E. B.	Gravesend Proprietary School.
Jones, M. E. A.	Southolme High S.,Whalley Range.
Kinsey, M.	Danehurst, Sideup.
Lax, W. M.	High School for Girls, Carlisle.
Lumby, A. H.	Eagle College, Hornsey.
Mayhew, M. A.	The College, Clapham Common.
Mosby, L. B.	Clifton House, Swinton.
Muirhead, L.	Convent S., Brompton Square, S.W.
Parker, K.	Sherringham House S., Mansfield.
Pledger, H. E.	Melbourne House College, Clapton.
Porter, A.	Edgeworth House S., Finsbury Pk.
Rothery, F.	The College, Huddersfield.
Scott, F. B.	Welbeck Villa, Bridlington.
Stanley, C. G. P.	Russell Street School,Wednesbury.
Stuttard, F.	The College, Huddersfield.
Watkin, C.	South London College, Brixton Rd.
Brown, E.	High School for Girls, Carlisle.
Buckley, A. B.	136 Brooke Rd., Stoke Newington.
Cameron, E.	Silverdale, Bootle.
Coleman, E. C. F.	Private study.
Cook, M. L.	St. Cloud, Southsea.
Fisher, E. L.	Milverton House S., Leamington.
Folliott, E. E.	Hazelhurst, Wimbledon.
Hardy, F.	Meadowlands, Ashton-on-Mersey.
Hassall, M. E.	Higher Tranmere High School.
Hughes, K. MacG.	Higher Tranmere High School.
Jackson, L.	Private tuition.
Jennings, C. A.	The Abbey, Beckington.
Jotham, J. E.	Cashiobury House, Southend.
Odam, E.	Seaton House School, Mutley.
Pasmore, F. L.	Walden House School, Herne Bay.
Rickaby, M. B.	Warlaby House School, Lee, S.E.
Smith, B. E.	Heath Cottage, Horsmonden.
Smith, J.	Milverton House S., Leamington.
Stainforth, C. M.	Stroud Green High School, N.
Thompson, E. M.	Private tuition.
Travis-Cook, V.	Private tuition.
Warden, S.	The Hollies, Handsworth.
Witherington, I. M.	Highbury & Islington High S., N.
Brookman, G. E.	Lady Holles's School, Hackney.
Brown, M. A.	Eldon House, Stoke Newington.
Dean, W. I. S.	Private tuition.
Eames, L.	Plas Menai School, Upper Bangor.
Hayhoe, E.	St. Kilda, Reigate.
Mitton, P. G.	Hawthorns, Ealing Common.
Morton, M. K.	Victoria College, Belfast.
Murdoch, K. E. H.	Farington College, Blackpool.
Oxley, E.	Abbotsford College, Stroud.
Page, F.	Ladies' School, Cosham.
Pattison, A.	Camperdown, West Dulwich.
Pearce, E. F.	Hillersdon House, Barnes.
Place, H.	Priory House, York.
Reynolds, A.	Collegiate House, Leicester.
Simons, L.	Collegiate House, Leicester.
Smith, M. G.	Cambridge House, Warminster.
Smith, T.	The Collegiate School, Oswestry.
Auther, E. K.	Kingsland Crescent School, N.E.
Baker, E.	Camperdown, West Dulwich.
Bartlett, E. B.	New Prospect House,Southampton.
Blyth, K. E.	Cashiobury House, Southend.
Braden, E. E.	Private tuition.
Dabbs, E.	Cambridge House School, Leyton.
Easton, M.	78 Waterloo Road, Blyth.
Everard, M. A.	Edengale, Lowestoft.
Fielden, I. E.	Studley House, Hull.
Frood, E.	Walton High School, Liverpool.
Head, H. E.	Homeleigh, Egham.
Jones, C.	Girls' Collegiate S., Carmarthen.
Lawrence, E. M.	Lady Holles's School, Hackney.
Martin, F. M.	53 Paynes Hill, Salisbury.
Matthews, F.	South London Coll., Brixton Road.
Milnthorp, E.	Fulford Field House, York.
Nicholas, L. E.	Canon Lodge School, Hereford.
Pascoe, B.	Belle Vue House, Swansea.
Powell, M. M.	Private tuition.
Punshon, O. F.	36 Balmoral Rd., Fairfield, L'pool.
Sellers, A.	Private tuition.
Vauscolina, R. F.	Enston Collegiate S. for Girls, N.W.
Walker, B. B.	Farington College, Blackpool.
Webb, F.	Anglo-French School, Leamington.
Whittaker, G. J.	Brownhills House, Southampton.
Anderton, E. M.	Claremont House, N. Kensington.
Bailey, E.	Norwood College, Withington.
Cary, O. C.	Private study.
Clay, M. E.	141 Bridge Street, Gainsborough.
Dawson, A.	Cambridge House School, Leyton.
Elson, B. E.	Hurst Leigh School, Southampton.
Giles, A. B.	Clarence House, Kennington Road.
Graham, M.	Lady Holles's School, Hackney.
Hill, G. M.	Osmond House, Botesdale, Diss.
Hollings, S. G.	Moravian Ladies' S., Manchester.
Hunter, J. A.	Somerville Ho.,Newcastle-on-Tyne
Kendall, H.	Chiswick High School for Girls.
Morris, E.	Higher Tranmere High School.
Morris, M. E.	11 Frederick Place, Clifton.
Osborne, K. L. C.	102 Regent's Park Road, N.W.
Pilling, C. M.	The College, Huddersfield.
Pitman, E. M.	Wanstead High Grade School.
Powell, R. K.	Private tuition.
Richards, M.	"Charlesville," West Kirby.
Say, E. F.	Hill House Coll., Haverfordwest.
Shebbeare, H. T.	Surbiton High School.
Simm, M. R. E.	High Street, Petersfield.
Smith, E.	Kingston School, Hull.
Thomas, A. R.	Hill House Coll., Haverfordwest.
Viggers, M. G.	9 Kingsgate Street, Winchester.
West, B. E.	Collegiate School, Waltham Cross.
Batchelor, E. H.	Montague College, Salisbury.
Bhose, F. E.	George Green School, Poplar.
Butcher, A. M.	Ladies' College, Goudhurst.
Challis, M. E.	Lewisham College, S.E.
Clayton, I.	Sterndale School, Wallington.
Crowther, S. E.	The College, Huddersfield.
England, C.	The Collegiate School, Oswestry.
Freeman, M.	Leam House School, Kensington.
Harper, M. N.	George Green School, Poplar.
Hearn, A.	Wm. Gibbs' High S., Faversham.
Howitt, P. H.	Manor Mount School, Forest Hill.
Jones, L. B.	Anfield College, Liverpool.
Manby, G.	High School, Herne Bay.
McAleenan, E. M.	10 Wallace Terrace,Ryton-on-Tyne.
Meyrick, E. J.	Gram. & Coll. S., Downham Rd.,N.
Morgan, M. L. M.	The Abbey, Beckington, Bath.
Pettitt, E. A.	Chiswick High School for Girls.
Rooke, E. F.	Clifton House School, Bracknell.
Smith, D. G.	Cambridge House, Birkenhead.
Whetham, S.	Bridport High School.
Woodland, B. S.	Cambridge House, Chichester.
Baker, E. K.	9 Kingsgate Street, Winchester.
Burkitt, M.	Private tuition.
Cazaly, D. F.	Finchley Girls' School, N.
Clarke, E. L.	Canon Lodge School, Hereford.
Cooke, N.	Camperdown, West Dulwich.
Cowles, J. M.	London College, Stratford.
Dring, G.	The Laurels, Wetherden.
Durham, K. E.	The College, Crystal Palace Pk. Rd.
Farr, A. A.	Lady Holles's School, Hackney.
Forty, M. C.	The Hall, Montpellier,Cheltenham.
Fulton, E.	Anfield College, Liverpool.
Harwood, B. R.	Askew College, Uxbridge Road.
Hopkinson, M. H.	The College, Huddersfield.
Kenyon, B. A.	Meadowlands, Ashton-on-Mersey.
Kerbey, M. H.	1 Camden Crescent, Bath.
Kidney, F. A.	Private tuition.
Lindeman, B. F.	Lady Holles's School, Hackney.
Lowe, A. E.	Friars House, Hereford.
Newett, A. E.	Portland House, Brighton.
Park, K. E.	George Green School, Poplar.
Pile, A.	Manor Mount School, Forest Hill.
Reese, M.	Goat Street College, Haverfordwest.
Rowlands, M.	South Bristol Girls' High School.
Rowley, M. E.	Palmer's Endowed School, Grays.
Seates, E. A. L.	Osmond House, Botesdale, Diss.
Somerville, M.	Moseley Ladies' College.
Swift, L. S.	141 Bridge Street, Gainsborough.
Thomas, F. F.	George Green School, Poplar.
Turnham, R. M. W.	Maida Vale College, W.
Wright, C.	High School, Tewkesbury.
Barton, E. G.	Hurst House, Watford.
Carruthers, S. A. E.	Hill House College, Haverfordwest.
Chalmers, J. T.	Stamford Hill High School, N.
Cox, G.	Warwick House, Brixton Hill.
Cuppleditch, E.	Prospect House, Bowdon.
Davies, F. P.	Private tuition.
Downie, M. M.	New Prospect House,Southampton.
Evans, E. K.	Gram. & Coll. S., Downham Rd., N.
Fleetwood, H. E.	28 Castle Street, Salisbury.
Harding, E. M.	Girls' Collegiate S., Carmarthen.
Hicks, A. J.	Dorville House, Fowey.
Maconn, E. L.	Church of England High S., Byfleet.
Maddox, F. A.	Private tuition.
Martin, U. M.	Private tuition.
McMaster, I.	Victoria College, Belfast.
Neighbour, B. A.	Rochester Hall S., Kentish Town.
Nurse, S.	Friars House, Hereford.
Painter, T. E.	The Elms, North Walsham.
Payne, K. F.	Dorville House, Fowey.
Pitt, M.	Hawthorns, Ealing Common.
Potter, A.	The Roystons, Chiswick.
Powlowski, L.	Manor Mount School, Forest Hill.
Ryan, M.	Meadowlands, Ashton-on-Mersey.
Strachan, A. M.	Heyop House, Axminster.
Tubbs, E. E.	The Hollies, Handsworth.
Weetman, N. A.	Private tuition.
Wigg, F. E.	Lady Holles's School, Hackney.
Wilkinson, K. J.	Lady Holles's School, Hackney.
Beard, B. M.	Private tuition.
Bedford, E. L.	George Green School, Poplar.
Berry, J. R.	St. Winifred's S., Southampton.
Berry, W.	Glebe Land School, Rochdale.
Bing, F.	Wm. Gibbs' High S., Faversham.
Brassington, E. L.	Betley Ladies' College.
Brown, E. M.	Westbourne House S., Chiswick.
Campbell, E. E. M.	Uppingham High School for Girls.
Dawes, G.	Stratford Abbey College, Stroud.
Dobson, J. S.	Barlow Moor Road, Didsbury.
Gracie, E. M.	36 Balmoral Rd., Fairfield, L'pool.
Hogben, C. F.	Pestalozzian School, Southampton.
Housley, C.	Moravian Ladies' S., Manchester.
Jones, E. A.	Canon Lodge School, Hereford.
Jones, S. L.	Plas Menai School, Upper Bangor.
Leech, F.	Wynnstay, Hornsey Lane, N.
Longcroft, G.	Lady Holles's School, Hackney.
Macdonald, M.	Camperdown, West Dulwich.
Mowbray, H. M.	Finchley Girls' School, N.
Ridgway, E.	Moravian Ladies' S., Manchester.
Ryan, E.	Grassendale School, Liverpool.
Shaw, A.	Craigholm, Buxton.
Shilling, E. E.	Clifton House School, Bracknell.
Spencer, M. A.	Bridport High School.
Beck, E.	Palmer's Endowed School, Grays.
Braithwaite, L. K.	Hamstead Hill S., Handsworth.
Cadman, I.	7 Hyde Terrace, Tollington Park.
Charville, S. E.	Collegiate House, Leicester.
Coton, A.	Clarence House, Kennington Road.
Dallinger, K. H.	Caerbrok, Brixton Hill.
Dlemj, A. M.	Mornington House, Clapham Rd.
Dugdale, N. A.	Derwent House S., Whalley Range.
Dumbelton, O. M.	Finchley Girls' School, N.
Everard, F. M.	Edengale, Lowestoft.
Fellows, M.	Cambridge College, Twickenham.
Foster, E. S.	High School, Maidstone.
Greene, G.	Grove Park College, Lee, S.E.
Hewlett, A. I.	Westlands School, Saltash.
Lee, A. H.	Woodland House School, Thirsk.
Marriott, K. A.	141 Bridge Street, Gainsborough.
Olphert, H. H.	Ellerker College, Richmond Hill.
Popple, T. H.	Finchley Girls' School, N.
Roberts, M. A.	Airedale, Streatham Common.
Roe, L. M.	Corn Exchange, Mkt. Harborough.
Spence, M. F.	Private tuition.
Watson, L. M.	Welbeck Villa, Bridlington.
Birks, N.	Eversley, Southport.
Burrow, E.	Collegiate House, Leicester.
Carter, E.	7 Hyde Terrace, Tollington Pk., N.
Claggett, A. A.	High School, Maidstone.
Davies, C. A.	Cumberland Lodge, Croydon.
Davison, M.	Edgeworth House S., Finsbury Pk.
Dunn, B. M.	Hazelhurst, Wimbledon.
French, B.	Ladies' S., Chequer St., St. Albans.
Fryer, N.	The Old House, Brigg.
Godwin, M.	Private tuition.
Howlett, F.	Private tuition.
Jacombs, F. N.	"Brudenell," Tunbridge Wells.
Kennedy, F. B.	86 Claverton Street, S.W.
Laird, S. H.	Alexandra School, Carrickfergus.
Maconn, M. L.	Ladies'S.,Princess Gardens,Belfast.
Mayo, R.	The Abbey, Beckington, Bath.
Parkinson, G.	6 Park Street, Hull.
Schneiders, J. E.	Lady Holles's School, Hackney.
Scott, M.	Oak Hill, Huddersfield.
Ward, A.	Moseley High School.
Wotherspoon, N. M.	Private tuition.
Adcock, L.	Wm. Gibbs' High S., Faversham.
Boys, A. S.	High S., Queen's Coll., Birmingham.
Bradley, A. B.	Hope Lea, Heaton Norris.
Cammack, H. M.	The Old House, Brigg.
Clarke, E.	The Collegiate School, Oswestry.
Davison, A.	Victoria College, Belfast.
Earle, M. H.	Clifton House, Leyton.
Goff, K. R.	Private tuition.
Gondie, E. M.	Irvine House, Derby.
Groundwater, A.	Oxford College, Gunnersbury.
Lewis, L.	St. Andries, Penarth.
Lipscombe, E. F.	Humboldt Villa, Whalley Range.
Mason, M. E.	Holmcroft, Loughton.
Medway, M. E.	Finchley Girls' School, N.

GIRLS, THIRD CLASS—*Continued.*

Robinson, R.	Middle Class S., Upper Tooting.
Scott, E. N.	Park House, Lee, S.E.
Smith, E. M.	Wm. Gibbs' High S., Faversham.
Thackrah, A. M.	St. Kilda, Reigate.
Tipple, E. M.	George Green School, Poplar.
Walkden, A. E.	Grove House, Heaton Chapel.
Watson, J. L.	High School, Herne Bay.
Williams, M. I.	Glebe Land School, Rochdale.
Allsop, S.	Stroud Green High School, N.
Bell, A. L.	1 Crouch Hall Rd., Crouch End, N.
Bishop, A.	70 Gainsborough Terrace, Mutley.
Cummins, A. C.	Stockwell High School for Girls.
Dring, E. C.	Girton House, Yeovil.
Edwards, G.	Middle Class S., Upper Tooting.
Gondey, G.	Braemar College, Stroud Green, N.
Greenhill, A.	Mowbray Place S., Sowerby, Thirsk.
Hawke, F. L.	Breakspear College, Brockley, S.E.
Kellond, A. C.	24 Eresby Road, Kilburn.
Munro, M.	High School, Crewkerne.
Phillips, M.	Collegiate School, Fareham.
Read, G. A.	Bridport High School.
Richards, J. R.	Gram. & Coll. S., Downham Rd., N.
Richardson, L.	Glebe Place S., Stoke Newington.
Rowell, M. J.	24 Rye Hill, Newcastle-on-Tyne.
Scott, S.	Victoria College, Belfast.
Taylor, E. A. M.	Holly Bush Lodge, S. Newington, N.
Warner, L. A.	Elmhurst, Broxbourne.
West, H.	St. Mary's School, Bungay.
Adlard, G. M.	Anfield College, Liverpool.
Ball, E. M.	3 Snowdon Terrace, Oundle.
Bolton, E.	Kingston School, Hull.
Dingle, M.	Seaton House School, Mutley.
Du Val, B.	Private tuition.
Elcombe, L. A.	Bickleigh House, Romsey.
Francis, A. E. M.	Girls' Collegiate S., Carmarthen.
Galloway, E.	Norwood College, Withington.
Haswell, R. M.	Merchant Taylors' S., Gt. Crosby.
Heatley, M. L.	Grove House, Heaton Chapel.
Heslop, M. S.	Wanstead High Grade School.
How, F.	The Hall, Montpellier, Cheltenham.
Kerry, C. E.	East Finchley High School, N.
Nutbeem, E.	Bickleigh House, Romsey.
Peace, M.	The Laurels, Walsall.
Pratt, S. W.	Hartfell College, Southport.
Price, L. R.	Denmark College, Wimbledon.
Reynolds, E.	Cambridge House, Birkenhead.
Richardson, C. E.	Denmark College, Wimbledon.
Ridley, A. M.	Battlehurst Coll. S., Hexham-on-T.
Shawcroft, L. A.	Ebenezer Academy, Alfreton.
Shergold, M. H.	102 Regent's Park Road, N.W.
Trapp, E. M.	Manor Mount School, Forest Hill.
Tudor, N. A.	Eastnor House, Hereford.
Whipp, K.	Glebe Land School, Rochdale.

THIRD CLASS—3RD DIVISION.

Bailey, K.	St. Leonards, Seaton, Devon.
Ballisat, E. F.	Ferrers Coll., New Wandsworth.
Benporath, H. A.	Anglo-French Coll., Up. Norwood.
Dean, E.	Eversley, Southport.
Drew, M.	Abbotsford College, Stroud.
Harvey, F. L.	Cowleymore School, Tiverton.
Jenkins, N. B.	Girls' Coll. School, Carmarthen.
Kent, E. L. M.	Elwy Hall School, Rhyl.
Lamb, E.	11 Stopford Place, Stoke, Devon.
Lucas, C. E.	Friars House, Hereford.
Mann, M. C.	Elizabethan School, Framlingham.
Niederheitmann, M.	B. Finchley Girls' School, N.
Noble, A.	Market House School, Reepham.
Peach, H. M.	Portsea Collegiate School.
Porteous, M.	"Wynnstay," Hornsey Lane, N.
Porter, E. A.	Lady Holles's School, Hackney.
Roberts, E. M.	Airedale, Streatham Common.
Sackett, G. M.	Palmer's Endowed School, Grays.
Scudamore, G. M.	The College, Clapham Common.
Simon, F. E.	Hill House Coll., Haverfordwest.
Smith, A.	Handsworth High School.
Smith, A. B.	London Orphan Asylum, Watford.
Tassell, M.	Nantly House College, Hounslow.
Thompson, M. C.	Private tuition.
Wood, A.	High School, Herne Bay.
Woods, A. M.	Holt House School, Fakenham.
Abbott, S. M.	High School, Newark-on-Trent.
Archibald, L. L.	Gravesend Proprietary School.
Barnett, K. R.	Manor Mount School, Forest Hill.
Burgess, M. G.	Homeleigh, Egham.
Burras, E.	The College, Huddersfield.
Catton, E. J.	Gravesend Proprietary School.
Clark, A.	3 Kingston Terrace, Colchester.
Coldwell, M.	St. Mary's Coll., Harrow Road, W.
Coombes, H. M.	Bromley Preparatory School, Kent.
Copinger, A. H.	The Grange School, Davyhulme.
Corbin, N. C.	"Caerbrok," Brixton Hill.
Fairburn, E.	7 Hyde Terrace, Tollington Park.
Field, A.	Private tuition.
Gilding, K. R.	Ashchurch Pk. Coll. School, W.
Kemp, L.	Ladies' School, Cosham.
Newett, J.	Portland House, Brighton.
Parry, F. E.	Southolme High S., Whalley Range.
Roake, A. E.	Homeleigh, Egham.
Sandle, N. H.	Lady Holles's School, Hackney.
Turner, L.	Campden Hill College, Kensington.
Walker, M.	Fulford Field House, York.
Watkins, W. M.	Whetstone House, Hr. Tranmere.
Allen, M.	The Old House, Brigg.
Atkinson, E. I.	High School for Girls, Carlisle.
Baker, E.	Crouch Hill High School, N.
Bartlett, L. B.	Paignton High School for Girls.
Beresford, E. M.	Eldon House, Stoke Newington.
Coleman, M. R.	Oseney College, Camden Road.
Cross, C. A.	The Elms, North Walsham.
Foden, K.	34 Emma Place, Stonehouse.
Garbutt, N.	Spring Garden S., Stockton-on-Tees.
Green, E.	Wanstead High Grade School.
Hardwick, A.	St. Heliers, Stamford Hill, N.
Hawkins, A. S.	The Hollies, Handsworth.
Jones, E. V.	The Collegiate School, Oswestry.
Pugh, F. K.	Queen's College, Haverstock Hill.
Rainbow, E.	Middle Class S., Upper Tooting.
Summersfield, M.	Grove House, Heaton Chapel.
Thomas, H. A.	Church of England High S., Byfleet.
Wheatley, H. L.	Wood Vale High S., Forest Hill.
Wilson, L.	Lady Holles's School, Hackney.
Bate, M.	Seaton House School, Mutley.
Brinkworth, A. B.	Abbotsford College, Stroud.
Fisher, J. E.	Studley House, Hull.
Flint, B. E.	Bromley Preparatory School, Kent.
Forsdike, A.	141 Bridge Street, Gainsborough.
Hannaford, L. A.	Irvine House, Derby.
Kemp, C. A.	Oxford College, Gunnersbury.
Lighting, M.	Private tuition.
Nelson, A. M.	The Old House, Brigg.
Payne, A. M.	Homeleigh, Egham.
Samuel, Z. E.	The Laurels S., Alexandra Rd., N.W.
Sillence, A. E.	9 Kingsgate Street, Winchester.
Spilman, E. O.	141 Bridge Street, Gainsborough.
Beattie, M. F.	"Ronhilda" Ladies' School, Rhyl.
Bell, N.	"Highfield," Highbury Place, N.
Blakely, A. V.	"Normanhurst," Bournemouth W.
Clarke, M. S.	Osmond House, Botesdale, Diss.
Elliott, F. M.	Glebe Land School, Rochdale.
Harvey, E. J. B.	Montague College, Salisbury.
Hickson, M.	Cambridge House, Birkenhead.
Huntley, N.	Studley House, Hull.
Kenyon, W. E.	Oriel Bank, Davenport, Stockport.
Newson, G. A.	Osmond House, Botesdale, Diss.
Roberts, A.	Eastnor House, Hereford.
Senneck, C. B.	The Hollies, Handsworth.
Smith, S.	Lady Holles's School, Hackney.
Tooley, E.	St. Mary's School, Bungay.
Venner, A. B. M.	The Vicarage S., Clapham Common.
Watkins, A.	Eastnor House, Hereford.
West, M.	7 Clapton Square, N.E.
Alexander, E.	Battlehurst Coll. S., Hexham-on-T.
Coe, E. J.	Brookfield House S., Manchester.
Cooke, E. P.	The Beeches, Wolverhampton.
Corby, M.	Tudor House, Hackney.
Elliott, R.	High School, Waltham Cross.
Garnar, A. R.	Park House, Lee, S.E.
Hardy, E. A.	Ellerker College, Richmond Hill.
Haswell, S. M.	The Hollies, Handsworth.
Hinton, F.	7 Hyde Terrace, Tollington Park.
Jamieson, V. L.	Raleigh School, Camden Sq., N.W.
Jerrems, G.	141 Bridge Street, Gainsborough.
Kelsey, A. M.	Melbourne House College, Clapton.
Knibb, A. L.	Belgrave Ho. S., Wandsworth Comm.
Lovell, M.	Airedale House School, Gravesend.
Mander, H. C. H.	Private tuition.
Mitchell, G.	Belle Vue House, Swansea.
Munro, E.	High School, Crewkerne.
Nesbitt, A. G.	Surbiton High School.
Parker, V.	1 Crouch Hall Rd., Crouch End, N.
Plunkett, A. F.	Alexandra School, Carrickfergus.
Prendergast, M. A.	Private tuition.
Rotton, M. A.	The Laurels, Clapham Rise.
Turner, H.	Grassendale School, Liverpool.
Wilson, D. M.	Palmer's Endowed School, Grays.
Wylde, G.	36 Balmoral Rd., Fairfield, L'pool.
Carr, A. L.	Cambridge House, Birkenhead.
Coates, B.	Camperdown, West Dulwich.
Evans, E. J.	The Hollies, Handsworth.
Hughes, M. A.	Elwy Hall School, Rhyl.
Ison, H.	Private tuition.
Jones, C.	Alexandra School, Carrickfergus.
Lee, E. J.	School for Girls, Ford, Devonport.
Perry, G. M.	St. Heliers, Stamford Hill, N.
Pile, S.	Manor Mount School, Forest Hill.
Rostron, J.	Moravian Ladies' S., Manchester.
Rowell, B.	Battlehurst Coll. S., Hexham-on-T.
Sicklen, B.	The Laurels, Nottingham.
Taylor, M. M.	Paignton High School for Girls.
Wainwright, A.	"Normanhurst," Bournemouth W.
Wright, M. A.	Woodland House School, Thirsk.
Bryan, A. E.	Guilford High S. for Girls, W.C.
Gillies, L. E.	Melbourne House Coll., Clapton.
Godfrey, K.	Middle Class S., Upper Tooting.
Graham, B.	Fairfield Ladies' Coll., Liverpool.
Hardy, F. E.	Lady Holles's School, Hackney.
Kellond, E. S.	24 Eresby Road, Kilburn.
Mosley, L. K.	Campden Hill College, Kensington.
Myers, E. B.	Ladies' S., Chequer St., St. Albans.
Hammond, F. M.	Gravesend Proprietary School.
Harvie, A. M.	Clifton House School, Bracknell.
Miller, E. C.	Wanstead High Grade School.
Roberts, E. G.	Elwy Hall School, Rhyl.
Redwood, E. M.	Finchley Girls' School, N.
Robinson, M. E.	Hope Lea, Heaton Norris.
Skinner, M.	Stanmore College, Balham.
Butcher, G.	Wanstead High Grade School.
Cleall, H. L.	Bridport High School.
Cockrell, S. J.	St. Mary's School, Bungay.
Cunnington, L. A.	St. Heliers, Stamford Hill, N.
Hair, K. R.	Stroud Green High School, N.
Hurst, J.	Surbiton High School.
Metcalf, F. E.	Sterndale School, Wallington.
Milton, C.	Lady Holles's School, Hackney.
Salter, M.	Fairfield College, Exmouth.
Stuart, A. L.	Cambridge House School, Leyton.
Trigg, L.	St. Katharine's High S., Bp. Stortf d.
Brundle, E. M.	Elizabethan School, Framlingham.
Crump, A. S.	Braemar College, Stroud Green, N.
English, P. R. S.	The Hall, Montpellier, Cheltenham.
Heap, K. H.	Glebe Land School, Rochdale.
Jarman, C. A.	Bickleigh House, Romsey.
Lowis, A.	Private tuition.
McFarlane, R.	31 Brigstock Rd., Thornton Heath.
Newton, D.	Private tuition.
Owen, E. B.	Somerset House S., Totterdown.
Rigby, D.	High School, Radcliffe, Manchester.
Ward, B.	The Hollies, Handsworth.
Wright, F.	Newnham House, Sherborne.
Anthony, M. F.	Oriel Bank, Davenport, Stockport.
Blackie, E. G.	Private tuition.
Bois, E. G.	The College, Clapham Common.
Butterfield, C.	Stratford Abbey College, Stroud.
Clarke, A.	Northgate House, March.
Cleland, H.	The Laurels, Walsall.
Dixon, E.	Lanx House, Corbridge-on-Tyne.
Gillions, I.	London Orphan Asylum, Watford.
Goldsmid, H.	Trebovir House S., Earls Court.
McLean, L. K.	Airedale House School, Gravesend.
Mander, M. C.	Private tuition.
Pearce, A. L.	Ladies' College, Frenchay.
Robson, M.	Heathfield House, Norton, Malton.
Roebuck, M.	Moravian Ladies' S., Manchester.
Sargeant, E. M.	Clifton House School, Bracknell.
Smyth, M.	South College, Kettering.
Stovold, M. L.	Oxford College, Gunnersbury.
Sturrock, E. M.	Cleeve House S., South Hackney.
Wheeler, E. E.	Braemar College, Stroud Green, N.
Cheston, A.	Carn Brea, Edgbaston.
Dowdy, B. A.	Ivy House Coll. S., Crouch Hill, N.
Foster, E. A.	Gloucester House, Bridlington Quay.
Goodchild, M.	Private study.
Jones, E. E.	Claremont House, N. Kensington.
Naylor, L.	Crouch Hill High School, N.
Proudfoot, L.	Edendale College, Brixton.
Ramsey, M. K.	Hillersdon House, Barnes.
Richardson, E. J.	Somerville Ho., Newcastle-on-Tyne.
Silver, H.	The Rookery, King's Norton.
Fisher, M. W.	Marlow House, Southall Green.
Goddard, E. H.	Private tuition.
John, C.	Belle Vue House, Swansea.
Johnson, C. E.	Glebe Land School, Rochdale.
May, F. E.	24 Eresby Road, Kilburn.
Mayer, B. L.	George Green School, Poplar.
Munro, I. M.	Private tuition.
Nelmes, A.	Overbury, Tewkesbury.
North, K. W.	Bromley Preparatory School, Kent.
Salmon, F. A.	Stoke Newington Rd. High S., N.
Smith, H. M.	Norwood College, S.E.
Stanser, L.	141 Bridge Street, Gainsborough.
Sutherland, A. C.	24 Rye Hill, Newcastle-on-Tyne.
Tucker, D.	Nantly House College, Hounslow.
Walton, E.	Oriel Bank, Davenport, Stockport.
Webb, E. C.	St. John's College, Brixton.
Hardy, I.	Montague College, Salisbury.
Hubbard, G. A.	St. Kilda, Reigate.
Kniep, E.	London Orphan Asylum, Watford.
Nestle, B. G. A. M.	Oak Hill, Huddersfield.
Russell, M.	Anfield College, Liverpool.
Squire, E. G.	Girton House, Yeovil.
Woods, A. C.	Clifton House, Swinton.
Barker, F. E.	Hillersdon House, Barnes.
Flint, M. L.	Private tuition.
Laven, E. H.	High Schools, Chorlton-cum-Hardy.
Lester, A. L.	Russell Street School, Wednesbury.
Lincoln, C. E.	Manor Mount School, Forest Hill.
Newell, M.	The Rookery, Kings Norton.
Oliver, E. M.	Private tuition.
Phillips, A. M.	"Highfield," Highbury Place, N.
Phipers, E.	Lady Holles's School, Hackney.
Stevens, M. M.	The Rookery, King's Norton.
Tong, L.	The Old House, Brigg.
Turner, S. E.	Collegiate School, Reading.
Boulton, A. E.	Private tuition.
Calcutt, F. M.	Ladies' College, Goudhurst.
Coppinger, K.	Oxford College, Gunnersbury.
Jallings, A.	Danehurst, Sidcup.
Newman, H. G.	Homeleigh, Egham.
Proudfoot, M.	Edendale College, Brixton.
Roberts, A. M.	Private study.
Taylor, G.	Hanover Park Coll., Peckham, S.E.
Witchell, J. L.	Clarence College, Wood Green, N.
Issard, D. M.	The Pentre, Newtown, N. Wales.
Kirk, B. M.	Ivy House Coll. S., Crouch Hill, N.
Laws, A. M.	8 North Terr., Newcastle-on-Tyne.
Pender, E.	Trebovir House S., Earls Court.
Rust, M. R.	Arundel House S., West Malling.
Slateum, F.	"Ronhilda" Ladies' School, Rhyll.
Symons, L.	Warwick House, Brixton Hill.
Broatch, R.	Stamford Hill High School, N.
Eastwood, A. H.	"Y. Garn," Bromley, Kent.
Minter, M. M.	Highland House, Westgate-on-Sea.
Rapson, F. H.	Elizabethan School, Framlingham.
Rowlands, E. E.	Hill House Coll., Haverfordwest.
Silcock, E. A.	St. Mary's School, Bungay.
Simons, M. A. L.	The College, Crystal Palace Pk. Rd.
Syder, E.	Holt House School, Fakenham.
Tildesley, M. E.	7 Church Street, Leigh, Lancs.
Camidge, M.	Windsor High School, Liverpool.
Evans, H.	Old College School, Carmarthen.
Hamilton, F.	Moravian Ladies' S., Manchester.
Harris, E. M.	Whinrey House, Ealing.
Herrick, K.	Trebovir House S., Earls Court.
Johnson, E.	Cambridge House School, Leyton.
Oldrin, M.	St. Mary's School, Bungay.
Splatt, M. M.	Highland House, Westgate-on-Sea.
Wadley, E. L.	Kendrick House, Penarth.
Gayton, M. M.	Private tuition.
Stockdale, H. M.	Mannamead Ladies' S., Plymouth.
Wood, A. E.	Hanover Park Coll., Peckham, S.E.
Wren, A. S.	Brookfield House S., Manchester.

The following obtained Special Certificates, having each obtained a General Certificate at a former Examination.]

Daniel, A. M.	*d.* Milford House, Abergavenny.
Page, L. E.	*nat.* Datchelor Coll. School, Camberwell.
Rothery, J. E.	*e.* Stoke Newington Road High School.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN

THE

EDUCATIONAL TIMES,

AND

Journal of the College of Preceptors.

Vol. XLIII.] New Series, No. 353. SEPTEMBER 1, 1890. { Registered for Transmission Abroad } *Price to Non-Members, 6d. By Post, 7d.*

COLLEGE OF PRECEPTORS.—

EXAMINATIONS FOR 1890.

1. DIPLOMAS.—The Midsummer Examination of Teachers for the Diplomas of the College will commence on the 1st of July, and the Christmas Examination on the 30th of December.

2. CERTIFICATE EXAMINATIONS.—The Christmas Examination for Certificates will commence on the 9th of December.

N.B.—The Higher Certificates of the College are recognised by Her Majesty's Judges, and by the General Medical Council, as guarantees of good general education; and consequently the holders of them, who may be intended for the Legal and Medical Professions, are exempted from the necessity of submitting to the Preliminary Literary Examinations held by the Incorporated Law Society, and by the various Medical Corporations of the United Kingdom. The Lords of the Committee of Council on Education admit the holders of the same Certificates, without further examination, to the Competition for allowances granted to Students of the Junior Training Class of the National Art Training School. All the College Certificates above the Third Class, the holders of which have passed an Examination in Latin, are also recognised by the Pharmaceutical Society and the Royal Veterinary College.

3. EXAMINATIONS FOR CERTIFICATES OF PROFICIENCY IN MERCANTILE SUBJECTS.—The next Examination will take place on the 8th of December.

4. PROFESSIONAL PRELIMINARY EXAMINATIONS.—These Examinations are held in March and September. The next Examination will commence on the 9th of September.

5. INSPECTION OF SCHOOLS.—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

PRIZES.

Diploma Examination.—In addition to the Doreck Scholarship of £20, the following Prizes will be competed for: Theory and Practice of Education, £10; Classics (Greek and Latin), £5; Mathematics, £5; Physical Science, £5.

Certificate Examination.—The "Isbister Prize" will be awarded to the Candidate who stands First, and the "Pinches Memorial Prize" to the Candidate who stands Second in General Proficiency. Prizes of Books will also be awarded to the Third and Fourth in General Proficiency, and to the First and Second in the following subjects:—Classics, Mathematics, Modern Languages, Natural Science, English Subjects. The "Taylor Jones Memorial Prize" will be awarded to the best Candidate in Scripture History.

The Regulations of the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

PRELIMINARY EXAMINATION of

MEDICAL STUDENTS.—The COLLEGE of PRECEPTORS will hold an Examination for Certificates recognised by the General Medical Council as qualifying for Registration as a Medical Student, on the 9th, 10th, and 11th of September, 1890.

The Examination will take place in London, and at the following Local Centres:—Birmingham, Bristol, Leeds, Liverpool.

Examination Fee, 25s.

Regulations and Entry Forms may be obtained on application to the Secretary of the College of Preceptors, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

NATIONAL HEALTH SOCIETY.

President:

His Grace the DUKE OF WESTMINSTER.

DIPLOMA OF PROFICIENCY IN THE ART AND SCIENCE OF PHYSICAL EDUCATION.

The Society's Diploma will be granted to such Teachers of Gymnastics, Calisthenics, and Physical Exercises as have fulfilled the necessary curriculum and passed the required Examinations.

For particulars, apply to the SECRETARY, 44 Berners Street, Oxford Street, London, W.

COLLEGE OF PRECEPTORS.—

SCHOLARSHIPS FOR INTENDING TEACHERS.

With the view of encouraging the systematic training of teachers for their profession, the Council have established four Scholarships (two for male and two for female candidates), which will be offered for competition at the Certificate Examination in June, 1891.

The value of each of these Scholarships is £45 for a single year, or £30 a year for two years, if the candidate should determine to extend the period of training over more than one year.

The Scholarships are tenable

(*a*) At any Training College for Teachers in Secondary Schools, either at home or abroad, that may be approved by the Council; or

(*b*) At any school of established reputation, approved by the Council, which is prepared to offer such facilities for training as may be satisfactory to the Council; it being open to the Council to require the attendance of the scholar at such lectures on the Theory and Practice of Education, and to require him or her to pass such examinations in the Science and Art of Teaching, as the Council may determine.

Candidates (who must not be under 17 or over 21 years of age at the date of the Examination) are required to declare their intention of competing for these Scholarships prior to the Examination, and to submit such testimonials of character as may be considered satisfactory by the Council.

The Scholarships will be awarded to those candidates who, having fulfilled the above conditions, obtain the highest places in the Honours Division of the First Class. C. R. HODGSON, B.A., *Secretary.*

UNIVERSITY DIPLOMA FOR WOMEN.

THE UNIVERSITY OF ST.

ANDREWS grants Diploma and Title of L.L.A. to WOMEN. *Subjects of Examination and Examination Papers* include those for the M.A. Degree. For Prospectuses, apply to the SECRETARY, L.L.A. Scheme, The University, St. Andrews, N.B.

VICTORIA UNIVERSITY.

DEGREES are conferred in the Faculties of Arts, Science, Law, and Medicine.

Candidates for Degrees are required not only to pass the necessary Examinations, but also to attend prescribed Courses and Classes in a College of the University.

The Colleges of the University are Owens College, Manchester, University College, Liverpool, and Yorkshire College, Leeds.

Communications regarding Examinations, Attendance, and University business generally, should be addressed, The REGISTRAR, Victoria University, Manchester.

The Calendar (price 1s.), containing the Regulations, Copies of Examination Papers, Lists of Graduates, &c., is published by Mr. J. E. CORNISH, Manchester, and by Messrs. MACMILLAN & CO., London.

HOME AND COLONIAL SCHOOL

SOCIETY'S TRAINING COLLEGE,

GRAY'S INN ROAD, LONDON, W.C.

The NEXT TERM will commence on TUESDAY, 9th SEPTEMBER.

Preparation for CAMBRIDGE LOCAL EXAMINATIONS, and training in the SCIENCE AND METHOD OF TEACHING.

Full particulars on application to the SECRETARY.

THE MARIA GREY TRAINING

COLLEGE.

A full Course of Training in preparation for the Cambridge Teachers' Certificate, or for the Froebel Society's Higher Certificate, is offered to Ladies who wish to enter Schools and Kindergartens as Teachers, at this College. Preparation also for the Cambridge Higher Local Examination. Scholarships offered in all divisions. College year begins Sept. 17. Address—PRINCIPAL, 5 Fitzroy Street, W.

MEDICAL SCHOOLS.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.
GUY'S HOSPITAL MEDICAL SCHOOL.
WESTMINSTER HOSPITAL MEDICAL SCHOOL.
THE MIDDLESEX HOSPITAL MEDICAL SCHOOL.

For particulars of the above, see page 366.

CITY AND GUILDS OF LONDON

INSTITUTE TECHNICAL COLLEGE, FINSBURY. Principal—Prof. S. P. THOMPSON, D.Sc.

Day Department for Students not under 14 years of age.

The College Courses of Instruction in Laboratory, Lecture Room, Workshop, and Drawing Office for MECHANICAL ENGINEERS (under the direction of Prof. J. Perry, F.R.S.), ELECTRICAL ENGINEERS (under Prof. S. P. Thompson, D.Sc.), and TECHNICAL CHEMISTS (under Prof. R. Meldola, F.R.S.) COMMENCE on TUESDAY, OCTOBER 7TH, 1890. Chemical Laboratories specially organised for Instruction in Technical Manufacturing Processes. Fee for Session, inclusive of Laboratories, Workshops, and Drawing Office, £15.

The Entrance Examination will take place Tuesday, September 30th, at 1 o'clock a.m.

Scholarships of £30 a year each, the Hall Scholarship of £20 a year, and three Free Studentships, all tenable for two years, will be awarded (in accordance with the several schemes) on the results of the Entrance Examination.

For particulars of Scholarships and Programmes of Instruction, apply at the Technical College, Leonard Street, City Road, E.C., or at the Office of the Institute.

JOHN WATNEY, Hon. Sec.,
City and Guilds of London Institute,
Gresham College, E.C.

MARYLEBONE HIGHER GRADE

SCHOOL FOR GIRLS, HIGH STREET, MARYLEBONE.—STUDENT TEACHERS. Thorough training. Advanced tuition. Small premium. Address—Mistress.

LONDON UNIVERSITY EXAMINATIONS.

AT

INTER. ARTS, 1890,

80

UNIVERSITY CORRESPONDENCE COLLEGE STUDENTS

WERE SUCCESSFUL,

20 of whom took Honours,

one with first and two with second places.

AT

INTER. SC. AND PREL. SCI., 1890,

49

UNIVERSITY CORRESPONDENCE COLLEGE STUDENTS

WERE SUCCESSFUL,

7 of whom were in Honours.

Classes for Inter. Arts and Science commence the first week in September.

The Ordinary Course for Prel. Sci., Jan. 1891, may be commenced at once.

A Copy of the Matriculation Guide will be sent to any private student who expresses his intention of working for the Exam., and a copy of Inter. Arts or Science Guide to any private student giving date of Matriculation, post free, on application.

Prospectus and full particulars of the classes may be had from

THE SECRETARY,
(*Univ. Corr. Coll. London Office,*)
12½ Booksellers Row,
Strand, W.C.

(*For other advertisements, see pp.* 367, 389, 409.)

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL,

ALBERT EMBANKMENT, LONDON, S.E.

The WINTER SESSION of 1890-91 will open on Wednesday, October 1st, when the Prizes will be distributed, at 3 p.m., by Sir Frederick Pollock, Bart., M.A.

Two Entrance Science Scholarships, of 125 guineas and £60 respectively, open to all first-year Students, will be offered for competition. The Examination will be held on September 26th, 27th, and 29th, and the subjects will be Chemistry and Physics, with either Physiology, Botany, or Zoology, at the option of Candidates.

Scholarships and Money Prizes of considerable value are awarded at the Sessional Examinations, as also several Medals.

Special Classes are held throughout the year for the Preliminary Scientific and Intermediate M.B. Examinations of the University of London.

All Hospital appointments are open to Students without charge.

The Fees may be paid in one sum or by instalments. Entries may be made separately to Lectures or to Hospital Practice, and special arrangements are made for students entering in their second or subsequent years; also for Dental Students and for qualified practitioners.

A Register of approved Lodgings is kept by the Medical Secretary, who also has a list of local medical practitioners, clergymen, and others who receive Students into their houses.

Prospectuses and all particulars may be obtained from the Medical Secretary, Mr. GEORGE RENDLE.

E. NETTLESHIP, *Dean.*
G. H. MAKINS, *Vice-Dean.*

WESTMINSTER HOSPITAL MEDICAL SCHOOL,

CAXTON STREET, S.W.

The WINTER SESSION will COMMENCE on October 1st. Introductory Address by Dr. T. Colcott Fox, at 4 p.m., followed by Distribution of Prizes.

Two Entrance Scholarships, value £80 and £40, and one of £20 for Dental Students, on examination, Sept. 23rd and 24th.

There are also numerous Prizes.

Fees: 100 guineas in one sum on entrance, or £110 in two payments, or £120 in five payments. Special Fees for partial and Dental Students.

The Hospital has a service of over 200 beds, and the usual special departments.

Prospectus and all information on application to

W. H. ALLCHIN, M.B. Lond., *Dean.*

THE MIDDLESEX HOSPITAL MEDICAL SCHOOL.

The WINTER SESSION will open on Wednesday, October 1st, at 3 p.m., when the Prizes awarded during the previous Winter and Summer Sessions will be distributed by C. KEGAN PAUL, Esq., and an Introductory Address will be delivered by STORER BENNETT, Esq., F.R.C.S. At 4.30 a Reception will be held in the School Buildings.

The ANNUAL DINNER of the past and present Students and their friends will take place the same evening at the Holborn Restaurant at 7 o'clock, Dr. DAVID W. FINLAY in the chair.

HOSPITAL STAFF AND LECTURERS.

Consulting Physicians — Dr. Goodfellow, Dr. Henry Thompson.
Physicians — Dr. Cayley, Dr. Sidney Coupland, Dr. Douglas Powell, Dr. D. W. Finlay.
Assistant Physicians—Dr. J. K. Fowler, Dr. C. Y. Biss, Dr. J. J. Pringle, Dr. W. Pasteur.
Obstetric Physician—Dr. W. Duncan.
Consulting Physician to the Skin Department — Dr. Robert Liveing.
Physician to Skin Department—Dr. J. J. Pringle.
Assistant Obstetric Physician—Dr. R. Boxall.
Consulting Surgeon—Mr. Nunn.
Surgeons — Mr. Hulke, F.R.S., Mr. George Lawson, Mr. Henry Morris, Mr. Andrew Clark.
Assistant Surgeons—Mr. A. Pearce Gould, Mr. J. Bland Sutton.
Ophthalmic Surgeon—Mr. William Lang.
Aural Surgeon—Mr. Arthur Hensman.
Consulting Surgeon Dentists—Sir John Tomes, F.R.S., Mr. J. S. Turner.
Dental Surgeon—Mr. Storer Bennett.
Assistant Dental Surgeon—Mr. W. Hern.
Other Lecturers—Mr. B. T. Lowne, Mr. Foster, Dr. W. J. Mickle.

The Hospital contains 310 beds. There are Special Departments for Cancer, Syphilis, Diseases of Women and Children, Diseases of the Eye, Skin, Throat and Ear, and for cases requiring Electrical treatment.

Two Entrance Scholarships, value £100 and £60, will be competed for on September 29th and 30th.

Inclusive fee, £100, or by three yearly instalments of £45, £40, and £25.

The Residential College adjoining the Hospital provides accommodation for thirty Students. The Warden assists Students in preparing for examination.

For further information apply at the Hospital to the Resident Medical Officer, or to

A. PEARCE GOULD, *Dean.*

GUY'S HOSPITAL MEDICAL SCHOOL.

The WINTER SESSION commences on Wednesday, October 1st.

The Hospital contains 695 beds, of which 500 are in constant occupation. Special Classes are held for Students preparing for the Examinations of the University of London, and other Higher Examinations.

APPOINTMENTS. — All Hospital Appointments are made strictly in accordance with the merits of the Candidates, and without extra payment.

ENTRANCE SCHOLARSHIPS in September, 1890.—Two Open Scholarships in Arts, one of the value of 100 guineas open to candidates under 20 years of age; and one of 50 guineas open to candidates under 25 years of age. Two Open Scholarships in Science, one of the value of 125 guineas, and another of 50 guineas, open to candidates under 25 years of age.

PRIZES are awarded to Students in their various years, amounting in the aggregate to more than £300.

DENTAL SCHOOL.—A Dental School is attached to the Hospital, which affords to Students all the instruction required for a Licence in Dental Surgery.

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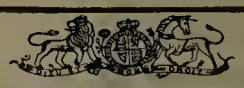
Gold Medals,  **Paris, 1878: 1889.**

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Science.

A short-sighted person who can see distinctly at a distance d of 15 cm. wants to look through an astronomical telescope which has just been used by a long-sighted person of $d = 35$; what readjustment has he to make? Construction and calculation. Focal distance of the objective $F = 3$ m. that of the ocular $f = 5$ cm. (Frankfort, 1889.)

A body rolls down a slope, beginning its motion with the speed O. In the time from the end of the 15th to the end of the 30th second, it rolls 67·5 m.; what angle does the slope form with the horizon, and how much time, from the moment it is set in motion, does it require to roll over 1 km.? (Munich, 1889.)

On the axis of a concave mirror there is a light. When the latter is moved 1 m. further away from the mirror, the picture moves 2 cm. in the opposite direction. When the light is moved another m. further away, the picture moves 1 cm. What is the focal length of the mirror? (Frankfort, 1889.)

Chemistry and Mineralogy.—(Munich, 1889.)

Two hours.

(*a*) What is to be said about the composition and denomination, and also about the most important ways of preparing the bodies called salts? The statements concerning the ways of preparing the salts are to be illustrated by means of formulæ.

(*b*) Out of what ores, and by what processes, are zinc and tin made? State the similarities and dissimilarities of the two metals, and in what alloys they are contained.

We have carried this account of Foreign Commercial Schools to such length that we cannot now deal with the large amount of interesting information which we have received from other German Commercial Schools. No two of these schools have exactly the same curriculum in the commercial subjects, and only a few of the High Schools have the same course of general subjects. We may classify the subjects as follows:—

General Subjects.

(1) Cosmography and Geography; (2) General History; (3) Mathematics; (4) Physics; (5) Natural Science; (6) Mechanics; (7) Drawing; (8) Shorthand; (9) Music; (10) Gymnastics; (11) Religion; (12) Latin.

Commercial Subjects.

(*a*) Commercial Arithmetic; (*b*) Writing; (*c*) Accounts, Book-keeping, Office-work; (*d*) Commercial Correspondence; (*e*) Commercial Law; (*f*) Political Economy; (*g*) Study of Products and Raw Materials; (*h*) Commercial Geography; (*i*) History of Commerce; (*j*) Commercial Science, Imports and Exports; (*k*) Commercial Exchange and Banking; (*l*) German; (*m*) English; (*n*) French; (*p*) Italian; (*q*) Spanish; (*r*) Portuguese; (*s*) Danish; (*t*) Russian; (*u*) Polish; (*v*) Swedish; (*w*) Norwegian; (*x*) Dutch.

The following schools take eight or ten of the subjects 1 to 12, and nearly all the subjects *a* to *n*. After each name is stated whether the school is supported by the State, the Municipality, or by private bodies:—

Augsburg High School of Commerce (Municipality).
Fürth Royal Realschule and School of Commerce (State).
Kaiserslautern Royal Commercial Realschule (State).
Landshut Royal Commercial Realschule (State).
Marktbreit Municipal School of Commerce.

Nüremberg Municipal School of Commerce.
Munich Municipal School of Commerce.
Berlin Academy of Commerce (Proprietary).
Cassel Royal School of Industry and Commerce (State).
Danzig Academy of Commerce.
Frankfort Real Gymnasium and Commercial School (Municipality).
Hanover Municipal School of Commerce.
Osnabrück International School of Commerce.
Chemnitz Public Institute of Commerce (Merchants, Municipality and State).
Dresden Public Institute of Commerce.

The High Schools of Commerce of Cologne and Dresden have sought to avoid the interference with the programme which the acceptance of the military privilege for certificates involves by accepting only, as students, those who have already obtained the certificate at a realschule or gymnasium.

The following take up a selection of the subjects *a* to *n*, and, only such of the general subjects as are necessary for the understanding or working of the special commercial subjects chosen:—

Munich Royal School of Industry (State).
Riesa Commercial Institute (Municipality).
Waldheim School of Commerce (Merchants).
Hildesheim School of Commerce (Municipality).
Königsberg School of Commerce (Chamber of Commerce).
Auerbach School for Apprentices (Municipality and State).
Bautzen School for Apprentices (Municipality and State).
Crimmitzschau School for Apprentices (Municipality and State Chamber of Commerce).
Döbeln School for Apprentices (Municipality and State).
Dresden School for Apprentices (Municipality and State).
Frankenberg School for Apprentices (Merchants and Municipality).
Meissen School for Apprentices (Merchants and Municipality).
Freiberg School of Commerce (Merchants and Municipality).
Leipzig Finishing School for Clerks (Merchants and Municipality).
Pirna School of Commerce (Chamber of Commerce).

In all these cases the examinations always follow the instruction, and the examinations, therefore, vary in character with the programmes.

Some of these schools mingle the functions of a realschule with those of a commercial school: these we include because the commercial subjects predominate. There are many others omitted from our list, such as the Real und Handelschule of Mainz (Mayence), in which the predominance is not decided. The German Government has done but little for special commercial schools. In Prussia itself no such schools are assisted by the State. Even in Saxony, where there are four high schools and 22 smaller schools for commerce, supported at a cost to merchants or municipality of £25,000 per annum, the State only contributes £1000. Technical schools and Schools of Art are much more favoured by the Government, and receive very large contributions from the State. In Bavaria, commercial departments were, until recently, attached to the technical schools for trade and art, but are now discontinued except at Munich.

Austria and Hungary.

The Austrian system of education is modelled on the German, but elementary education is free only in two or three provinces, and is nowhere compulsory. Between the elementary and the higher schools, there are schools with such titles as the following: "middle real-schools," "pro-gymnasiums," and "real-gymnasiums." Each province manages its own school system.

In Austria there are three classes of commercial schools—(1) Public Schools of Commerce; (2) Private Schools of Commerce; (3) Finishing or Continuation Schools (*Fortbildungschulen*) for Apprentices.

The first class may be divided into academies and ordinary schools of commerce.

The academies receive students who have completed their studies in one of the middle schools referred to. The leaving certificate of these schools admits into the academies without further examination. The certificate obtained on leaving an academy of commerce carries exemption from two years' military service only in the case of those who obtained the leaving certificate of the middle or higher school before entering the academy. This condition makes it unnecessary for the State to impose on the commercial academies a general programme, as is done in Germany. The State contributes about 70,000 florins per annum towards the support of the nine following academies:—Trieste, Prague (German), Vienna, Graez, Chrudim, Linz, Pressburg, and the Technical Academy of Commerce of Prague, and the Academy of Commerce and Navigation of Trieste.

(1) The Schools of Commerce receive pupils from the elementary schools. They are at present eight in number, and average 60 students each.

(2) The Private Commercial Schools are more numerous than the Public. We have the names of 34 of these schools, having in all 168 professors and 2,360 day students, and 2,700 evening students or apprentices. One at least of these schools (Marburg) is assisted by a contribution (450 florins) from the State.

(3) The Commercial Schools for Apprentices have generally been founded by commercial associations or chambers of commerce. Some of them seem to be well attended—that of Vienna, for example, which was founded and is chiefly supported by the Chamber of Commerce of Vienna, has at present nearly 2,000 students.

The most important of the academies is that of Prague, the history of which much resembles that of the Commercial Institute of Leipzig, and was founded by the Corporation of Merchants of Prague. It has been the model on which the others have been founded. Of the studies on the programme, the Director places as most important the five following:—commercial arithmetic, accounts and bookkeeping, modern languages (English, French, Italian, and German, the technology of commerce in each), raw and manufactured materials, writing.

We are informed that there are no examinations in the sense in which we understand the term, for the reason that the instruction is a continuous series of examinations. But those who have finished the three years' course undergo an examination partly written and partly oral, the marks for which are added to those obtained during the course, and the results determine positions and money prizes. We have yet to summarize the suggestions which educators and merchants in England may draw from the facts we have gathered.

THE PHYSICAL LABORATORY IN MODERN EDUCATION.

By Henry A. Rowland, Ph.D.,
Professor of Physics in the Johns Hopkins University.

From the moment we are born into this world down to the day when we leave it, we are called upon every moment to exercise our judgment with respect to matters pertaining to our welfare. While nature has supplied us with instincts which take the place of reason in our infancy, and which form the basis of action in very many persons through life, yet, more and more as the world progresses, and as we depart from the age of childhood, we are forced to discriminate between right and wrong, between truth and falsehood. No longer can we shelter ourselves behind those in authority over us, but we must come to the front, and each one decide for himself what to believe and how to act in the daily routine and the emergencies of life. This is not given to us as a duty which we can neglect, if we please, but it is that which every man and woman, consciously or unconsciously, must go through with.

Most persons cut this gordian knot, which they cannot untangle, by accepting the opinions which have been taught them, and which appear correct to their particular circle of friends and associates; others take the opposite extreme, and, with intellectual arrogance, seek to build up their opinions and beliefs from the very foundation, individually and alone, without help from others. Intermediate between these two extremes comes the man with full respect for the opinions of those around him, and yet with such discrimination that he sees a chance of error in all, and most of all in himself. He has a longing for the truth, and is willing to test himself, to test others, and to test nature until he finds it. He has the courage of his opinions when thus carefully formed, and is then, but not till then, willing to stand before the world and proclaim what he considers the truth. Like Galileo and Copernicus, he inaugurates a new era in science, or, like Luther, in the religious belief of mankind. He neither shrinks within himself at the thought of having an opinion of his own, nor yet believes it to be the only one worth considering in the world; he is neither crushed with intellectual humility, nor yet exalted with intellectual pride; he sees that the problems of nature and society can be solved, and yet he knows that this can only come about by the combined intellect

of the world acting through ages of time, and that he, though his intellect were that of Newton, can, at best, do very little toward it. Knowing this, he seeks all the aids in his power to ascertain the truth, and if he, through either ambition or love of truth, wishes to impress his opinions on the world, he first takes care to have them correct. Above all, he is willing to abstain from having opinions on subjects of which he knows nothing.

It is the province of modern education to form such a mind, while at the same time giving to it enough knowledge to have a broad outlook over the world of science, art, and letters. Time will not permit me to discuss the subject of education in general, and, indeed, I would be transgressing the principles above laid down if I should attempt it. I shall only call attention at this present time to the place of the laboratory in modern education. I have often had a great desire to know the state of mind of the more eminent of mankind before modern science changed the world to its present condition, and exercised its influence on all departments of knowledge and speculation. But I have failed to picture to myself clearly such a mind, while, at the same time, the study of human nature, as it exists at present, shows me much that I suppose to be in common with it. As far as I can see, the unscientific mind differs from the scientific in this, that it is willing to accept and make statements of which it has no clear conception to begin with, and of whose truth it is not assured. It is an irresponsible state of mind without clearness of conception, where the connexion between the thought and its object is of the vaguest description. It is the state of mind where opinions are given and accepted without ever being subjected to rigid tests, and it may have some connexion with that state of mind where everything has a personal aspect, and we are guided by feelings rather than reason.

When, by education, we attempt to correct these faults, it is necessary that we have some standard of absolute truth: that we bring the mind in direct contact with it, and let it be convinced of its errors again and again. We may state, like the philosophers who lived before Galileo, that large bodies fall faster than small ones, but when we see them strike the ground together we know that our previous opinion was false, and we learn that even the intellect of an Aristotle may be mistaken. Thus we are taught care in the formation of our opinions, and find that the unguided human mind goes astray almost without fail. We must correct it constantly, and convince it of error over and over again, until it discovers the proper method of reasoning, which will surely accord with the truth in whatever conclusions it may reach. There is, however, danger in this process that the mind may become over-cautious, and thus present a weakness when brought in contact with an unscrupulous person who cares little for truth and a great deal for effect. But if we believe in the maxim that truth will prevail, and consider it the duty of all educated men to aid its progress, the kind of mind which I describe is the proper one to foster by education. Let the student be brought face to face with nature: let him exercise his reason with respect to the simplest physical phenomenon, and then, in the laboratory, put his opinions to the test. The result is invariably humility, for he finds that nature has laws which must be discovered by labour and toil, and not by wild flights of the imagination and scintillations of so-called genius.

Those who have studied the present state of education in the schools and colleges tell us that most subjects, including the sciences, are taught as an exercise to the memory. I myself have witnessed the melancholy sight in a fashionable school for young ladies, of those who were born to be intellectual beings, reciting page after page from memory, without any effort being made to discover whether they understood the subject or not. There are even many schools, so-called, where the subject of physics or natural philosophy itself is taught, without even a class experiment to illustrate the subject and connect the words with ideas. Words, mere words are taught, and a state of mind far different from that above described is produced. If one were required to find a system of education which would the most surely and certainly disgust the student with any subject, I can conceive of none which would do this more quickly than this method, where he is forced to learn what he does not understand. It is said of the great Faraday that he never could understand any scientific experiment thoroughly until he had not only seen it performed by others, but had performed it himself. Shall we then expect children and youth to do what Faraday could not do? A thousand times better never teach the subject at all.

Tastes differ, but we may safely say that every subject of study which is thoroughly understood is a pleasure to the student. The healthy mind, as well as the healthy body, craves exercise, and the schoolroom or the lecture-room should be a source of positive enjoyment to those who enter it. Above all, the study of nature, from the magnificent universe, across which light itself, at the rate of 186,000 miles per second, cannot go in less than hundreds of years, down to the atom of which millions are required to build up the smallest microscopic object, should be the most interesting subject brought to the notice of the student.

Some are born blind to the beauties of the world around them; some have their tastes better developed in other directions, and some have minds incapable of ever understanding the simplest natural phenomenon; but there is also a large class of students who have at least ordinary powers and ordinary tastes for scientific pursuits: to train the powers of observation and classification, let them study natural history, not only from books, but from prepared specimens, or directly from nature; to give care in experiment and convince them that nature forgives no error, let them enter the chemical laboratory; to train them in exact and logical powers of reasoning, let them study mathematics; but to combine all this training in one, and exhibit to their minds the most perfect and systematic method of discovering the exact laws of nature, let them study physics and astronomy, where observation, common-sense, and mathematics go hand in hand. The object of education is not only to produce a man who *knows*, but one who *does*; who makes his mark in the struggle of life, and succeeds well in whatever he undertakes: who can solve the problems of nature and humanity as they arise, and who, when he knows he is right, can boldly convince the world of the fact. Men of action are needed as well as men of thought.

There is no doubt in my mind that this is the point in which much of our modern education fails. Why is it? I answer that the memory alone is trained, and the reason and judgment are used merely to refer matters to some authority who is considered final, and, worse than all, they are not trained to apply their knowledge constantly. To produce men of action they must be trained in action. If the languages be studied, they must be made to translate from one language to the other until they have perfect facility in the process. If mathematics be studied, they must work problems, more problems, and problems again, until they have the use of what they know. If they study the sciences, they must enter the laboratory and stand face to face with nature; they must learn to test their knowledge constantly, and thus see for themselves the sad results of vague speculation; they must learn by direct experiment that there is such a thing in the world as truth, and that their own mind is most liable to error. They must try experiment after experiment, and work problem after problem, until they become men of action, and not of theory.

This, then, is the use of the laboratory in general education—to train the mind in right modes of thought by constantly bringing it in contact with absolute truth, and to give it a pleasant and profitable method of exercise which will call all its powers of reason and imagination into play. Its use in the special training of scientists needs no remark, for it is well known that it is absolutely essential. The only question is whether the education of specialists in science is worth undertaking at all? and of these I have only to consider natural philosophers or physicists. I might point to the world around me, to the steam-engine, to labour-saving machinery, to the telegraph, to all those inventions which make the present age the "Age of Electricity," and let that be my answer. Nobody could gainsay that the answer would be complete, for all are benefited by these applications of science, and he would be considered absurd who did not recognise their value. These follow in the train of physics, but they are not physics; the cultivation of physics brings them and always will bring them, for the selfishness of mankind can always be relied upon to turn all things to profit. But in the education pertaining to a university we look for other results. The special physicist trained there must be taught to cultivate his science for its own sake. He must go forth into the world with enthusiasm for it, and try to draw others into an appreciation of it, doing his part to convince the world that the study of nature is one of the most noble of pursuits, that there are other things worthy of the attention of mankind besides the pursuit of wealth. He must push forward and do what he can, according to his ability, to further the progress of his science.

Thus does the university, from its physical laboratory, send forth into the world the trained physicist to advance his science,

and to carry to other colleges and technical schools his enthusiasm and knowledge. Thus the whole country is educated in the subject, and others are taught to devote their lives to its pursuit, while some make the applications to the ordinary pursuits of life that are appreciated by all.

But, for myself, I value in a scientific mind most of all that love of truth, that care in its pursuit, and that humility of mind which makes the possibility of error always present, more than any other quality. This is the mind which has built up modern science to its present perfection, which has laid one stone upon the other with such care that it to-day offers to the world the most complete monument to human reason. This is the mind which is destined to govern the world in the future, and to solve problems pertaining to politics and humanity as well as to inanimate nature.

It is the only mind which appreciates the imperfections of the human reason, and is thus careful to guard against them. It is the only mind that values the truth as it should be valued, and ignores all personal feeling in its pursuit. And this is the mind the physical laboratory is built to cultivate.

ON THE PRESENT ASPECT OF CLASSICAL STUDY.

By B. L. Gildersleeve, Ph.D.

The chance that made me the first professor appointed to a chair in this University has made it my duty to represent the school of letters on this festal day, which has been chosen for the commemoration of the first completed decennium of our existence as an institution. The work of the University, so far as it can be expressed by lectures and by publications, by the number of teachers and of students, by the hours spent in laboratory and seminary, is all on record. Judged even by the census standard of facts and figures, it will be granted that what has been done here in the last ten years does not fall short of the standard which was set up in 1876. Less measurable, but not less certain, are the indications of our influence on the whole circle of University work in America, and, whatever we may have failed to do, we have assuredly not failed in rousing to greater vigilance and stimulating to a more intense energy in other parts of the wide field, and, whether in the way of approval or in the way of protest, our example has made for life and growth and progress. This life and growth and progress have found a material expression in the erection and equipment of model laboratories for biology, chemistry, physics. Departments that are less tangible in their material and in their methods have little to show the visitor, except a few books and a goodly number of men—ardent students, who are busy with old problems and new, enriching themselves with the spoils of the past, laying up store for those who are to come after them, in the present neither envious nor afraid. As to this whole department of letters, then, that department which has naturally fallen most under my own observation, I can truly say that the healthy increase in the schools of language and literature is something that has transcended my most sanguine expectation. In numbers we outrank many of the minor German Universities, and in the more abstruse and recondite studies, such as Assyrian and Sanskrit, we hold our own with some of the leading schools of Europe. As for our American sisters, it is not so easy to separate graduate work from undergraduate work in other American Universities as it is here, and hence the comparison of numbers might not be fair, and might be misinterpreted, and, instead of emphasizing too much our large number of graduate students, it may be better to say, in regard to all the schools of the country in which higher work is done, that we count their success as our success, for we are all helpers one of another. And here I would take occasion to echo the wish—which I have often heard expressed of late—that the University departments in all American institutions of learning might be so organized that students could pass from one to the other in the prosecution of a line of study just as they do in Germany, much to the advantage of their breadth of vision, their freedom from local or personal influence. For my own part, I have always congratulated myself that I was brought under the influence of three distinct, and markedly distinct, philological schools, Berlin, Göttingen, and Bonn, and I have no doubt that when the time comes, there will be a University exchange that will help us even more than the measure of it that we have thus far enjoyed. We then of the department of letters have our success to speak of on this day when a little "self-esteem grounded on just and right" may be pardonable, if not, as Milton says, profitable. But it is a success that carries with it the gravest responsibilities. The ark we bear contains more sacred vessels than it held when we set out, and on an occasion like this it becomes us not only to exchange hearty congratulations that we have been helped thus far on our way, but to renew our hold with greater vigour, and to plant our feet more firmly, with a clearer view of the path to be trod and the burden to be borne.

To some, I do not know to how many, certainly to some of those whom I am addressing, the special line of work to which my own life has been devoted may seem to have had its day, and to plan for the future of Greek is to plan for an elaborate structure on the foundation of some Table Rock, destined at no distant time to fall and disappear on the restless current of modern life. A monument was erected some years since to the memory of the last old woman that spoke Cornish, and it would require no great stretch of imagination on the part of some of our friends to fancy that some youth may be present here to-day who shall live to see the cremation of the last successor of Sir John Cheke on this side of the Atlantic, of the last old woman, trousered or untrousered, that shall have discharged the office of a Professor of Greek in an American University. People who have reached a certain age and have become somewhat reflective and prophetic generally console themselves with Hezekiah's words. But I cannot content myself with the thought that there will be peace and truth in my days. There has not been much of either of these commodities in my first half-century, and I do not expect the market to be glutted with them in my second. Surely there is no sign that there will be any peace about Greek or truth about Greek in any period that I can reasonably hope to reach. But the peace and the truth that may be denied me from without are vouchsafed me abundantly from within, and while many of my fellow-workers are in woe for the silver shrines of Diana, and mourn for the abandonment of Greek, and sorrow that the trade in text-books languishes, I am serenely standing where I stood many, many years ago, when I published my first article on the "Necessity of the Classics," a title not to be confounded with the "Necessities of the Classics" about which one hears far too much. I live in the abiding assurance that what is inwrought in the structure of our history and our literature must survive so long as the history of our race and the history of our language shall survive. To disentwine the warp of the classics from the woof of our life is simply impossible. One mediæval writer every one must know, and, measured by modern standards, Dante was not a classical scholar of the first rank; his perspective of antiquity was false, his estimate of the poets of the past was far from being just, and yet what is Dante if you loosen his hold on the classic time? I will not speak of Milton, steeped in classic lore; I will speak of Shakespeare. None but those who have read Shakespeare with the eye of a classical scholar know how much the understanding of Shakespeare is dependent on training in the classics, and more than once when I have hesitated as to whether it was pedantry or not to use a Greek word in my English discourse, I have turned to Shakespeare.

Is this the judgment of a man who can see only through his own narrow casement? Scarcely had I set down those words when the following passage fell under my eye. It is to be found in the recent introductory lecture of the professor of poetry in the University of Oxford. "The thorough study of English literature, as such—literature, I mean as an art, indeed the finest of the fine arts—is hopeless unless based on an equally thorough study of the literatures of Greece and Rome. When so based, adequate study will not be found exacting either of time or of labour. To know Shakespeare and Milton is the pleasant and crowning consummation of knowing Homer and Aeschylus, Catullus and Virgil. And upon no other terms can we obtain it.*

To be sure we have promise of mountains and marvels if we break with the past. What satisfied us in our boyhood no longer suits the fastidious taste of the present, and the Phœbus Apollo of our youth, clad as to his dazzling shoulders with a classic cloud, is shown up as nothing better than a padded dandy. Our adored Thackeray is no longer faultlessly attired in a garb of perfect English, he is simply a stylistic old beau; the plots in which we once took delight are nothing but vulgar tricks, and the lifting of a tea-kettle lid and the setting down of the same are intrigue enough for the conduct of a two-year-long novel. All this new literature has nothing to do with the classics. Far from it. And yet I am not at all shaken by the self-satisfied

* F. T. Palgrave, *Province and Study of Poetry.*

edicts of those who rule so large a portion of the reading world, and I maintain with unwavering confidence that all healthy literature must be kept in communion, direct or indirect, with the highest exemplars of our Indo-European stock; and if anything could prove the necessity of a return to healthy human nature, with its compassed form, its fair red and white, it would be the utter wearisomeness of so much recent fine writing, in which there is no blood, no sap, nothing but division and subdivision of nerve tissue. "A pagan suckled in a creed outworn" is a joy and delight in comparison with the languid, invertebrate children of the great goddess Anæmia.

I have watched with much interest the development of the study of artistic composition in English during the last few years. Indeed, it would have been necessary to stop one's ears to keep out the thrilling cicada-sound of "art for art's sake," and all the theoretical buzz of æsthetic criticism. The interest has not been unmingled with amusement because the apostles of progress are preaching very old doctrine—a doctrine which I shall be glad to reinforce so far as I can, before I acquit myself of this function. Art for art's sake involves the very hardest, the very driest study, the very kind of study for which we philologians and grammarians are contemned. The accomplished master in the Art of Dipping, who delighted the world a few weeks since by his Letters to Dead Authors, made his swallow-wing strong on the Elysian fields of the classics, and those who should hold him as an example of the kind of classical scholar we ought to have, little know to what severe studies is due that easy grace. It is so cheap to talk about gerund-grinding and root-grubbing, as if gerund-grubbing did not lead to the music of the spheres, and root-grubbing to the discovery of the magic moly that guards against the spells of Circe, of "euphrasy and rue," that purge "the visual nerve." He who neglects the elements lacks the first conditions of the artistic life. In the old times great artists did not disdain to prepare their own varnishes, and the old paintings stand fresh to this day, while many of their modern rivals, scarce a generation old, are falling into decay beyond the hope of recognition. The fair dream was embodied in machine pigments, and the machine pigments flake off, and with them the fair dream vanishes. If grammatical research is pressed with regard to truth, to that which is, then the gerund-grinding, as the colour-grinding, not only has its warrant in itself as a useful exercise, but it is sure to be available for higher purposes, and if it is not given to every one to make use of grammatical results for artistic ends, still no organic fact is without its value, none will fail of its appropriate place in the completed system of art as of science. To me, as an ardent lover of literature, as one who was led through literature to grammar, and not through grammar to literature, the fairest results of a long life of study have been the visions of that cosmic beauty, which reveals itself when the infinitely little fills up the wavering outline, and the features stand out pure and perfect against the sky of God's truth. Now, for the study of literature as an art we have everything to learn from the old critics, and what our own Sylvester, our own Lanier, have rediscovered as to the science of verse is a chapter from antique rhetoric. Mr. Lowell has recently pointed out the great secret of Gray's abiding popularity. That consummate master did not disdain the close analysis of the sensuous effect of sound, and the melody of Coleridge is due in a measure to a conscious though fitful study in the same line. Of late an author, whose charm of style was first appreciated in this country, has written an essay in which he applies phonetic analysis to the works of our great prose-writers, and strikes the dominant chord of what seems unconscious music. The essay might have been written in the beginning of the first century as well as the end of the nineteenth, and have been signed Dionysius of Halicarnassus as well as Robert Louis Stevenson.

Whether then it be for the historical unity of the race, whether it be for the human sanity of classical literature, whether it be for the influence on form either as example or precept, there is no danger that the ancient classics will be displaced from the list of studies necessary for the highest and truest culture. Nor do I think that the so-called hard and dry and minute research in this and cognate provinces of study will ever be abandoned in favour of a mere belletristic phrasemongery about half-understood beauties. What is hard, what is dry, what is minute, depends very much on the spirit in which it is approached. Some years since I attended a lecture by a great master. The theme was the vanishing of weak vowels in Latin. Candour compels me to state that, although I pride myself on being interested in the most uninteresting things, I should have chosen another subject for a specimen-lecture. Candour compels me to state also that I very much question whether the illustrious teacher would accept all his own teachings to-day, such progress do grammarians make in devouring themselves as well as one another. I was much struck with the tone in which he announced his subject. It was the tone of a man who had seen the elements melt with fervent heat, and the weak vowels vanish at the sound of the last trump. The tone, indeed, seemed entirely too pathetic for the occasion, but as he went on and marshalled the facts, and set in order the long lines that connected the disappearance of the vowel with the downfall of a nationality, and great linguistic, great moral, great historical laws marched in stately procession before the vision of the student, the airy vowels that had flitted into the Nowhere seemed to be the lost soul of Roman life, and the Latin language, Roman literature, and Roman history were clothed with a new meaning. And so we of the language departments do not intend to be disturbed in our work by criticism on the arid details of our courses; nor, on the other hand, are we unmindful of the larger and more popular aspects of the wide field of culture which we occupy. There is no form of art, no phase of philosophy, of ethics, no development of physical science, that is alien to the student of language, and the student of physical science in his turn needs the human interest of our study to save his life from an austere and merciless quest of fact and principle in a domain where man enters only as a factor like any other factor. But, first and last, the scientific standard must be upheld for the University man, be he a student of letters, be he a physicist; and that standard is the absolute truth, the ultimate truth. "Nothing imperfect is the measure of anything," says the prince of idealists.*

UNIVERSITY AND COLLEGE INTELLIGENCE.

University of London.

The reports of the examiners upon the Intermediate Examinations in Arts and Science and the Preliminary M.B. Examination were published on August 13th, and the report on the Intermediate Examination in Medicine was published on August 11th.

At the Arts Examination there were 613 candidates, exactly the same number as last year. Of these a total of 311 (50·6 per cent.) have passed, viz., 49 in Honours, 85 in the first division (pass), 168 in the second division, and 9 in the "gulf" (Honours candidates who only reached the pass standard). Of women, 128 appeared (against 116 last year), and a total of 88 (a remarkable percentage of nearly 69, against 56 per cent. last year) have passed, viz., 9 in Honours (3 of whom take double Honours), 33 in the first division, and 46 in the second. Taking the men alone, the percentage of passes is less than 46. Of the men in Honours, 4 take double Honours, and one (Mr. E. D. McQ. Gray, a private student) takes quadruple Honours. The exhibition in Latin goes to Mr. Roland F. Wilkins (son of Professor A. S. Wilkins), of Owens College, and the second candidate in the Honours list, Mr. A. Goodier, of Stonyhurst, is marked worthy of the exhibition. In English Honours the exhibition goes to Miss Diana J. Thomas, of University College, Cardiff, and the second and third candidates, Mr. Ll. Tipping, a private student, and Mr. A. A. Brockington, of Mason College, Birmingham, are marked worthy of the exhibition. In French, the first candidate, Miss M. L. Stoer, of University College, London, is disqualified by age for the prize, so also is the second candidate (Mr. Gray, above-mentioned), and the prize passes on to Miss Jane B. Partridge, of Bedford College, London, and University College, Aberystwith. In German also both the first candidate, Mr. Gray, and the second, Mr. Ernst Brugger, of the University of Strassburg, are disqualified by age for the prize. There is no other candidate in the first class.

In Science, there were 202 candidates (one more than last year), of whom, in all, 112 (55·4 per cent., against 62·2 per cent. last year) have passed, viz., 27 in Honours (two of whom take double Honours), 50 in the first division, 32 in the second, and 3 in the "gulf." 29 of the candidates were women, of whom 15 (51·7 per cent.) have passed, viz., 6 in Honours, 3 in the first division, and 6 in the second. At the Honours examinations, the first and third candidates in Mathematics are science men, the second and fourth arts men, and the first, Mr. F. S. McAulay, a private student, would have taken the exhibition were it not that he is above 22 years of age. In Chemistry, Mr. R. H. Bremridge of Magdalen College, Oxford, obtains the exhibition, and the second candidate, Mr. Edmund White, a private student, is marked worthy of the exhibition. In Physics, the first candidate is a lady, Miss J. B. Holt, of University College, Liverpool, but she is too old to receive the Neil Arnott exhibition and medal. These are passed on to the second candidate, Mr. G. R. Thompson, of the Yorkshire College, Leeds, and the Science Schools, South Kensington. There is no first class in Botany. Of the four candidates in the second class, three are

* ἀτελὲς γὰρ οὐδὲν οὐδενὸς μέτρον. Plato, Rpb. VI., 504 C.

ladies. In Zoology, the exhibition is taken by Mr. A. M. Davies, of the Normal School of Science.

The Preliminary Scientific (M.B.) Examination has now become so complicated that it would occupy an unreasonable amount of space to go into all its details. It must suffice to state that the whole number of candidates, in all the subjects or some only, was 273 (11 less than last year), and the total of passes is 202, or 74 per cent., but this number includes a good many who went in for the whole examination, but have passed in only one or two subjects, and who, under previous regulations, would have been plucked. 12 have taken Honours, but there is not a first class among them; 83 pass the whole examination; 40 pass in two subjects; and 67 pass in one subject. 6 of the candidates were women, but only 3 pass—one in all the subjects, one in two, and one in one subject. 17 of the candidates (last year there were 46) who took the whole examination, or Honours, have also qualified for going on to the B.Sc. Degree by taking the three mathematical papers of the Intermediate Examination in Science.

Lastly, at the Intermediate Examination in Medicine there appeared a total of 144 candidates, of whom a total of 86 (59·7 per cent.) have passed, viz., 23 in Honours (of whom 11 take double and 2 take treble Honours), 42 pass in all the subjects, 11 pass in all but Physiology, and 10 pass in Physiology only. 8 of the candidates were women; one passes in all the subjects, and three others obtain Honours. One of these three, Miss Ann F. Piercy, of the London School of Medicine for Women, has very highly distinguished herself, being placed first in a large first class, with the exhibition and gold medal, in Materia Medica, and second with a gold medal in Anatomy, and being bracketed with two others in the first class in Physiology. This is, on the whole, the finest position ever attained by any woman at this examination. The exhibition and gold medal in Anatomy go to Mr. Thomas Carwardine, of Middlesex Hospital, and he exhibition and gold medal in Chemistry to Mr. F. G. Hopkins, of Guy's.

Miss Piercy is daughter of the Rev. George Piercy, of the London Mission to the Chinese, and is said to be studying medicine with a view to mission work in China, in connexion with the Wesleyan body.

Other Universities, Colleges, and Schools.

The Council have elected the Rev. R. J. Knowling, M.A., for six years Chaplain of King's College, London, to be Vice-Principal.

Mr. Robert Montague, M.A., Assistant Master of Dulwich College, has been elected Headmaster of the Freemen's Orphan School.

The Rev. A. E. Rubie, Assistant Master of Bradfield College, has been elected Headmaster of Richmond Grammar School, Yorkshire.

Mr. W. S. Nicoll, of Glasgow, has been appointed Professor of English Literature, in University College, Dundee.

The Rev. Herbert A. Watson, Modern Form Master of Manchester Grammar School, has been elected Headmaster of Maidstone Grammar School.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending August 31st, 1890.

Art Ballad (The), Loewe and Schubert, with Musical Illustrations by A. B. Bach, royal 16mo, 16s. cl.
Baillon (H.): Histoire de Plantes, 10fr.
Bohn's Library of Sports and Games: Athletic Sports, edited by E. Bell, Vol. 1, Cricket, &c., cr. 8vo, 3s. 6d. cl.
Blake's (M. E.) A Summer Holiday in Europe, cr. 8vo, 2s. 6d. cl.
Elementary Schools, how to increase their Utility, Six Lectures, with Preface by W. Bousfield, cr. 8vo, 3s. 6d. cl.
English Miracle Plays, Moralities, and Interludes, edited, with Introduction, &c., by A. W. Pollard, cr. 8vo, 7s. 6d. cl.
French Composition through Lord Macaulay's English: Part 3, Lord Clive, edited by J. Boïelle, cr. 8vo, 3s. cl.
Forsyth's (A. R.) Theory of Differential Equations, Part 1, 12s.
Gibbin's (H. de B.) The Industrial History of England, 2s. 6d.
Grimm (J.): Kleinere Schriften, Vol. 8, 12m. 50.
Grimm's Fairy Tales, German Text, with Notes by W. J. Hickie, cr. 8vo, 2s. cl,
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Litchfield's (M. E.) The Nine Worlds, Stories foom Norse Mythology, cr. 8vo, 3s. cl.
Longman's New Five-Shilling Atlas, for Use in Schools, edited by G. G. Chisholm, imp. 8vo, 5s. cl.
Longman's School Atlas, Physical and Political, 2s. 6d. cl.
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Poussié: Manuel de Conversation en Trente Langues, 10fr.
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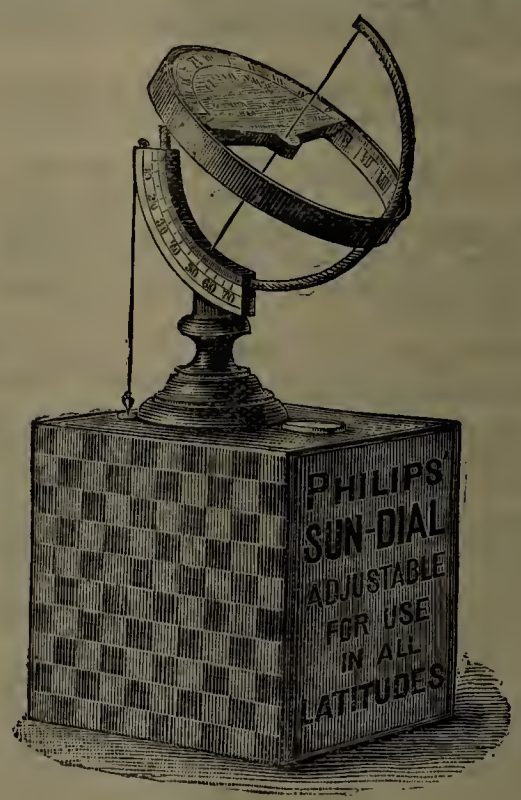

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THE EDUCATIONAL TIMES.

LONDON, SEPTEMBER 1, 1890.

THE President of the British Medical Association, in his inaugural address at the Annual Conference of that body recently held at Birmingham, raised an educational question of as much interest to schoolmasters as to medical practitioners.

He chose for the subject of his address the pre-technical education of medical men, and his criticisms and conclusions with reference to that education have a far wider application than he gave to them. For an inquiry as to what is the preliminary education proper to one who is to be a doctor, suggests the like inquiry in reference to the student who is to be a merchant, manufacturer, engineer, or lawyer. And if the ordinary secondary schools of the country fail, as Dr. Wade says they do, to impart to students entering the medical profession that preliminary training which would enable them to begin their technical studies intelligently and without loss of time, then there is only too much reason to suspect that they fail equally in reference to youths entering on other pursuits, whether commercial or professional.

The medical student's case, as stated by Professor Huxley, is this. He enters the medical school at the age of seventeen, too commonly "not only devoid of the slightest tincture of scientific knowledge, but, what is worse, so completely habituated to learn only from books or oral teaching, that the attempt to learn from things, and to get his knowledge at first hand, is something new and strange. Thus a large proportion of medical students spend much of their first year in learning how to learn, and, when they have done that, in acquiring the preliminary scientific knowledge with which, under any rational system of education, they would have come provided."

As the average student can only afford to devote about four or five years to professional studies, and must at the end of these earn his own living, it is only too clear that the loss of a year in working the elementary science which he should have learned at school, but did not, is altogether unjustifiable.

Why is it that the medical student has left school without that knowledge of the elements of physical, chemical, and biological science which would enable him to begin at once the study of the practical branches of medical science and art? Dr. Wade answers that it is owing to the disproportionate time given to Latin in the schools. He pertinently inquires into the uses to which the doctor puts this subject to which so much school time is devoted, and he finds they are only these:—(1) He wrote in his prescriptions the Latin names of drugs, instead of their English or Anglicized ones; (2) He wrote in Latin his instructions to

the dispenser for compounding the drugs so ordered; (3) He wrote in Latin his instructions to the patient as to the quantities in and the times at which medicines were to be taken, or as to the manner applications were to be used.

Now these uses Dr. Wade submits are purely arbitrary and artificial, and there only remains, in justification of the time spent on Latin, its educational value—its peculiar power of disciplining the mind for whatever work it may be required to do. Then, as time is of the essence of the matter, the question arises, Are there not other subjects which afford not only mental discipline, but have a direct bearing on the life-work of the student? and thus we are brought back to the vice of the modern school curriculum, the real fundamental difficulty in modern education. Look at a modern secondary school, and the demands it makes on the minds of its scholars. Instruction is given in the elementary subjects *ad nauseam*, parsing and analysis, chronology, history, and geography; then, in deference to the requirements of the Universities, Latin and Greek are kept up; and, in obedience to the cry of the practical man, French and German must be attended to; and, by way of making the curriculum in some measure reflect the astonishing progress of science in the last fifty years, we have small books on natural history, physiology, geology, chemistry, botany, physics, to be got up one or two at a time; and last of all, yielding to the claims of commerce, the student is required to know something of international traffic, of the world in its length and breadth, its various races, their wants and superfluities, their ways, habits, and achievements, the natural resources of each country, and their present stage of development. And instead of choosing from this motley multitude of subjects those which would accord best, both as discipline and knowledge, with the gradual growth of youthful faculties—in other words, instead of there being a superintending design in school education directing it towards the fulfilment of its end—what we see is that the selection and arrangement of the subjects of instruction are too frequently determined by the exigency of particular examinations, or else are left to the blind evolution of events.

The President of the Medical Association holds, and Professor Huxley holds with him, that the General Medical Council, in making Latin an obligatory subject in their entrance examination, thereby lays a useless burden upon medical students, and hinders the proper organization of their professional studies. "Most undoubtedly," says Professor Huxley, "it is desirable that students of medicine, like other people, should have a sound literary training. They may obtain it, and a sound elementary training in science as well, before they are seventeen, if only the Latin fetish ceases to be an object of superstitious reverence on the part of those who determine the conditions of medical education." Dr. Wade makes a practical suggestion to meet the difficulty as it affects medical students, which, as he rightly surmises, would, if acted on, be helpful also to others. His proposal is that a Select Committee of the Medical Council should sit with open doors and take the evidence of two or three persons carefully selected from each of the following classes: —Public Schoolmasters, Her Majesty's Inspectors of Schools, Headmasters of Training Colleges, and Headmasters of Board Schools. The subject of inquiry would be: In what way could it be best ascertained that a boy aged fifteen was of not less than average intellectual capacity; that he had for ten years been so trained as to have had his intellect generally developed. Inquiry as to what subjects would best serve such training, and which were the most useful in after years, Dr. Wade remarks, would of course follow; but he considers that, if the boy's then intellectual *status* was satisfactory, no matter what or how much he had learned, the essential points being that he understood what he had learned, and that he had so acquired his knowledge that in the process of acquisition he had been trained to think, then the boy "was fit for differentiation into a science student."

Applied to school practice generally, the suggestion of Dr. Wade only amounts to this, that there is a time in the school period when specialization should come in, when a boy should turn his attention to those subjects which have a direct bearing on his life-work. Schoolmasters recognise this as fully as others, and, if the recognition does not produce all the results to be expected, the reason lies, as already hinted, in this, that far too many subjects are taught in schools. The essential matter, however, now is that some settlement of the question of a rational school curriculum should be reached; but how we are to reach it, with so many influential bodies seeking to shape education each after its own views, it is not easy to see. One thing is certain, that boys cannot usefully learn all they are called upon in these days to learn. A choice has to be made amongst the subjects of study, and in our view the best guide to follow in making a choice is utility.

The controversy between theory and practice began with the human race, and seems likely to continue as long. The theorist, busy with the detection and organization of general principles, still looks with but ill-disguised impatience upon the stubborn and inconsiderate claims of particular practice to decide everything; and the practical man, careful and troubled about details and particulars, and somewhat over-eager that every chance success of his work shall be attributed to his own individual genius and experience, scoffs at theory as something out of touch with this workaday world, and refuses to see that, if he has any reasons at all for what he does, those reasons must themselves constitute a kind of theory. But setting aside this controversy for a while, and taking it for granted that theory and practice—like Mary and Martha of old—may find it possible to dwell at peace in one family, let us try and see how they may best help each other in the work of education.

It is no longer needful, we believe, to apologise for speaking of the theory of teaching. Most thoughtful teachers now acknowledge that such a theory does exist, and that, like all theories founded on induction, it is not fixed and final, but continually improves with the progress of observation and experiment, and must ever continue to improve as long as we continue to add to our knowledge of human mind and human life. The main difficulty of these believers seems to be to decide how the ordinary teacher is to gain his knowledge of this theory of teaching. Many—and especially those strongly imbued with a sense of the valuable mental training to be derived from true science-work—maintain that the only right way here, as in other science-teaching, is the way of observation, experiment, and practice; that the way to gain a knowledge of child-mind and child-nature is to observe child-mind and child-nature. But such a view,

sound though it appears at first sight, in reality rather increases than lessens our difficulties. Did the question concern the method to be employed by the philosopher, the scientific specialist, the maker and modifier of the general theory, we should acknowledge the rightness of the view at once. And so also should we acknowledge it were we considering how to employ psychology and physiology as the means, or part of the means, for general education. But our case is neither of these. We pre-suppose that the would-be teacher is already possessed of a sound general education, and we do not aim at producing a psychologist or physiologist, or even, in the strictest sense of the term, an educational philosopher, but a teacher. And further, supposing we adopt the plan suggested, may we not fairly ask what is the minimum amount of observation and experiment on which it would be really safe to erect a theory which would have any likelihood of being *generally* sound? And, adds our practical friend with telling effect, how many years of his life do you suppose the would-be teacher can afford to devote to this investigation, even if we grant that he is fitted to undertake it at all? I have heard it said that a man may spend a whole lifetime on psychology alone before he comes to any very satisfactory results due solely to his own inquiries.

No, we are afraid the practical man is right. This plan will not work. And after all, as a matter of fact, in science-teaching, strictly so called, do we ignore the discoveries and thought of others, and keep our students working as if the world had only begun yesterday, making all the old mistakes over again, and with pain and toil arriving at last just where our predecessors left off? In this way progress would be impossible. Human thought is not a fortuitous succession of solitary and disconnected activities, but an ordered continuous whole. Every generation should, and does, profit by the knowledge and wisdom of all the generations which have gone before it. And so every would-be teacher should learn and profit by results and general principles not arrived at by his own individual inquiries, whatever else he may do.

In other words—to cut the matter short—we consider that the ordinary educated person who desires to become a teacher must be content to take his *general* principles, his theory of teaching, ready-made—at any rate at first. And he should resort to practice, and that continuously, not for the purpose of forming theories, but in order to see and learn the application of theory, and so to come to the true understanding of what the theory in question means. The business of the teacher pure and simple is the application, not the forming, of theory—at least, it must be so at the outset and during all the earlier part of his career. Practice he must have, and plenty of it, but it should be practice in applying theory. Study he must, and diligently; for he must understand and know the theory he has to apply. But to do this he must take his theory as it is set forth and explained and illustrated by others, knowing that he will never completely understand it until he has seen it at work again and again, and has realised to the full how far and in what ways it holds good in work. Later on, after years of experience, he may safely reconsider the whole matter, and so make his own contribution to the progress and improvement of the theory of teaching. That seems to us the only arrangement practically possible.

And, meanwhile, the young teacher will do well to bear in mind that he is dealing with *general* principles, and that *general* principles are never completely applicable to *particular* cases. To make judgment wholly by the rules of general theory is the humour of the scholar and of the pedant. Studies perfect nature, and are perfected by experience. But studies themselves give forth directions too much at large except they be bounded in by experience. General principles are guides and interpreters in particular cases, and as such are of the highest value. But inasmuch as they are general, and not particular, we need experience to direct us in their right application. We only understand an individual thing thoroughly in the light of general knowledge. "A botanist," as Mr. Sully points out, "only comprehends a new plant when he classifies it, that is, refers it to a general description or head, and accounts for it by help of general botanical principles. Similarly, we only understand a particular child when we bring to bear on it a previous *general* knowledge of child and human nature. And while psychological knowledge thus aids us in reading the individual characters of children, it assists further in determining the proper modifications of our educational methods to suit these variations." It is because general principles can do this for us that we urge the young teacher to acquire a sound knowledge of them. But they can never enable us to do without intelligence and experience. A thorough mastery of them does not turn a teacher into a machine. It only gives him the power to see more clearly, to think more soundly, and to act more wisely. But he has still to see, to think, and to act; besides gaining knowledge, he has to apply what he knows to particular cases.

THE summer pilgrims to Oxford must be careful not to mistake the shrine before which they ought to bow. It is not surprising in these days, when the worship of Examination has in many places supplanted that of Learning, that some of the pilgrims should be asking for examinations; but the demand leads us to ask a question which has been asked and answered many times. What are the right functions of a University? Mr. Matthew Arnold answered the question as follows. The University "ought to provide facilities, after the general education is finished, for the young man to go on in the line where his special aptitudes lead him, be it that of languages and literature, of mathematics, of the natural sciences, of the application of these sciences, or any other line, and to follow the studies of this line systematically, under first-rate teaching."

Again, "The idea of a University is that of an institution not only offering to young men facilities for graduating in that line of study to which their aptitudes direct them, but offering to them, also, facilities for following that line of study systematically under first-rate instruction. This second function is of incalculable importance, of far greater importance even than the first. It is impossible to overvalue the importance to a young man of being brought in contact with a first-rate teacher of his matter of study, and of getting from him a clear notion of what the systematic study of it means."

A still greater authority, the late John Henry Newman, answered the question as follows:—"It is a great point to enlarge the range of studies which a University professes, even for the sake of the students; and, though they cannot pursue

every study which is open to them, they will be gainers by living among those and under those who represent the whole circle. This I conceive to be the advantage of a seat of universal learning, considered as a place of education. An assemblage of learned men, zealous for their own sciences and rivals of each other, are brought by familiar intercourse, and for the sake of intellectual peace, to adjust together the claims and relations of their respective subjects of investigation. They learn to respect, to consult, to aid each other. Thus is created a pure and clear atmosphere of thought, which the student also breathes, though in his own case he only pursues a few sciences out of the multitude. He apprehends the great outlines of knowledge, the principles on which it rests, the scale of its parts, its lights and its shades, its great and its little, as he otherwise cannot apprehend them. Hence it is that his education is called 'liberal.' A habit of mind is formed which lasts through life, of which the attributes are freedom, equitableness, calmness, moderation, and wisdom. This, then, I would assign as the special fruit of the education furnished at a University. . . . This is the main purpose of a University in the treatment of its students."

Now, some of the best functions of the University, according to these views, may be exercised on these summer pilgrims. Even within the space of a few weeks the visitors may be brought under that influence which creates and fosters reverence for culture, and stimulates efforts to secure it. They may be introduced to the rich stores of apparatus for study, and, what is of far greater importance, they may be introduced to men engaged in research, in investigation and discovery, to men fitted to help in the solution of the problems of the age—problems scientific, social, political, moral, and religious. They should carry away some noble aspirations and an enthusiasm for hard work. If this is secured, there will be neither time nor inclination for examinations.

The Code for 1890, after many revisions, now at once comes into operation. Sir William Hart Dyke has had the felicity of producing a Code which it is scarcely too strong to call revolutionary, but which meets with the approval of reasonable and thinking men of all classes and all professions. There have been Vice-Presidents who, backed by a strong and blindly united party in the House of Commons, have suddenly changed the policy of the Education Department, and have carried more startling Codes; but the most radically novel of these Codes shocked the common-sense and the sense of justice, not only of the body of elementary teachers, but also of the most zealous supporters of education everywhere. The teachers found their contracts with their employers suddenly repudiated; founders, managers, and supporters of schools found the plans and arrangements which they had taken half a generation to mature suddenly destroyed; and all for methods of doubtful expediency based, like the philosophy of the Middle Ages, on mere phrases. The Code of '90 is received with satisfaction and relief. This result is due to the character and the ability of the present Vice-President of the Council. When he entered the Education Department, many thought he lacked the technical instruction necessary for the business; but his application, his courtesy, his willingness to listen to all suggestions backed by argument, especially those of experts, and his transparent straightforwardness, have enabled him to achieve what is perhaps only beaten by the record of one of his predecessors, namely, Mr. Forster.

The Code of '90 will in all probability speedily improve the instruction in all schools, especially in small schools, and at the same time it will deprive it of what was irksome and oppressive for the weak and dull, and remove from it many of the restrictions which hampered and retarded the strong and able scholars. It will gradually remove from schools teachers of imperfect qualification, although it will not displace those who have in the past been allowed to become teachers, having fulfilled the conditions previously laid down by the Department. The features of this Code with which we are most pleased are those tending to secure a better training for new recruits, and to give all possible freedom to future elementary schoolmasters to get their training where they can also secure attainments of the highest character. We draw attention to the conditions for the working of Day Training Colleges published in another column. Recently the Council of the College of Preceptors formulated the conditions on which the College should award its scholarships for the purpose of assisting teachers to secure training, and it goes far to prove the judiciousness of the provisions of the Department to observe that all the main points the new regulations are intended to secure are exactly those which a body of schoolmasters, anxious only to make the best possible arrangements in the interests of the young teacher, and unfettered by other conditions, have already laid down as essential.

The best of Codes may be marred by being badly administered, but we look for increased vigour and more pleasure for scholars and teachers in the work of public elementary schools as the natural fruit of the Code of 1890.

CORRESPONDENCE.

THE GERMAN TEXT-BOOK IN THE "OXFORD LOCALS" FOR 1891.

To the Editor of the Educational Times.

Sir,—Being on the point of leaving England for the Continent, I have only time to send you a short but emphatic protest against the choice of the German Text-Book in the "Oxford Locals" for next year. The book in question is Goethe's exquisite poem, "Hermann und Dorothea," which is, both in point of language and conception, far beyond the comprehension of young pupils. Some years ago the same work was selected at Cambridge for seniors, and even for these it was found too difficult. It is to be hoped, therefore, that the delegates will, if their attention is duly called to the subject, rescind their choice in the same way as they did—thanks to your influential interference—a few years ago, when a protest appeared in your *Journal* against the selection of an interesting, but entirely unsuitable, German book for the juniors. The delegates will not meet before the middle of October; I should therefore advise my colleagues not to introduce the prescribed book until there will have been time to reconsider the matter at Oxford.

Hoping that you will kindly insert these hurried lines in the next number of your valuable *Journal*, I remain, yours obediently,

A Headmaster.

August 15th, 1890.

COLLEGE OF PRECEPTORS.—CERTIFICATE EXAMINATION.

Errata in Class List (Midsummer, 1890).

First Class (Boys).

Pass Division: *insert* Livesey, R. M., Grammar and Collegiate School, Carnarvon, and *omit* in Second Class, First Division.

REVIEWS, NOTICES, &c.

Short Studies of Shakespeare's Plots. Cyril Ransome, M.A. (Macmillan & Co.)

Professor Ransome's short History of England is now so well known and well liked by teachers that we naturally turn with some curiosity and pleasant anticipation to his new venture—this time in the higher kind of literature-teaching. Let us say at once that no one will be disappointed in these "Short Studies," and that many will find them both suggestive and instructive, and, indeed, not without a certain charm of frankness and freshness. In expounding the plots of some eight of Shakespeare's plays, Professor Ransome has, of course, had to deal with many controversial points, which he has not attempted to settle finally, and has explained many actions and speeches in ways which we shall not all of us be ready to accept—at any rate, not at once—as the only possible ways. But then Professor Ransome does not desire to press his views of the various questions upon us. He is contented to state his views shortly and clearly, giving his reasons; and quite readily leaves us to accept them or not, as seems good to us. What he *is* anxious about is rather the manner and method of studying Shakespeare's plays; and he sets his plan before us with the very distinct desire that we should carefully consider it, and give it a trial. As examples of how the work may be done, he gives us his treatment of eight of the best-known plays on the lines he proposes.

Like many of us, Professor Ransome is heartily tired of the dry-as-dust antiquarian linguistic way of studying literature—or, rather, of avoiding its study; and would fain persuade us to aim at something more human, something more truly connected with thought and action and art. Yet, at the same time, he would be loth to see us rushing into vague, vapouring, unrealities and second-hand enthusiasm. He wishes to keep the study definite, real, and personal; to make it an exercise of observation, judgment, inference, reasoning, imagination; and to effect this he insists upon the unfailing presence of the text, and upon the personal efforts of the student. He does not intend that any one should retail to any pupil or student the contents of this book of "Short Studies," or the contents of any other book. He desires that both teacher and pupil shall together exercise their faculties on definite material, and do definite work.

But we had better let Professor Ransome speak for himself:—

"To my mind the first object of teachers of Shakespeare should be to create an interest in the plays themselves. For this purpose the work in hand should first be read through as a whole, and the students taught to ask themselves at the end of each scene, or in the longer scenes at moderate intervals, the following or similar questions. First, what has this scene done to advance the story? Second, what light has been thrown by it upon the characters of the persons concerned? Third, what light has been thrown upon the circumstances under which the events which form the plot took place? These questions should in the first case be put to the students, and only when they have done their best to answer them should further information be given by the teacher, who should carefully teach the students how to read the text in order to find the answers to the questions. . . . Their interest having been aroused, they will be in a position to appreciate exactness in determining the meaning of words, and to value any insight they may gain into the significance of particular phrases, because of the light thrown by it upon knowledge which they have already attained. When the play has been studied as a whole, and also word for word, it will be time to introduce the student to what may be called the higher criticism, which he will then be in a position to profit by and to enjoy."

Every thoughtful teacher of literature will agree with this, and some of us have already made use of similar plans. We are only somewhat in doubt as to how far publishing the *results* arrived at by using it in the cases of certain plays will give the reader a clear idea as to how the plan *is actually to be worked;* for the living discussions carried on by teacher and class must necessarily be absent. Still, we are not prepared, on the spur of the moment, to suggest another form of exposition, and we have certainly found the book interesting and suggestive, though, were there space for it, we should like to break a friendly lance with Professor Ransome with regard to one or two of his interpretions, and to mention a few points here and there which have been passed over. But we must deny ourselves the pleasure, and simply wish the book success.

German School Books.—(1) Feodor Dose: Episodes from Hackländer's Wachtstuben-Abenteuer. Selected and edited, with Notes, by H. S. Beresford-Hope. (Rivingtons.) (2) German Reader and Grammar for Beginners. By W. J. Hickie, M.A. (Williams & Norgate.) (3) Graduated German Prose Writing. By F. Lange, Ph.D. (Hachette.)

Hackländer is undoubtedly one of the most entertaining modern German novelists, and his works should by all means be read by our countrymen, more especially because he is one of the most successful continental followers of Charles Dickens. If his novels have not met with signal favour in their English garb, it is chiefly owing to the fact that they have been, like so many other German works, indifferently translated. It does not require, however, a deep knowledge of the language to read Hackländer's stories in the original. They are mostly written in a simple and homely style, and it is only in some of his plays that his language becomes, if not classical, still polished and elevated. It seems to us, therefore, doubtful whether any of his tales are suitable to form a basis of grammatical instruction; for which purpose those writings only should be selected, which may serve as models of style and composition, or which are in some way instructive. Nevertheless, we will not quarrel with the editor of *Feodor Dose* for having selected this humorous episode from Hackländer's *Waehtstuben-Abenteuer*, more particularly if we consider that a number of German publications have recently been issued as text-books, both here and in America, which deserve much less the honour of annotation and comment. We must, however, object to the notes, both as regards their form and contents. A number of them are far too long-winded and contain much irrelevant matter. In order to explain why *Scheere*, "scissors," is used in German in the singular number, we are treated to a note of eight lines, and to one of seven in order to illustrate the termination *-erlei*, which, by the bye, is no termination at all, the real suffix being *-ei*. In explaining the word *Lectüre*, the editor indulges in a disquisition, occupying more than twenty lines, on the use of foreign words in German. A number of translations, and grammatical and etymological definitions, which to quote would occupy too much space here, will require thorough revision and correction. On the whole, we think that extracts like the present, if "edited" at all, had better be provided with a simple vocabulary, instead of with long and occasionally misleading notes. Still, we must acknowledge that the editor has at any rate endeavoured to produce creditable work, and that his notes contain some useful remarks, which cannot be said of the second book in our list. A sorrier educational publication than Mr. Hickie's "Reader and Grammar for Beginners" we have not met for a long time. The word "line," referring to the lines in a book, is translated *Linie*, instead of *Zeile;* and "marriage service" is rendered *Ehedienst*, which translation is simply absurd. For "grocer's shop," which is *Krämer-laden*, we find the translation *Krämer-bude*. If we add that the German extracts frequently exhibit an ignorance of the elementary rules of the order of words in German, it will suffice to show that the compiler has produced a thoroughly unreliable guide to the study of the German language. The third book in our list is much superior to the two preceding ones, but it suffers from the usual defect of Dr. Lange's grammatical manuals, viz., want of systematic arrangement and of due care in the grammatical definitions. Thus we find, on p. 6, the rule that "the proper names of the *Classies* ending in *s* or *x* take the definite article before them (except in the nominative)." Why not say, in general, that the rule applies to foreign proper names ending in a sibilant letter? Surely Achilles and Perseus are not *Classies*, and still we should say *des Achilles* and *des Perseus*. We should also like to point out to Dr. Lange the desirability of not dishing up again and again the hackneyed stories of the past generation. Does he think that there is a schoolboy in England who does not heartily wish that *Kosciuszko* had never mounted a horse in his life, so that he should have been spared the annoyance of translating the anecdote relating to his horse into all possible languages? There is one feature in the book which we may mention approvingly. It is the chapter headed "Correspondence Part," which contains some useful hints on the "writing of letters in German."

Elementary Schools: How to Increase their Utility. Being Six Lectures delivered to the Managers of the London Board Schools in 1889 and 1890. With a Preface by William Bousfield. (Percival & Co.)

It was a good idea to publish these lectures. They are much less amateurish than such things usually are, and, besides showing a knowledge of the subjects dealt with, show also, at least some of them do, a knowledge of the use of these subjects as means of education—a matter which, as a rule, the amateur either

airily passes by or evolves, like the famous camel, from his own inner consciousness. The subjects and the lecturers are as follows:—*Science Teaching*, by Mr. W. Lant-Carpenter; *Music*, by Prof. C. V. Stanford; *Physical Culture and Recreation*, by Colonel G. M. Onslow; *Hand-and-Eye Training*, by Mr. George Ricks; *Evenings of Amusement*, by Miss Ada Heather-Brigg; *Mechanics*, by Mr. W. H. Grieve. Mr. William Bousfield adds a Preface—clear-minded and right-spirited and practical; and encouraging withal, especially in its insistence on the great value of Froebellian principles, not only in the treatment of infants, but also in their application to the whole of education. It is a pity, however, that Mr. Bousfield should be under the delusion that the infant schools of the London School Board more than distantly resemble Kindergartens.

Undoubtedly, from the point of view of professional knowledge and skill, Mr. Ricks' lecture is the best in the volume, the soundest in principle, the most skilful in the application of principle, and showing the clearest knowledge of the problem with which he deals. Mr. Ricks is a Froebellian, and his views on the training of hand and eye—or, rather, on the joint exercise of them in the work of expression by means of the concrete—are too well known now to most of our readers for it to be necessary for us to set them forth. We need only say that this particular lecture is not inferior to the best of the others which Mr. Ricks has delivered. Mr. Lant Carpenter's lecture might very well have been omitted. It tells us nothing new, and what it does say is poorly and loosely put together. Dr. Stanford, of course, does not know anything about elementary schools, but he writes brightly, and with evident love of his subject. His idea that we have given the people too much knowledge, and so led them into Socialism, is delightfully *naïve* and wide of the mark. It is emotion—emotion which lives and moves and has its being in half-knowledge, and hearsay, and fancy—not redundant or premature knowledge, which has led to the vague visionariness and hare-brained unrest to which he refers as Socialism. What people want is not more sentiment, but the establishment of a more stable and a juster proportion between true knowledge, and feeling, and steady, active endeavour. Nevertheless, we quite agree with his estimate of the value of music as a part of education, and all the more because he would have us pay more attention to the definite and, so to speak, intellectual side of the subject. Undoubtedly the pedagogic or psychological order of stages is:—singing by ear; some such system as the Tonic Sol-fa (and of these the Tonic Sol-fa is very much the best), with its restriction to merely relative pitch and its simple notation; and, lastly, a system based on the recognition of absolute pitch, and what may be called the Old Notation. Dr. Stanford points out, with admirable force and judgment, that the necessity for supervision in the choice of good and suitable music is every whit as great as in the cases of poetry for recitation and books for reading. Excellently sound, too, is Dr. Stanford's plea that the national or folk music should be made the foundation of all music-teaching, especially in the case of Great Britain, whose store of national music is greater and more varied than any other in existence.

Colonel Onslow's demand for something with greater freedom of movement in it, and better suited to the young, than military drill, will be heartily approved by all teachers—and, indeed, his view has been practically adopted in the New Code. Miss Ada Heather-Bigg, who has herself done so much to extend and perfect the good work she advocates, deals well with the deepening of the influences of the school on the children by means of healthy recreation; and very true and wise is her recognition of the social and the *moral* value of happiness. Many, too, are the good points which Mr. Grieve makes in his lecture on *Mechanics*. Altogether, the book (which costs three shillings and sixpence) is well worth reading and thinking over.

The Jews under Roman Rule (The Story of the Nations). By W. D. Morrison. (T. Fisher Unwin.)

There has already appeared in the series "The Story of the Jews," but that book deals in general outline with the entire history of the race. The limited range of the present work will be seen from the heads of the chapters, as follows:—

Part I. *Roman Rule.*—Roman Policy before the Conquest of Palestine, B.C. 164–63; Roman Conquest, B.C. 63–41; Roman Vassal King, B.C. 41–4; Roman Tetrarchs, B.C. to A.D. 37; Roman Procurators, A.D. 6–37; Destruction of the Jewish State, A.D. 37–73; Final Conflicts, A.D. 73–135.

Part II. *The Structure of Jewish Society under the Romans.*—Sanhedrin, or Supreme National Council; Temple; Synagogue; Law and Tradition; Teachers of the Law; Pharisees and Sadducees; Essenes; People; Messianic Hope; Jews Abroad.

It will be seen, therefore, that the epoch of which the volume treats embraces a period of about three hundred years (B.C. 164 to A.D. 135), and has an intimate bearing on one of the most momentous turning-points in the history of the world. The first half of this period is almost coincident with the formation of the great confederation of Mediterranean States under the supremacy of Rome; the second half is coincident with the birth and development of the Christian faith. Hence the work enters fully and clearly into the relations which existed between the Jews, the people to whom Christianity was primarily addressed, and the Romans, the people who held together the various nationalities through which the Christian faith was destined to spread. The period of contact between the Romans and the Jews is clearly divided into two parts: during the first, Roman and Jewish policy was dictated by similar considerations; during the second, they were antagonistic. During the first, both peoples were bent on crippling the power of Syria, and when the Jews, under the Maccabees, revolted against the enfeebled successors of Alexander, the Romans encouraged the insurgents, and willingly accepted their alliance. For many years after the Jews had successfully asserted their claim to independence, the Romans continued to befriend them. But when the authority of the Senate was overthrown, and supreme power in the commonwealth fell into the hands of military chiefs, a change in Roman foreign policy was one of the first effects of this revolution.

The mode in which the Romans administered the internal affairs of Palestine was sufficient to account for the bitter feeling with which they were regarded by the Jews; whilst, on the other hand, the arrogance of the Jews towards all Gentiles could not fail to generate hatred against them. The latter point is emphatically presented to us by the author in the following paragraph:—

"Unfortunately, the rabbis of Palestine did not grasp the significance of the momentous change which was coming over the religious consciousness of the ancient world. At the very time that Greece was growing weary of her gods, and was feeling after a higher form of faith, at that very time the rabbis were busily inculcating amongst the people of Palestine an intenser hatred of the Gentiles and all their works. According to their teaching, it was an act of disobedience to the law to hold any intercourse whatever with the Gentiles. It defiled a Jew to sit with them at table, or to enter under their roof. It was even asserted that the Gentiles had lost the nature of men, and only retained the instincts of the beasts. All knowledge of God was denied them; they were God's enemies, and when they made inquiries of a Jew respecting Divine things it was his duty to answer them with a suppressed curse. It was forbidden to counsel or befriend a Gentile, and the benefits conferred by a Gentile on a Jew were in reality no better than serpent's poison.

"The practice of denouncing Gentiles as unfit to be associated with, was sufficient in itself to make the Jews detested, and was utterly opposed to the humane sentiments of national brotherhood which were taking root in the ancient world."

We are disappointed at the restricted, and apparently cautious or guarded, way in which the history of the rise of Christianity is here dealt with; but perhaps this may form the subject of another book. The author excuses himself in the Preface for this inadequate account of so momentous an event, and says he has deemed it better to confine himself to an historical description of the institutions in existence among the Jews at the period when Christianity arose, adding—

"A work of this nature will serve the purpose of shedding more light upon the Christian documents handed down to us in the New Testament, and will also assist us in forming a more accurate estimate of primitive and apostolic Christianity. It is impossible to understand the historic and doctrinal contents of the New Testament writings, without some knowledge of the times in which these writings originated. These times have passed away with the downfall of ancient civilization; we are now living in another world, we are surrounded by a new order of ideas and institutions; the contents of the New Testament are a product of antiquity; to be fully comprehended they must be placed in their original historic framework, and looked at in the light of the age which called them forth. This indispensable framework the present volume endeavours to supply."

The work is well written and well illustrated, and is not an unworthy member of a most interesting series.

Geometrical Conics. Part I.: The Parabola. By the Rev. John J. Milne, M.A., Private Tutor, late Scholar of St. John's College, Cambridge, Author of "Weekly Problem Papers," &c., and R. F. Davis, M.A., late Scholar of Queens' College, Cambridge. (Macmillan.)

We have no hesitation in highly commending to the favourable

consideration of our readers this little book, the joint production of two of the ablest contributors to our mathematical columns. Those who avail themselves of our advice will, we are sure, after a perusal, agree with us in saying that no treatise on the Parabola can be found which contains so much information, presented in so readable a form, and condensed within so small a compass. The work possesses the inestimable advantage of continuity, instead of consisting, as is too often the case, of a mere string of propositions loosely connected. The authors of the work before us are wisely of opinion that the matter of a mathematical treatise, when chopped up into small bits, too much resembles the "short meat" of straw and hay, which is given as fodder to horses and asses for lack of more nutritious food. Another noteworthy advantage which the book possesses is that, so far as practicable, the same letters are used throughout for corresponding points in the several diagrams, and a page is well devoted to giving a list of these stock-letters with their signification. If an index had but been added, giving the pages on which the several definitions of terms, and also the several propositions and corollaries, are to be found, the value of the book would have been still further enhanced.

As to the few faults from which, in common with all human productions, the work is nowise exempt, we would remark that, now and then, terms are used some time before their definition is given. This occurs in the very first example given for the pupil to work out by himself, in which *directrix* is spoken of as one of the things to be found, a whole page before it is defined or otherwise mentioned by name. Again, on p. 26, the area of a *tangent-triangle* is estimated three or four lines before such triangle is defined. These are faults such as are likely to occur in any book written by those who know all about the subject from the first, and who accordingly find it difficult to place themselves on a level with the beginner who knows nothing but what they tell him. But still they are faults. Again, on p. 22, there is a special note which, instead of containing anything new, propounds, as if for the first time, what has been proved several pages earlier.

We might perhaps take exception to the proof of Prop. XI., beginning at p. 19 with "Let the tangent at B meet the tangent at A in Y." Of the crucial requirement, that they should meet on SZ, we do not see that any proof has previously been given, and if it has, the expression "*Let" it be* is uncalled for. All the same, the proof takes it for granted that Y is on SZ. The examples given for private working in the course of the exposition strike us as very good, but in many cases they seem less easy to see at a glance than the propositions which are proved at length. The only other fault we have to find is that at the very outset, instead of confining the learner's attention to the Parabola proper, there is a digression on that form of parabolic curve whose equation is $PN^2 = h^2 + k \,.\, AN$. The first four examples are devoted to curves of this description, and the injunction is given to the student that he should carefully trace the curves represented by $PN^2 = \pm h^2 \pm k \,.\, AN$. It would have been wiser, we think, to relegate this to the end of the book. Nevertheless, the present work is an admirable attempt to lead the learner by insensible gradations, from darkness up to light; and, notwithstanding the few drawbacks that have been mentioned, we feel assured that any competent mathematician who will carefully read the book will admit with us that the authors have accomplished their purpose as well as, in a first edition, could generally be expected. Clearly printed, published at a small price, and in a modest form, this little book bids fair to achieve a great success. It certainly has our very best wishes.

Scottish History by Contemporary Writers.—The Days of James IV. (1488–1513). *Arranged and Edited by G. Gregory Smith, M.A.* (*David Nutt.*)—The excellent plan of illustrating history by extracts from contemporary writers, which, under the direction of Mr. F. York Powell, has been applied to English History with much success, is now being extended to Scottish history. The extracts are translated and modernized where necessary, and are arranged in chronological order. As was pointed out in the Book of Pluscardin four centuries and a half ago, "although good chronicles please many readers, yet men whose attention is occupied by the many pressing duties, as well as the ever-present and varied cares of life, cannot easily give their time to the perusal of great times—the labour ofttimes make them weary, and deadens in their hearts the desire to learn." By such judicious selections as are to be found in this little shilling book, time is economised, and the desire to learn is quickened. The volume deals with the reign of James the Fourth, a time of great political and social change in Europe. That Scotland felt the influence is proved by the large correspondence which James held with nearly every Power in Europe, from Spain to the Baltic. The internal and social history of the reign is portrayed by these extracts more vividly than the mere political history. For instance, consider the question of education. There is first the Act of Parliament of 1496, June 13th, enacting that the children of barons and freeholders should be sent to school and college :—

"All barons and freeholders that are of substance put their eldest sons and heirs to the schools from the time they be eight or nine years of age; and to remain at the grammar schools till they be competently founded and have perfect Latin; and thereafter to remain three years at the schools of Art and Law (Jure), that they may have knowledge and understanding of the laws, through the which justice may reign universally through all the realm, so that they that are sheriffs or judges ordinary under the King's Highness may have knowledge to do justice, that the poor people should have no need to seek our Sovereign Lord's principal Auditors for each small injury. And what baron or freeholder of substance that holds not his son at the schools, as said is, having no lawful excuse (essonze), but fails herein, he shall pay to the King the sum of £20."

This is a compulsory and a technical Education Act in one. Then we are shown what was the course of study at the University in 1500 (Munimenta Univ. Glasg., II., p. 25) :—

"We appoint and decree certain books—ordinary and extraordinary—for the purposes of study and examination. The ordinary books are these. In the first place, in the Old Logic (*in veteri arte*), the book of Universals of Porphyrius; the Prædicamenta of Aristotle; two books of the same author, Περὶ ἑρμηνείας. In the New Logic, two books of the Prior Analytics; two of the Posterior; four at least of the Topics, namely, the first, second, sixth, and eighth; and two of the book on Fallacies. In Philosophy, eight books of the Physics; three concerning the Heaven and the Universe; two on Generation and Corruption; three books on the Soul; on Sense and the Sensible, on Memory and Recollection, on Sleep and Waking, and seven books on the Metaphysics.

"The following extraordinary books are to be taken in their entirety, or in part when the Faculty shall so dispense. . . . In Logic, the text of Peter Hispanus with the Categories; the treatise on Distribution; and the book of the six principles. In Philosophy, three books of meteorology; the treatise on the sphere in full; six books of the Ethics, if they be chosen; perspective, arithmetic (*algorismus*), and the principles of geometry, if they be chosen. That the zeal of the youths may go on from good to better, even to the highest end, we decree and ordain that the old art be read for six weeks, the Prior Analytics for three, the Posterior for three. and that the Topics and Fallacies be read daily during the same time. The Faculty leaves the extraordinary books to the discretion of the students."

An extract is given from the interesting description by Erasmus of King James and his son, the young Archbishop of St. Andrews, which exhibits the liberal education of the time, and testifies to the cultured character of the inner circle of the Scottish Court. He studies Rhetoric, Greek, History, Literature, and Law, which Erasmus justly says is "a subject not very pleasing, because of its barbarous admixture and the insufferable verbosity of its expounders."

Insignia Vitae; or, Broad Principles and Practical Conclusions. By C. H. Waterhouse, B.A., M.D. (*J. S. Virtue & Co.*)—This is a somewhat surprising book, and, though it is evidently the work of a clever and well-read man, we are not at all sure that we understand what it is all about, and why it has been written and published. The five essays on life and character, which it contains, deal with Nature's plan in the life of man, the real self or "ego" in man, the exercise of judgment, the genesis of man, and the relation of the sexes. The connexion between these essays is not very intimate, and they contain little that is new—unless we include under that head hypnotism and thought-reading. But they are well written, well put together, and make their points with the right amount of emphasis. In other words, they are pleasant to read. We have called them "somewhat surprising," because here and there we stumble upon statements and views which do not seem properly to belong to the man of science who has written the other pages. We might quote instances of this from what Dr. Waterhouse says concerning thought-reading and thought-transference, did space permit. But the whole matter is too foreign to the province of the *Educational Times* for this to be possible. We will content ourselves with saying that any of our readers who care for the subjects indicated, will find the essays decidedly above the level of ordinary magazine articles.

Mungo Park and the Niger. By Joseph Thomson. Forming Vol. 3 of the "World's Great Explorers and Explorations." (Philip & Son.)—Not only is fact sometimes stranger than fiction, it is even at times more entertaining. This account of the adventures, sufferings, and hairbreadth escapes of the pioneer of Central African discovery, reads like a work of Mr. Henty's. Geography taught in this manner, by such a teacher as Mr. Joseph Thomson, becomes the most fascinating of studies. The first four chapters trace the early or classical accounts of Eastern Africa; the fifth is devoted to the childhood and youth of the hero, and his qualifying as a surgeon. The sixth carries him from England on board the *Endeavour*, an African trader, on the 22nd of May, 1795. From that point to Chapter XXIII., which is headed "The Last of Park," is a continuous personal narrative of thrilling interest. The Niger, in the end, claimed him as its own. His widow and some of his family would not believe in his death, and the second son seems to have inherited his mother's faith and his father's adventurous nature. In 1827 he sailed for the South Seas, but contrived to leave the ship and to reach the Gold Coast.

"Thereafter an ominous silence followed. Like the elder Park, the hot-headed young fellow, whom we cannot help loving for his folly—knowing, as we do, its mainspring—disappeared from sight in the Dark Continent, whence only vague rumours ever came back, sorrow-laden, telling of a speedy and bloody close to his wild yet heroic mission.

"And so fatally ended the connexion of the Park family with the exploration of the River Niger, and thus closed the first great chapter in the history of the opening up of Inner Africa."

The last chapters deal with subsequent explorations. There is a wonderful agreement in the exhortations of the returned explorers to the governments of their native country. For instance, the words of M'Queen, written in 1825, might (substituting the name Victoria for that of George the Fourth) have been written by Stanley in 1890:—

"I have thus, though feebly, I confess, in comparison to the magnitude of the subject brought forward, completed the object which I had in view, namely, to call the attention of the British Government, and the power and energies of our people, to an honour of the first rank, and, at the same time, endeavoured to rouse the resource and enterprise of our merchants to engage in a trade of the first magnitude."

"It will confer immortal honour on our native land, lasting glory on the name and reign of George the Fourth, bring immense and permanent advantages to Britain, and bestow incalculable blessings and benefits on Africa. Agriculture, manufactures and commerce, learning and religion, will spread rapidly and widely over a country abounding in the richest productions, whether on the surface of the earth or below it, but at present a country overspread with the most abject servitude, and sunk in the deepest ignorance, superstition, and barbarity."

OUR LIBRARY TABLE.

Elements of Euclid. Book I. H. Deighton. (Deighton, Bell, & Co.)—This is a revised reprint from the editor's larger work, and is, if possible, more clearly and beautifully printed. The use of symbols and abbreviations is gradually introduced, and the exercises are rather easier and more numerous than in the complete work, so as to be suitable for beginners. Alternative proofs are given, and the work clearly shows how, by simply allowing the methods of superposition adopted by Euclid in E. I. 4 to be applied in other cases, the course may be simplified. The second part of Prop. 5 is required only for Prop. 7, which is itself required only for Prop. 8, and Prop. 7 is useless when the first parts of 5 and 8 are done by superposition. The alternative proof for Prop. 24 should be universally adopted, for not even conservative obstructionists can find a tenable objection to it. It is easier for beginners because it is direct and short, and it neither involves a new superposition nor a hypothetical construction. We should also like to see Prop. 26 done by superposition. It will then be as easy for beginners as its converse, Prop. 4. We cannot too strongly commend this book to the notice of teachers.

Longmans' School Atlas, Physical and Political. (Longmans.)—This is an atlas of 36 maps, drawn and engraved by Mr. F. S. Weller, F.R.G.S. The maps are not crowded, and the names are clearly printed. They are coloured to show both physical features and political divisions. A complete Index and Gazetteer of all places named in the maps are given at the end. Compared with books of similar size and similar aim recently published, the price (two-and-six) is rather high, but, it must be added, the book is well bound.

The Advancement of Science: Occasional Essays and Addresses. By E. Ray Lankester, M.A., LL.D., F.R.S. (Macmillan.)—There are nine of these essays in all, most of them being of general interest. They were all written in the interest of science, and are on varied subjects, some, such as that on "Degeneration," or the simplification of the general structure of an animal in an altered environment, requiring a less elaborate organization; that on Hydrophobia and Pasteur's Treatment, and that on Centenarism, are on subjects which Dr. Ray Lankester has made special studies and researches. Others are less technical, and have reference chiefly to scientific education and endowment—for instance, the fourth is on "Examinations," showing how different is the use of examinations in schools or universities from that of competitive examinations; and the second, which discusses the relation of the State to biology. The first essay partakes of both characters. It is a well-planned article on the history and scope of zoology.

University Extension: Has it a Future? By H. J. Mackinder and M. E. Sadler. (Oxford University Press.)—This is a small shilling manual of some 140 pages dealing with the question of University Extension—As it is, How it has come to be, and Has it a future? Mr. Mackinder and Mr. Sadler know their subject well, and are enthusiastic about it, and so their little book cannot fail to be interesting to those who care for the spreading more widely among the people of what may fairly on the whole be called higher education, though we have always been a little shy of the term "University Extension," as liable at times to convey a false impression. As to the claim for State aid to the movement, for which the writers plead, and plead well, we must confess ourselves very little sympathetic. We do not believe in calling on the State whenever individual effort is difficult. However, it may be well to have the matter discussed; and this little book certainly sets forth the matter with skill.

Easy Algebraic Products and Factors, with Answers by William Dodds. (Thomas Murby.)—This little book consists of forty-five exercises, each containing many well-graduated examples on factors. Some of the simple devices employed are very original—for example, to write the factors of such a quadratic as $6x^2 + 13x + 5$, in which the coefficient of x^2 is greater than unity, the following general method is given:—Find two numbers whose product is 6×5, and whose sum is 13. These are evidently 10 and 3. Then $6x^2 + 10x + 3x + 5 = 2x(3x + 5) + (3x + 5) = (3x + 5)(2x + 1)$.

Grammar of French Grammars. By Dr. V. de Fivas. (Crosby Lockwood.)—The fifty-first edition of this popular and well-bound French Grammar has received a further revision and extension.

Handbook of Athletic Sports. Edited by Ernest Bell, M.A. Vol. I.: Cricket—Lawn Tennis—Tennis Rackets—Fives—Golf—Hockey. (Bell & Sons.)—This is a volume of the "All England Series," the different sections of which are to appear concurrently as separate volumes. The object of the series is to give in concise form, by writers whose eminence in their respective branches entitles them to speak with authority, a clear description of each game, with practical instruction and hints, such as will be helpful both to the beginner and the more advanced player. Cricket is by the Hon. and Rev. E. Lyttelton; lawn tennis by H. W. W. Wilberforce; tennis and rackets by Julian Marshall; fives by Rev. J. A. Cernan Tait; golf by W. T. Linskill, of the Cambridge University Golf Club; hockey by Frank S. Creswell, Secretary to the Hockey Association. All are well-known authorities, and some also well-known writers. The instructions are clearly intended to improve the play, and to each part is appended the authorized code of laws belonging to the subject. Hence the work is rightly called a handbook. It affords the guidance which will enable practice to produce skill. "Many a young player wastes countless hours in vain efforts to surmount some difficulty or attain some power, when a hint from one who has already gone through the same experiences might have put him on the right path at once, and averted the acquisition of a bad habit which is afterwards impossible to overcome." As writers are all men who know, criticism would be dangerous—indeed, the writer on "fives" glories in his dogmatism. He writes, "As these suggestions are intended for beginners, I have purposely chosen to be as dogmatic as possible, and to lay down the law absolutely, not because I believe my judgment to be infallible, but because I hold that it is the only successful method of teaching in the early stages of any science or art." We have only to add that each game is published separately.

Annuaire de la Jeunesse pour l'année 1890. H. Vuibert. (Paris: Librairie Nony et Cie.)—This is a book of 800 pages, giving an account of the courses and aims of schools of all kinds in France, from the Ecoles Maternelles to the University, and including all special institutions, such as Apprenticeship Schools and Schools of Arts, Manufactures, Mines, Bridges, &c. It is, as M. Buisson says, "un livre utile et bien rempli."

French Composition through Lord Macaulay's English—III., Lord Clive. Edited, with Notes, Hints, and Introduction, by James Boïelle, B.A. (Williams & Norgate.)—Macaulay has been chosen for this course because "he is the most French of English writers, his splendid prose going smoothly and readily into the language." Great assistance is given by the notes at the foot of each page, which clear away most difficulties.

Text-Book of Mechanics. By Thomas Wallace Wright. (New York: D. Van Nostrand Company.)—This book begins with Motion, and proceeds to Dynamics of a Particle, Statics and Dynamics of a Rigid Body, Elasticity Fluids. The exercises are of a practical and useful character. The notation of the Calculus is used throughout.

Advanced Physiography (Physiographic Astronomy). By John Mills. (Chapman & Hall.)—This book consists of an elementary introduction, which is a reprint of the author's "Elementary Physiography," and an advanced portion of new matter intended for advanced students preparing for the Science and Art Examination. The whole supplies a very good outline of the subject, and is in some parts more interesting than such text-books usually are. The chapter on Celestial Photography might be fuller, more definite, and better up to date.

The ninth volume of the third series of *Travel and Adventure* from *Blackwood*.—These yellow volumes are appearing in alternate months with the red volumes of *Tales*. No. IX. contains The Destruction of Szegedin, by Landor R. Crosse; Six Weeks in a Tower, Reminiscences of a Ross-shire Forest, by Lieut.-Colonel Henry Smith; an excellent account of Deerstalking in Scotland, told with much humour by a real sportsman; and, last, An Adventure during the Greek Revolution, by George Finlay, a short but thrilling story of the subtle cunning of some of the adventurers.

The Art of Cooking by Gas. By Marie Jenny Sugg. (*Cassells.*)—The author demonstrates the advantages and the economy of cooking by gas, and clearly describes the best methods of using it for all culinary purposes. She first describes the apparatus, roasters, kitcheners, &c.; then the processes, roasting, grilling, boiling, &c.; then gives schemes for dinners, luncheons, breakfasts for different seasons, with menus in two columns, English and French. The clearest possible details—such, for instance, as the exact time required in a given case, and the recipes for all compound dishes—are given, and a complete Index is appended.

Anecdotes of Everyday Life. By L. J. Phillips, Inspector of Board Schools, Norwich. (*Joseph Hughes.*)—This is a collection of anecdotes culled chiefly from the daily Press, together with extracts from addresses and speeches of such eminent men as Lord Wolseley, Sir Stafford Northcote, the Duke of Rutland, Lord Carlingford, and articles from the *Times* and other papers. The collection is arranged in short portions suitable for composition exercises.

The First Spanish Book. By A. M. Bower, Ph.D., and Prof. Dori Eduardo Tolbá. (*Hachette & Co.*)—This is a companion volume to Henri Bué's Conversational French Course and Becker's First German Book. The grammatical matter is full, and is clearly arranged; the vocabulary is perfect.

The Ingoldsby Legends. (*Cassells.*)—This is a new edition of the famous poems, printed on very thin paper, and costing 1*s.* 3*d.* nett. The paper is so thin that only one side of each leaf is printed on. The result is that the book is handy, very pliable, and yet keeps its shape, while the printing is remarkably clear and legible. Another feature is that the book is printed at a nett price without discount.

We have also received the ninth volume of the third series of *Tales from Blackwood*. Its first tale is a pathetic story by Mrs. Scott Moncrieff. A Scotch farmer has received his death-blow from his half-daft son, and is sorely perplexed by the struggle in his breast between his absolute love of truth and his affection for his boy. While the magistrate is waiting below to take his deposition he dies, saying, "Ye'll min' an' say tae them 'at they maunna be hard on Wullie.' Coincidences by Colonel Russell, a supernatural story of a Pathan jemmadar, faithful in life and faithful after death. "A Dead Man's Vengeance," by Captain Bird, and "The Story of James Barker," complete the volume.

We have also received:—

The Newspaper World, Essays on Press History and Work. By Alfred Baker. (*Isaac Pitman & Sons.*) *The Cornhill Magazine; The English Illustrated; Newbery House Magazine; St. Nicholas; Boys'* and *Girls' Own Papers; Queries; The Sunday at Home* and *Leisure Hour; Science for All;* and *Old Testament Commentary, No.* 66. (*Cassell & Co.*)

EDUCATIONAL NOTES AND SUMMARY.

As we were going to press last month some interesting meetings for the distribution of prizes were being held at schools breaking up for the Long Vacation, and in a large number of cases the circumstances were unusual.

At Clifton the interest was heightened by the recent appointment of the Rev. J. M. Wilson as Vicar of Rochdale and Archdeacon of Manchester. Mr. Wilson referred to the change as follows:—

"The year 1890 would also be memorable as the year of the appointment of the third headmaster, and that he believed would be a great and happy event in their Clifton annals. He believed that he should retain the headmastership until his successor was appointed, and he should probably be at Clifton for a part or the whole of next term. Dr. Vaughan, of Harrow, used to say that no headmaster ought to stay at his work more than ten or twelve years, and, with rare exceptions, he thought Dr. Vaughan was right."

If Mr. Wilson and Dr. Vaughan are right, there is, after all, a reason in favour of the union of two professions by clerical headmasters, for what is to be the fate of a lay headmaster at the end of the twelve years?

At Sir Andrew Judd's School, Tonbridge, a similar ceremony was carried a stage further, for the Rev. T. B. Rowe was able to hand over the school to his successor, the Rev. Dr. Wood. Mr. Rowe said that in Dr. Wood he felt that the school was going to have a master who would make good use of the advantages afforded by the foundation, and he felt further that in the present position of the school Dr. Wood was a great deal better suited to carry it on than he. His successor had the advantage of youth, the advantage of a long experience in other regions, and the advantage of difference of temperament. It would be a happiness to himself and the governors to hear that the school was progressing under its new management. He wished "good-bye" to all present, and in doing so acknowledged the great kindness which had always been shown him by the governors, adding that as individuals he had the greatest regard for every one of them, although when they were met together it was not always quite the same. Mr. Rowe spoke with emotion, which he evidently strove hard to control, while much of his speech showed that he was dealing with a difficult situation with great tact, but also with honourable straightforwardness.

On the Saturday following, the Bishop of Rochester distributed prizes among the boys of Queen Elizabeth's Grammar School at St. Olave's, Southwark. Here also vast and important changes are impending in the school, whose Elizabethan foundation, with all its perquisites and privileges, recently came under the stringent criticism of the Charity Commissioners. So it happened that the teachers took away their annual perquisites of cake and wine and flowers, probably for the last time.

For changes in other schools the Charity Commissioners are responsible. At Christ's Hospital the oration of the Captain of the School referred to the new scheme:—

"We are face to face with great changes. These changes are most important, and affect the most distinctive features which have hitherto characterised Christ's Hospital. Its governing body will be very different in constitution to that which has hitherto conducted so ably the affairs of this hospital. Again, the mode of election to the hospital will be greatly changed. The tendency of the age seems to be in favour of extending more and more the joys and delights of competitive examinations, and future Blues are henceforth to be allowed the opportunity of earlier participation in these blessings, while a new feature will be introduced in the form of non-foundationers, or paying scholars. The school itself is to be divided, and the principal boarding school removed from London. A large boarding school for girls, and the smaller preparatory boarding schools for boys, are to be formed, and day schools both for boys and girls are also to be established in London. An important conscience clause (and that, thanks to the efforts of the present governors, in the terms of the Acts of Parliament itself) will still, we trust, preserve the religious character of this ancient house, so that if the school be removed from its venerable site, still, in the new Christ's Hospital, as in the old, her scholars shall be so trained, as in the words of the well-known prayer, 'to live in the true love and fear of God, in sincere and conscientious communion with the Church of Christ, and in brotherly love and Christian charity one towards another.' There is throughout the scheme striking evidence of praiseworthy efforts, while endeavouring to increase and enlarge the usefulness of the foundation as a great national institution, still to deal tenderly and respectfully with many of the old traditions, and to recognise the good work and unselfish efforts of the present governors. The best wish that can be expressed is that the new council and all who have to work in administering the affairs of this house may have the same patience, experience, practical ability, and conscientious wisdom which have by universal assent characterised the present governing body."

At the Cowper Street School on Wednesday, the 30th of July, Lord Reay presided, and the new scheme of the Commissioners was referred to as coming into operation at once. Every one seemed to welcome this new scheme, all acknowledging that in this case it would undoubtedly create more advantages for the school than it would destroy. There is certainly an advantage in having little to lose.

Of course Dr. Wormell referred with his usual severity to the thrice-slain scheme of the London Chamber of Commerce. He maintained that in the beginning the wrong class of educationists had been called to the aid of the Chamber, namely, a class whose experience had no points of contact with commerce. "Few persons," he said, "who wanted information bearing on trade and commerce would think of going to the cloisters to find it, but this is what the Chamber in the first instance did, and to this error was due all the defects of the scheme."

At University College School, too, that which might have been expected was said. Mr. Eve

"Would not deprecate a respectable knowledge of Latin and Greek,

especially Greek, but he did deprecate the attempt to teach everybody a little Latin of which no use whatever could be made. As a useful and profitable substitute he suggested the acquisition of German, not slovenly, slipshod German, with all the plurals wrong and none of the adjectives agreeing with their nouns, nor yet the conversational fluency of the commercial traveller, but a thorough sound knowledge of German."

Mr. Eve then referred with justifiable pride, and with his usual grace, to the recent Cambridge result :—

"For the fourth time in the history of the school the Senior Wrangler at Cambridge was one of their 'old boys.' True, with the modesty becoming of man, Mr. G. T. Bennett was placed a little lower than the angels, but, after all, a senior wrangler was a senior wrangler, and they had every right to be proud of him."

On the same day, another school claimed a part in the making of the same senior wrangler. Sir Richard Webster, M.P., presided at the distribution of prizes at the Whitgift School, Croydon, and congratulated the managers on having included in their curriculum modern subjects such as practical teaching in inorganic chemistry and electrical engineering. While these subjects were taught, as he believed, with great advantage to the pupils, the school had also distinguished itself in classical and mathematical studies. For the second time in nineteen years the senior wrangler at Cambridge had received his early training at Whitgift School.

The Highmaster of St. Paul's School, the Rev. F. W. Walker, was, on the same day, which is known as the Apposition, speaking in the same strain.

"He observed that it was fifty-five years since he had first come into the school, and since that period, with a brief exception spent as a student and tutor at Oxford, he had passed all his days within the walls of the school. He had been struck by one prominent improvement, namely, the decay and disappearance of the old hostility that at one time existed between teachers and taught, and the substitution of mutual understanding and friendly regard. This was not due to any superiority of the masters of the present day, for it had been his privilege to spend his time as a schoolboy under men to whose kindness and wisdom he could bear a lasting testimony—Archbishop Tait, Professor Congreve, Bishop Cotton, and others whose names were less known to fame, but whose influence was not less excellent. But there had grown up a greater and better knowledge of the value of education, which was realized not only by parents and masters, but, in their unconscious way, by the boys themselves. To this he attributed the fact that masters and boys were no longer enemies, but cherished for one another feelings of friendship and regard. There was one practical question on which he offered his advice to parents. It was held generally that foreign languages could only be taught in our public schools as far as grammar and translation. Almost all the men he knew who had attained to eminence in the knowledge of modern languages were the sons of foreign mothers, or brought up from their childhood by foreign nurses or governesses, and in the process they generally became less English than foreign. He was so far a patriot as to think that any loss of national characteristics was a heavy price to pay for the success attained. The remedy he suggested was one which he had seen succeed in numerous cases which had come under his personal notice. It was that parents should send their sons to reside during the summer holidays with some carefully-selected foreign family. The change was not unwelcome to the boys themselves, and enabled them to obtain a public school education without the sacrifice of other utilities."

At Dulwich College, Mr. Gilkes was in good spirits, and the Bishop of Rochester urged upon the boys, as the most important point to bear in mind as elements of the highest success, industry, character, and good manners. He had known men whose guns had been spiked for ten years on account of their deficiency in this respect. He asked them to remember the story told of Archbishop Tait when he first went to Balliol. In answer to the tutor, he said that his object in going to Oxford was to improve himself and make friends.

At the third summer meeting of the University Extension and other students at Oxford, Prof. Max Müller delivered the opening address. He defended the method of teaching by means of lectures, but admitted that most lectures were too long, and recommended that they should be limited, as in Germany, to three-quarters of an hour. He also defended the annual gatherings at Oxford against the charge of being mere academical picnics. He showed how well the different classes of lectures had been arranged so as to meet the requirements of different classes of students. He pointed to the large and zealous classes attending these lectures, and to the substantial work done by students who stayed at Oxford for two or three weeks after the public lectures given during the first fortnight were over. Finally, he dwelt on the silent influence which a stay at Oxford must exercise on every one. "I doubt not," he concluded, "that while teachers and hearers are exploring together in this place the ruins of ancient thought and the labyrinth of modern science, they will feel the silent influence of Oxford, and take to heart the lesson which our University has taught to so many generations of Englishmen, Scotchmen, and Irishmen—respect for what is old and the warmest sympathy for what is new and true."

Mr. Eve also writes to the *Times*, from a schoolmaster's point of view, in support of the opinions of Professor Huxley. He says :—

"I have no wish whatever to depreciate the maintenance of a high, or even a tolerable standard of classical education for those who have time and inclination for it. But the attainment of such a standard is absolutely out of the question for the majority of medical students, as it is for a very large number of boys who must leave school about seventeen. All they can hope to reach—I speak of boys of moderate abilities—is a very limited knowledge of the duller parts of one, and that the less interesting and valuable, of the two classical languages. Nor do they, as a rule, ever open a Latin book afterwards. The language is to them simply a means of passing an examination ; it recommends itself neither by practical utility nor as the key to a great literature. What, then, is the best literary training for boys of average ability, leaving school young and bound to make a serious study, while still there, of at least one science ? I am strongly disposed to give the precedence to German. German is the key to vast accumulations of knowledge on all scientific subjects, it has a literature almost as much coloured by Greek influence as that of Rome itself, and it holds out, even to those who possess only a moderate knowledge of it, strong inducements to continue their studies in after life. Nor is it less valuable as a means of linguistic training, or as an instrument for cultivating what Professor Huxley rightly emphasizes, the power of expressing oneself in good readable English. Few exercises are more valuable than the effort to turn involved German periods into short, clear-cut English sentences. Could not the Board of Medical Studies, as a first step, allow German to be taken as an alternative for Latin in their preliminary examination ?"

A piece of good work was suddenly and unexpectedly achieved in Parliament at the fag-end of the Session. The time being near the prorogation, many members, including several eminent statesmen, had left London. It happened that a Bill, which did not apparently attract much attention, was under discussion, when an earnest member, watching his opportunity, moved a weighty amendment, which the Government thought fit to adopt with marvellous alacrity, and embodied it in the substance of the Bill itself. The measure in question has for its object the appropriating of over three-quarters of a million of the surplus which the Chancellor of the Exchequer derived from the revenue on the extra sale of spirits, for the benefit of technical, commercial, and agricultural education in England, a portion of it overflowing for the good of secondary education in Wales. The mover was Mr. Arthur Acland, Secretary to the National Association for the Promotion of Technical and Secondary Education. Mr. Acland moved that the Council of any county or county borough should receive power to use for the promotion of technical education any part of the share allotted to it, and that the remainder might be used as an educational endowment within the meaning of the Endowed Schools Act, the County Council acting as the governing body of the endowment. To the second part of this amendment — that relating to intermediate education — the Government declined to assent. The first part, however, they accepted. Mr. Mundella, Sir Lyon Playfair, and Sir Henry Roscoe expressed regret that the entire proposal of Mr. Acland was not adopted, but were unanimous in thinking that the decision of the Government, so far as it went, was most satisfactory. Sir Henry Roscoe said he wished to be allowed to say how gratified he was at the acceptance by the Government of the first portion of his hon. friend's amendment. To the great centres of industry which had already accepted the Technical Education Act it would be a matter of very great importance. In small places also, especially in the country, the money would be of the very greatest consequence.

In the person of Ferdinand Schmidt, who was born in 1816, Germany lost, at the beginning of last month, one of its most prolific writers for the young. His works, amounting well-nigh

to one hundred, enjoyed a very great popularity. They were all written with the laudable object of improving the mind and ennobling the heart, and some of them—more especially his earlier writings—are distinguished by great freshness. The attempt has been made to introduce them in the English schoolroom, but without any signal success.

The Oxford University Extension lectures have been a great success. As Professor Max Müller pointed out, they were started only five years ago. It is not known what was the exact number of students in the first year, from 1885 to 1886, but last year the number of students reported by the local committees as being in average attendance amounted to 17,904. Under these circumstances one would think that the *raison d'être* of lecturing was sufficiently evident to all.

Speaking at a meeting for the promotion of a training college, the headmaster of the Manchester Grammar School is reported to have said: "Nothing forces itself so strongly upon the attention of a headmaster as the absolute helplessness of most young men when they begin to try to teach. I have gone through the process myself on beginning to teach; and I shall never forget my sensations when, for the first time in my life, I faced thirty-five boys, utterly unknown to me, with nothing to occupy them but their very imperfect recollection of six chapters of Leviticus, which some one had set them quite at random."

A "Ratepayer," writing to the *St. James's Gazette*, has been attacking what he considers the extravagant salaries paid to mistresses in Board Schools, and calling attention to the amount of the joint salaries received by certain married teachers in the Board's employ. His letter has produced one good result. It has led the *Daily Chronicle* to publish a leader on teachers' salaries which will do the profession much more good than "Ratepayer's" letter will do harm. "The first concern of the Board," says the writer, "is that the education of the rising generation shall be the best it can provide, and that the fittest men and women shall be appointed to impart it to the children. Such men and women must be placed in a social position such as to enable them to give their best energies, without reserve, to the work. The true economy lies in judicious liberality. The peddling pecuniary saving in sweating salaries is not only economically mistaken: it is contemptible. The London School Board ought to lead the country in appreciating the services of its educational army."

The Civil Service Commissioners have issued a paper of regulations for the open competition of June, 1891, and they formally notify in the paper that the regulations for 1892 will be different. The open competition examination in 1891 will be held on the 1st of June and following days, and thirty-one persons will be selected, if so many are found duly qualified. The numbers apportioned to each Presidency or Province will be announced later on. Every intending candidate will have to satisfy the Commissioners, amongst other things, that his age will be above seventeen years and under nineteen years on the 1st of January, 1891, and, should the evidence be satisfactory, the candidate will be admitted to the examination on payment of the fee of £5. Persons desirous to be admitted as candidates must apply on forms, which may be obtained from the secretary to the Civil Service Commission, London, S.W., at any time after the 1st of December, 1890. The forms must be returned so as to be received at the office of the Commissioners on or before the 31st of March, 1891.

At a meeting recently held, by permission of the Earl of Meath, at 83 Lancaster Gate, W., proposals were considered to acquire from Miss Headdon the college founded by her for the study of housewifery or domestic economy. Miss Headdon gave an interesting address, during which she explained how the work then stood. The existing system was that for the children they had the domestic Kindergarten. It was arranged in three steps, suitable for the three first standards in the elementary schools. Her first object was to get those lessons taught in the elementary schools. In the first step they were taught by means of small models ordinary housework; in the second they learnt the weekly duties of washing, ironing, and house cleaning. When they reached the third standard, supplementary work was taught them, such as marketing, and nursing baby. By the time the children reached the fourth standard they would be prepared for more practical work. Lessons in cookery had been arranged. Instead of teaching this with toy models, they had larger utensils, and in laundry work the girls would really wash, starch, and iron. In dressmaking they were taught how to cut out and to make in proper proportions, but one-fourth of the full size for a dress was given, a chart being drawn so that a quarter of an inch represented an inch in the full size. In cooking, the same plan was adopted, a $\frac{1}{4}$ lb. representing 1 lb., a teaspoonful a tablespoonful, and so ont The domestic Kindergarten and other lessons had become very popular. Theoretical teaching beyond this practical training was needed for the older girls. In the first department at the College grown-up students were placed—girls above the age of sixteen—and were taught the work of the house and dressmaking; they also attended lectures. In the second department were placed children whose parents could not afford to pay high fees. In the first a year of three terms cost thirty guineas; in the second twelve guineas. A thorough education was given in addition to the lessons mentioned in the second department. In the third were placed girls of the elementary school class, who were going into domestic service. Several girls had been placed there by ladies who took an interest in them. The work of the College had grown beyond her personal management, and it was suggested to her that a company should be formed so as to carry out and perpetuate the system.

If upwards of 50,000 essays on kindness to animals were sent in for competition from 6,500 schools for the prizes offered by the Royal Society for the Prevention of Cruelty to Animals, how many would there have been if all the 3,500 schools in the metropolitan area had entered the contest? It is much to be regretted, says a contemporary, that every school in the kingdom does not compete. To quote the Society's own words, "The composition and compilation of an essay cannot be accomplished without reading and thinking, and is seldom undertaken without more or less conversation on the subject with all the members of the writer's family. The process is far-reaching, and tends to awaken interest in animals, as well as to remove ignorance, which is a parent of cruelty." Of course, these essays do not assist in securing "a grant," which is a primary consideration with teachers, but the practical value of them is so great that one wonders that all who have the education of the young at heart do not encourage them to join the competitions. The number of essays sent in this year was far in advance of any previous occasion, and so we may hope that the movement is well established.

In Paris a list has been made out of the number of women who have taken degrees at the schools of the different faculties since 1866. The total is 204, and includes 35 in medicine, 69 in mathematics and other sciences, 67 in classics and belles lettres, 16 in both classics and science, 1 in pharmacy, and 1 obtained the degree of Doctor of Laws. Of these degrees 102 were obtained in Paris, and 102 in the provinces. The first degree obtained by a woman in France was given in 1866 to a Mdlle. Daubie, who had passed the examination for it in 1859, at Lyons.

An exhibition of animals, domestic pets, school work, plants, flowers, specimens of natural history, &c., was held recently by the Barrington School boys. The spacious schoolyard had all the aspect of an agricultural show, and the air was vocal with baying dogs and other enlivening noises. The school itself was also staged full of exhibits. The Lord Bishop of Durham presented the certificates and prizes, and afterwards addressed the children. He said one thought more of the work which gained them than of the prizes themselves. What he valued most in these prize distributions was the inducement they offered in the taking care of animals, to love these creatures, and to note their habits. Then there was the taste for flowers, which he himself loved. Did the boys know of the wonders which the microscope revealed on leaf and moss? How many people knew the great variety of trees to be found in the park of Auckland Castle—how many looked at the sky to discern its manifold hues? These were pleasures they might have by using their eyes. He tried to look at the sky each night, and every night he saw new beauty there, and it was never the same. His Lordship, in conclusion, hoped another time to see more nosegays; also a collection of

fossils; and he mentioned that he had missed that day the lady fern. Eyes were given them to see; and as they used their eyes the more and more wonders they saw on every side.

The assistant to the Professor of Mathematics in Glasgow University recently accepted an educational appointment under the Maharajah of Mysore. Upon arriving at Bombay he telegraphed for rooms to a hotel at Mysore, and, proceeding by rail, reached his district late at night. To his surprise the station was crowded, apparently with passengers. The new professor passed quietly to the rear of the throng, hailed a cab, and was about to drive off, when a native youth stepped forward, and, presenting him with a magnificent bouquet of flowers, announced that the crowd consisted not of passengers, but of his future students, who had come out to meet him, and who were expecting him to address them. There was nothing for it but to extemporise a speech, which was received with much applause—the darkness adding to the impressiveness of the scene. Future professors in the Indian educational service will know what is expected of them, and will be ready for the delivery of their inaugural address.

The Division Lists of the Oxford Local Examinations for the year 1890 have just been issued at Oxford. The examinations were held at sixty-two centres, including one in Natal and one in Hong-Kong, but the returns from the latter are not yet ready. The total number of candidates entered was 3,223, as compared with 2,840 last year. This year 343 boys and 609 girls have been examined for a senior certificate, and 284 boys and 523 girls have passed. Last year the numbers were 281 and 546, and 222 and 425 respectively. This year 1,347 boys and 817 girls presented themselves as junior candidates, and 974 boys and 678 girls are successful. In 1889, of 1,275 boys 929 passed, and of 678 girls 537 passed. The documents published by the Delegacy show that increased attention is paid by candidates to English subjects, and the schools are availing themselves very largely of the regulation by which candidates are admitted to either examination without limit of age. The last-named regulation has made it possible for whole forms to enter for either the Senior or the Junior Examination. In 1891 there will be an examination for Commercial certificates, and provision is made whereby candidates for an ordinary Local certificate are permitted to present themselves for examination in certain commercial subjects.

The forms of entry for the Cambridge Local Examinations, and examination for Commercial certificates, have been issued to the local secretaries. The latest day for returning the forms of entry to the local secretaries without extra fee is September 30th. There is an examination in Group B (except Italian), and Group C of the Higher Local Examinations, viz.:—Languages and Mathematics, at the same time with the Local Examinations at Cambridge and London, and at any other Centres where the Committees for the December Local Examination are willing to admit candidates. All regulations can be obtained from Prof. G. F. Browne, Syndicate Buildings, Cambridge.

During the visit of students to Oxford, a Conference in connexion with the University Extension movement was held in the debating hall of the Oxford Union, Mr. Arthur Sidgwick, of Corpus Christi, presiding. There was a large attendance. The subject for discussion was—"Is it desirable that local committees should seek to obtain a Treasury grant in aid of the expenses of University Extension teaching? If so, on what conditions is it desirable that the grant should be distributed? The chairman said, speaking as a private individual, and not as a delegate, he most heartily assented to the proposal to ask for State aid for University extension. It seemed to him that there was no test which they could apply in order to see whether an object was worthy of State aid which could not be successfully applied to University extension. In order that the movement might have its proper development it was absolutely necessary there should be elements of permanence in it. Experience had shown that, at any rate with existing machinery and existing resources, it was extremely difficult to establish this element of permanence. Mr. Macan moved, "That this Conference supports the proposal of State aid to University Extension, provided that aid could be given without undue State interference." Mr. Mackinder seconded the resolution, which was carried by an overwhelming majority. In the evening a second Conference was held in the Examination Schools, the chair being occupied by Mr. J. G. Talbot, M.P. The subjects discussed included University Extension teaching in training colleges, village lectures, students' associations, and University Extension teaching in connexion with free public libraries.

DAY TRAINING COLLEGES.

The following extracts from a circular lately issued by the Education Department contain the regulations for giving effect to the provisions of Articles 110–129 of the New Code. We can only express a wish that it had been possible to make the scheme more of a distinctly professional character, aiming more directly at the special training of a teacher, as a teacher.

No institution conducted for private profit can be recognised as a Day Training College.

The students must devote their whole time to studies and to normal training. No student may be on the staff of a school.

The students may reside at their own homes, or in a house suitably kept and furnished by the local committee, or in lodgings approved by them.

The students must receive assistance in their private studies from duly qualified officers. The conditions of attendance at these private studies must be settled by the local committee.

A normal master (or mistress) must be appointed by the local committee and approved by the Department. The duties of such normal teacher will be to give lectures on the history and theory of education, and to superintend the students' work in the practising school. He (or she) must also give a course of model lessons, and preside at the criticism lessons.

The practising school, and the arrangements for the students' work therein, must be approved by the Department.

A time-table showing the plan of studies and of lectures, and the time to be spent in the practising school, must be approved by the Department. A register of each student's attendance at the lectures and at the practical school work must also be kept, and be submitted to H.M. Inspector at his annual visit.

The academical year in a Day Training College must begin in September or October, and end in June or July.

At the Queen's scholarship examination in July of each year those candidates who desire to be received into Day Training Colleges must express that wish by a special mark on their examination papers, and must name the College into which they seek to be admitted. The result of the examination of such candidates will be communicated as soon as possible to the Colleges so indicated.

All students will be required to pass the examination prescribed in the Syllabus in—Reading and Recitation, Teaching a class (second year), School Management, Needlework and Domestic Economy (girls), obligatory. Music is an optional subject.

But in respect to the following subjects of the examination, in which the students in training receive instruction in common with other students, viz.:—Arithmetic and Mathematics, English Language and Literature, Geography (Physical and Political), English History, obligatory; and Political Economy, Languages, Science, optional. It will not be required that the course of instruction shall follow in all its details the course prescribed in the Syllabus. In this case the Department will be prepared to accept the results of the examinations held by the authorities of the University or College to which the Day Training College is attached, subject to the following conditions:—

(*a*) The programme of studies and the books prescribed in languages shall be communicated to the Department at the beginning of each academical year, in order that it may be ascertained that the course of instruction corresponds in extent and difficulty with the course prescribed in the Syllabus.

(*b*) The worked papers and the questions set by the College examiners shall be sent to the Department, together with the marks awarded. The object of this is not to interfere in any way with the judgment of the examiners as to the merit of one candidate examined as compared with that of another, but in order that, if necessary, the marks shall be adjusted to the same standard as that employed in the classification of other students at the end of each year.

The Department will hold a special examination in June or July of each year, for the students of Day Training Colleges, in School Management, Needlework and Domestic Economy (girls), and Music. The examination in Teaching and in Reading and Recitation will take place at the time of H.M. Inspector's annual visit.

MATHEMATICS.

3481. (Professor Cayley, F.R.S.)—Find, in the Hamiltonian form t

$$\frac{d\eta}{dt} = \frac{dH}{d\varpi}, \quad \frac{d\varpi}{dt} = -\frac{dH}{d\eta}, \text{ \&c.},$$

the equations for the motion of a particle acted on by a central force.

Solution by Professor Sebastian Sircom, M.A.

We have $\quad T = \frac{1}{2}(\dot{r}^2 + r^2\dot{\theta}^2), \quad U = -\int P dr;$

then, writing $\quad \eta = r, \quad \varpi = \frac{dT}{d\dot{r}} = \dot{r}, \quad \eta_1 = \theta, \quad \varpi_1 = \frac{dT}{d\dot{\theta}} = r^2\dot{\theta},$

we have $\quad H = T - U = \frac{1}{2}\left(\varpi^2 + \frac{\varpi_1^2}{\eta^2}\right) + \int P dr,$

and the Hamiltonian equations are

$$\frac{d\eta}{dt} = \varpi, \quad \frac{d\varpi}{dt} = \frac{\varpi_1^2}{\eta^3} - P; \quad \frac{d\eta_1}{dt} = \frac{\varpi_1}{\eta^2}, \quad \frac{d\varpi_1}{dt} = 0;$$

or, restoring r, θ, we have

$$dt = \frac{d\dot{r}}{r\dot{\theta}^2 - P} = \frac{dr}{\dot{r}} = -\frac{d(r^2\dot{\theta})}{0} = \frac{d\theta}{\dot{\theta}},$$

the first and third of these giving the ordinary equations.

2665. (Professor Crofton, F.R.S.)—1. Given any closed convex boundary, without salient points: if dS be any element of the external area; T, T′ the tangents drawn from dS to the boundary; θ the angle they contain; and if the integration extend over the whole external area; then prove that

$$\iint \frac{\sin\theta}{TT'} dS = 2\pi^2.$$

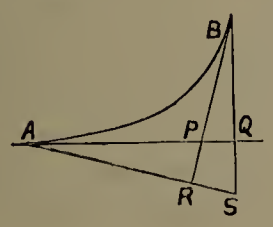
2. If the integration extend over the annular space between the proposed boundary and an outer line along which θ has a constant value (α), the value of the integral is $2\pi(\pi - \alpha)$.

3. If the given boundary has salient points, then for every such point where the bounding line changes direction abruptly through an angle A, we must subtract $\frac{1}{2}A^2$ from the above values: then the value is $2\pi^2 - \frac{1}{2}\Sigma A$. For instance, for a regular polygon of n sides, the value will be

$$2\pi^2(1 - 1/n).$$

Solution by Professors Sircom *and* Anderson.

1. Let BR, BS be two consecutive tangents at B making an angle $d\theta$; AQ, AS consecutive tangents at A making an angle $d\theta_1$;



$$BPQ = \theta,$$

$$dS = \text{area } PQRS = PQ \,.\, PR \sin\theta;$$

then, since $PQ \sin\theta = T d\theta$, $PR \sin\theta = T' d\theta_1$,

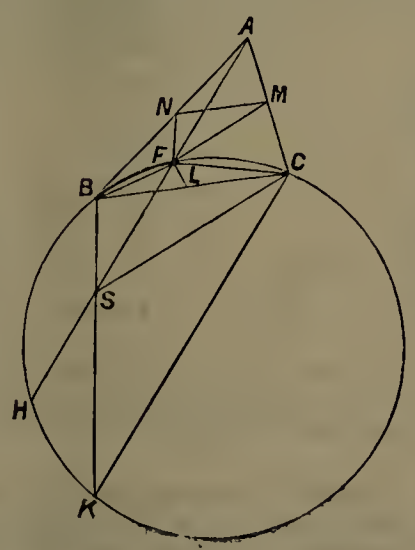
the integral becomes $\iint d\theta\, d\theta_1$.

[The rest in Volume.]

10495. (Professor Morley.)—Let ABC be a triangle, and let F be a focus of the maximum inscribed ellipse. Denoting these points by the complex variables z_1, z_2, z_3, z, prove that (1) $\Sigma 1/(z - z_r) = 0$, $(r = 1, 2, 3)$; and hence (2) if AF meets the circle FBC again at H, FH = 2AF.

Solution by Professors Anderson, Sarkar, *and others.*

1. Let L, M, N be the middle points of the sides and points of contact of the ellipse, and let F be a focus. Draw CK parallel to AF, meeting the circle in K, and join B, K intersecting AH in the point S.



Denote $z_1 - z$ by α, $z_2 - z$ by β, and $z_3 - z$ by γ. Then the point M referred to F as origin will be $\frac{1}{2}(\alpha + \gamma)$, and the point N, $\frac{1}{2}(\alpha + \beta)$.

Since $\angle MFA = AFN$, we have

$$\frac{FN}{FA}\alpha^2 = \frac{1}{4}\frac{FA}{FM}(\alpha + \beta)(\alpha + \gamma),$$

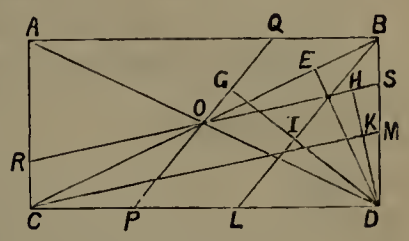
or

$$\frac{4FN \,.\, FM - (FA)^2}{(FA)^2}\alpha^2 = \alpha\beta + \beta\gamma + \gamma\alpha,$$

[The rest in Volume.]

10331. (D. Biddle.)—A rectangle of given dimensions is divided by a random straight line. Find the average ratio which the smaller portion bears to the larger.

Solution by the Proposer.



Let AB = a, BD = b; draw DE perpendicular to BC, and let

$$\angle EDC = \gamma;$$

then, for the positions (extending through a quadrant) in which D is the apex of the smaller portion cut off, the perpendicular from D to the random line forms with CD an angle which is either $<$ or $>\gamma$. Let PQ, RS be parallel to two representative random lines thus differentiated, and draw further parallels, BL, CM; also, let x = the length of the perpendicular from D to the random line. Then, if $x <$ DI (or DK), the lesser segment is triangular; but if DG $> x >$ DI or DH $> x >$ DK, the lesser segment is quadrilateral. [The rest in Volume.]

10607. (W. J. C. Sharp, M.A.)—If $\Delta_1, \Delta_2, \Delta_3, \Delta_4$ be the areas of the faces of the tetrahedron of reference, and (x, y, z, w) the quadruplanar coordinates of any point P on $\Delta_1/x + \Delta_2/y + \Delta_3/z + \Delta_4/w = 0$, show that the feet of the perpendiculars from P upon the faces lie in the same plane. Find the equation of this plane.

Solution by Professor Sebastian Sircom, M.A.

Let (x_1, y_1, z_1, w_1) be the coordinates of P; X, Y, Z, W the feet of the perpendiculars from P on the faces of the tetrahedron of reference. The equation of the surface being $\Delta_1 yzw + \ldots = 0$, six times the volume of the tetrahedron PYZW is equal to $yzw \sin(yzw)$, where (yzw) is the solid angle subtended at P by YZW. But the plane angles YPZ, &c. are the supplements of the angles between the corresponding planes of the tetrahedron of reference if P is within the tetrahedron; hence $\sin(yzw)$ is equal to

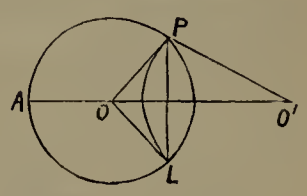
$$\begin{vmatrix} 1, & -\cos(yz), & -\cos(yw) \\ -\cos(yz), & 1, & -\cos(zw) \\ -\cos yw, & -\cos zw, & 1 \end{vmatrix}.$$

[The rest in Volume.]

9447. (S. Tebay, B.A.)—Draw a circle to trisect the circumference of a given circle and cut it at right angles.

Solution by W. J. Greenstreet, M.A.; J. O'Regan; *and others.*

Let O be any circle, PT any tangent to it; draw OO′ at 60° to OP; then the circle with centre O′, radius O′P, will cut O at right angles at P. For let it cut the circle O again at L; then we have



$\angle POO' = O'OL = 60°$ and $AOP = 120°$;

therefore L is a point of trisection.

[The analagous problem for trisection of *area* forms a new Question.]

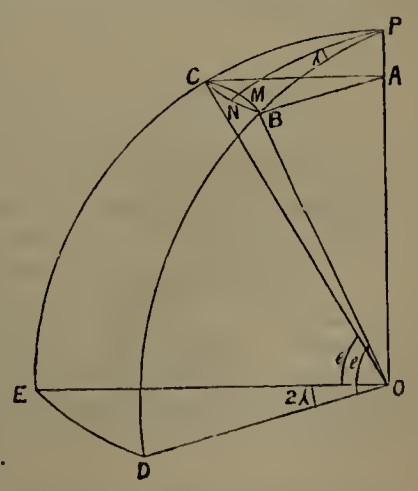
9999. (R. H. W. Whapham, B.A.)—Two ports B and C are in the same parallel of latitude (C being west of B): their common latitude being l, and their difference of longitude 2λ. Two ships set out to sail from B to C, one due West and the other along the great circle through B and C; if they sail uniformly, and both arrive at C at the same time, prove that their distance apart when they have gone half-way is

$$r\left\{\tfrac{1}{2}\pi - l - \tan^{-1}(\cot l \cos\lambda)\right\},$$

where r is the radius of the earth, and l expressed in circular measure.

Solution by the Proposer; Professor Aiyar, *and others.*

Let BMC and BNC be the great and small circles joining B and C, and draw PMN perpendicular to BMC; it will be perpendicular to BNC, and will bisect BMC and BNC.



Now arc PN = PB = $\frac{1}{2}\pi - l$;

$\therefore$ length of PN = $r(\frac{1}{2}\pi - l)$.

Again, in the right-angled triangle PMB, we get

$\tan PM = \tan PB \cos\lambda = \cot l \cos\lambda$;

$\therefore \quad PM = r\tan^{-1}(\cot l \cot\lambda)$;

therefore the required distance

$$= MN = PN - PM$$
$$= r\left\{\tfrac{1}{2}\pi - l - \tan^{-1}(\cot l \cos\lambda)\right\}.$$

10637. (Major-General P. O'Connell.)—Solve the equation

$$x^6 + 378x^5 + 38189x^4 + 492368x^3 - 572554x^2 + 213720x - 26352 = 0,$$

Solution by the PROPOSER.

Let $x = \frac{1}{3}y$; then, multiplying by 3^6, and putting $y = y' + 1{\cdot}1$, thereafter $y' = 10/z$; then, multiplying by 10^6, and dividing by z^3, we have

$$(z^3 + z^{-3}) + 11406\,(z^2 + z^{-2}) + 34995615\,(z + z^{-1}) + 14819968420 = 0.$$

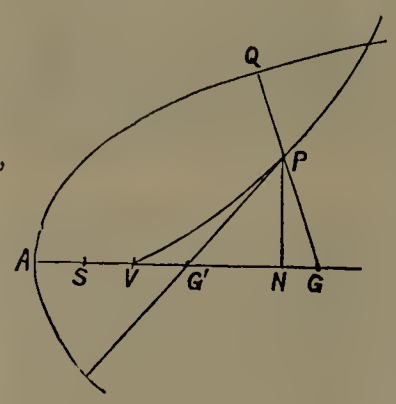
If $u = z + z^{-1}$, we have, after making transfers to complete u^3 and u^2,

$$u^3 + 11406u^2 + 34995612u + 14819945608$$
$$\equiv (u + 5902)(u + 5002)(u + 502) = 0.$$

[The rest in Volume.]

10093. (R. H. W. WHAPHAM, B.A.)—From any point P on the evolute of a parabola are drawn normals PQ, PQ′ to the involute, Q being on the same side of the axis as P; prove that the distance from the vertex of the evolute to the foot of the perpendicular from P on the axis is three times the part of the axis intercepted between this latter point and the normal PQ, and that it is also three times the part of the axis intercepted between the vertex of the evolute and the normal PQ.

Solution by the PROPOSER; Professor CHAKRAVARTI; *and others.*



Let equation to parabola be

$$y^2 = 4ax,$$

then evolute is

$$27ay^2 = 4\,(x - 2a)^3,$$

and if the coordinates of P be $(2a + 3\delta,\ \epsilon)$, the equation to parabola is normal to

$$am^3 - (x - 2a)\,m + y = 0;$$

and if this pass through P, we have

$$am^3 - 3\delta m + \epsilon = 0.$$

Also, since P is on the evolute,

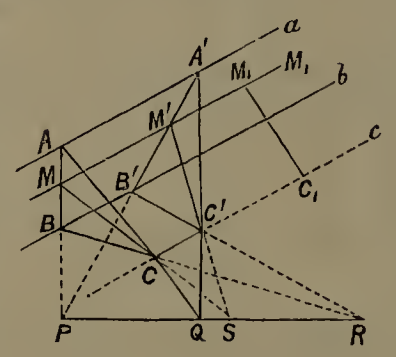
$$27a\epsilon^2 = 4\,(3\delta)^3 \text{ or } a\epsilon^2 = 4\delta^3,$$

which is condition that the preceding equation should have two roots equal.

[The rest in Volume.]

10570. (Professor MORIZE.)—Construire un triangle sachant que les côtés passent par trois points donnés en ligne droite;—que deux des sommets se trouvent sur deux parallèles données, et qu'enfin la médiane issue du troisième sommet a une longueur connue.

Solution by J. C. ST. CLAIR; Professor AIYAR; *and others.*



Let P, Q, R be the given collinear points, and let a, b be the given parallel lines.

If we take any two triangles ABC, A′B′C′ of which the corresponding sides meet in P, Q, R, and the vertices A, A′; B, B′ lie on a and b, it is evident from a well-known theorem that c, c' lie on a fixed line c concurrent with, *i.e.* parallel to, AA′, BB′. Conversely, since the mid-points M, M′ lie on a fixed line m parallel to AA′, CC′, the lines CM, C′M′ meet in a fixed point S on PQ. [The rest in Volume.]

9088. (A. R. JOHNSON, M.A.)—Express (1), in terms of the fundamental covariants and invariants of a system of three conics, the covariant which, equated to zero, gives the locus of the point the tangents from which to the three conics form a system in involution; also, find (2) the equation to the scroll generated by the lines touching each of three quadrics; and (3) express, in terms of the fundamental invariants of three quadrics, the invariant whose vanishing is the condition that the three quadrics should have a common self-conjugate pentahedron.

Solution by the PROPOSER.

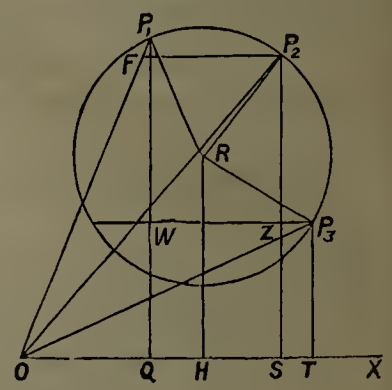
I. *General considerations.*—When we know the fundamental invariants of a system of quantics of the same order, then the *combinant* invariants of the system are easily found. For we have only to write down the symmetrical groups of sums of products of the invariants containing the coefficients in the required degree, and adding all the groups, each multiplied by an arbitrary constant, to differentiate the sum with respect to one set of coefficients while multiplying by the corresponding components of another set of coefficients, and to equate the result to zero. We shall then have, in general, more than enough equations to determine the arbitraries. If these are all consistent, they give the required combinant; if they are inconsistent the deduction is that the combinant cannot be expressed in terms of the fundamental invariants, though its square or some higher power can be. [The rest in Volume.]

4114. (A. RENSHAW.)—If OX be a line drawn outside a circle whose centre is R, and RH the perpendicular from R on OX; also, if P_1Q, P_2S, P_3T be drawn at right angles to OX from any three points P_1, P_2, P_3 on the circumference; prove that

$$2RH\,(OS\,.\,P_1W - OQ\,.\,P_2Z - OT\,.\,P_1F) = OP_2^2\,.\,QT - OP_1^2\,.\,ST - OP_3^2\,.\,QS,$$

where P_1W, P_2Z, P_1F are the differences of the perpendiculars from P_1P_3, P_2P_3, P_1P_2, and QT, ST, QS the segments of OX between the feet of perpendiculars on OX.

Solution by D. BIDDLE *and* MORGAN BRIERLEY.



Let r = radius of circle, A = RH, B = OH, a_1, a_2, a_3 = vertical, and b_1, b_2, b_3 = horizontal distances from R of P_1, P_2, P_3 respectively; then

$$a_1^2 + b_1^2 = a_2^2 + b_2^2 = a_3^2 + b_3^2 = r^2;$$

$$P_1W = a_1 - a_3,$$

$$P_2Z = a_2 - a_3,\quad P_1F = a_1 - a_2,$$
$$QS = b_2 - b_1,\quad QT = b_3 - b_1,$$
$$ST = b_3 - b_2,\quad OQ = B + b_1,$$
$$OS = B + b_2,\quad OT = B + b_3.$$

[The rest in Volume.]

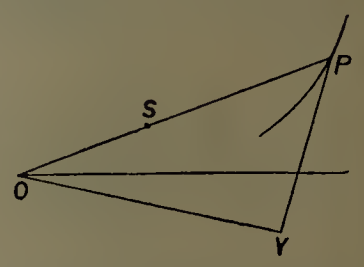
7251. (Professor WOLSTENHOLME, M.A., Sc.D.)—At each point P of an epicycloid (or hypocycloid) is drawn the equiangular spiral of closest contact (four-pointic), S being its pole; prove that (1) S, P are inverse points with respect to the fixed circle of the epicycloid; (2) the arc traced out by S during one complete revolution of the moving circle is

$$2a\left(1 - \frac{a^2}{(a + 2b)^2}\right)^{\frac{1}{2}} \log\left(\frac{(a+b)^{\frac{1}{2}} + b^{\frac{1}{2}}}{(a+b)^{\frac{1}{2}} - b^{\frac{1}{2}}}\right) \text{ for the epicycloid,}$$

and $4a\left(\dfrac{a^2}{(a-2b)^2} - 1\right)^{\frac{1}{2}} \sin^{-1}\left(\dfrac{b}{a}\right)^{\frac{1}{2}}$ or $4a\left(\dfrac{a^2}{(2b-a)^2} - 1\right) \cos^{-1}\left(\dfrac{b}{a}\right)^{\frac{1}{2}}$

for the hypocycloid, according as $2b <$ or $> a$; a, b being the radii of the fixed and moving circles respectively; (3) the radii of curvature at S, P of the curves are as OS : SP − OS; and (4) there will be inflexions on the locus of S whenever $OS\sqrt{2} = a$; whence by inversion it appears that, in any epicycloid, when the central distance is $a\sqrt{2}$, the circle of curvature will pass through the centre of the fixed circle.

Solution by the PROPOSER.

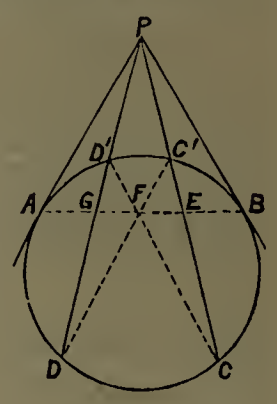


1. In any curve, if the equiangular spiral of closest contact be drawn at a point P, and S be its pole, the tangents at P, S to their loci are equally inclined to PS. [This was proved in the *Educational Times* many years ago.] Hence, if the locus of P be such that S always lies on OP, when O is a fixed point O, the locus of S will be the inverse with respect to O of the locus of P; for, if P, P′ be contiguous points, S, S′ the corresponding poles of the osculating spirals, a circle will go round PP′S′S, and OP . OS = OP′. OS′.

[The rest in Volume.]

10569. (Professor TARRY.)—Le rapport anharmonique de quatre points A, B, C, D d'une conique est égal à la racine carrée du rapport anharmonique du faisceau P (ABCD) qui a pour centre le pôle P de la droite AB.

Solution by J. C. ST. CLAIR; Professor CHAKRIVARTI; *and others.*



Let PC, PD meet the conic again in C′, D′, and AB in E, G; then CD′, DC′ intersect in a point F lying on AB; and since

$$C'\,(ABCD) = D'\,(ABCD),$$

$$\therefore\quad (ABCD) = (ABEF) = (ABFG);$$

and, if $\dfrac{AC}{BC} : \dfrac{AD}{BD} = \lambda$,

we have $\lambda = \dfrac{AE}{BE} : \dfrac{AF}{BF} = \dfrac{AF}{BF} : \dfrac{AG}{GB}$,

therefore

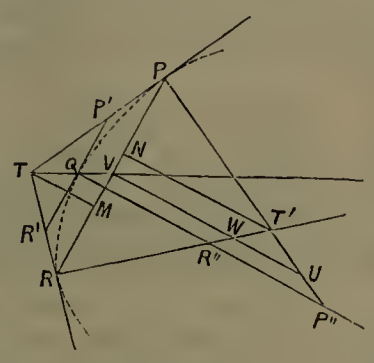
$$\lambda^2 = \frac{AE}{BE} : \frac{AG}{BG} = (ABEG) = P\,(ABCD).$$

[If we project A, B into the circular points at infinity, and use LAGUERRE's theorem for the projection of angles, the theorem follows from Euc. III., 20.]

10106. (Professor SYAMADAS MUKHOPÂDHYÂY, B.A.)—P, Q, R are three points on a parabola, PR being parallel to the tangent at Q; r is the radius of a circle touching the tangents at P, Q, R, and r' is the

radius of a corresponding circle touching the normals at P, Q, R. Prove (1) that $\tan\delta = r'/3r$, where δ is the angle between the normal and diameter at Q; and hence (2) deduce for any curve TRANSON's formula $\tan\delta = \rho'/3\rho$, where δ is the angle of aberrancy at a point (A) of the curve, and ρ, ρ' the radii of curvature of the curve at the point (A), and of the evolute at the point corresponding to (A).

Solution by Professors SWAMINATHA AIYAR, BEYENS, *and others.*



TP'R' and T'P''R'' are two triangles formed by the tangents and the normals at P, Q, R. TQV is the diameter through Q. T'N, TM, VWU are all parallel to the normal at Q. Now, since perpendiculars from R, P on PT', RT' meet on T'N, it follows PN = RM or VN = VM. Hence T'W = 2WR'',

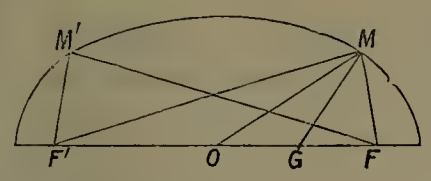
$$\tan\delta = \tan \mathrm{VTM} = \frac{\mathrm{VM}}{\mathrm{TM}} = \frac{\mathrm{PM}-\mathrm{MR}}{2\mathrm{TM}}$$

$$= \frac{\mathrm{WU}}{\mathrm{PR}} = \frac{\frac{2}{3}\mathrm{R''P''}}{2\mathrm{R'P'}} = \frac{\mathrm{R''P''}}{3\mathrm{R'P'}} = \frac{r'}{3r}.$$

TRANSON's formula follows immediately from this, knowing that the angle of aberrancy is determined by four consecutive points.

10415. (Professor STEINER.)—Soient M, M', les extrémités de deux diamètres conjugués OM, OM' d'une ellipse. Démontrer que la somme $\tan^2\frac{1}{2}\mathrm{FMF'} + \tan^2\frac{1}{2}\mathrm{FM'F'}$ est constante.

Solution by Professors ANDERSON, M.A.; ZERR, M.A.; *and others.*



Denote FM, F'M, FM', F'M' by r_1, r_2, r_1', r_2'; then, if s denote half the sum of the sides of the triangle FMF', or of the triangle FM'F',

$$\tan^2\tfrac{1}{2}\mathrm{FMF'} + \tan^2\tfrac{1}{2}\mathrm{FM'F'}$$

$$= \left\{(s-r_1)(s-r_2)+(s-r_1')(s-r_2')\right\} / \left\{s(s-2c)\right\};$$

also, $\quad s = a+c, \quad r_1r_2 + r_1'r_2' = a^2+b^2;$

therefore $\quad \tan^2\frac{1}{2}\mathrm{FMF'} + \tan^2\frac{1}{2}\mathrm{FM'F'} = c^2/b^2.$

10416. (Professor G. B. MATHEWS.)—Prove that (1) the conditions that $\quad 10x^3 - 8g_2x - 5g_3 = 0, \quad 315x^4 - 231g_2x^2 + 90g_3x + 25g_2^2 = 0,$ may be satisfied by the same value of x, is

$$t^2 - 2\,.\,5^3\,.\,79t - 5^3\,.\,11^3 = 0, \text{ where } t = 27g_2^3/(g_2^3 - 27g_3^2);$$

and (2) that $t = 5^3\,.\,79 \pm 2^2\,.\,5\,.\,13\,.\,17\sqrt{5} = \pm 5\sqrt{5}\,(4\mp\sqrt{5})^3\,(\sqrt{5}\pm 2)^4$, where the upper or lower sign is to be taken throughout; and if we put $t = 4\,(1-y^2)^3/y^4$, one value of y is $\frac{1}{16}(\sqrt{5}-1)^3$.

Solution by H. J. WOODALL; Professor ZERR; *and others.*

The equations given are homogeneous, which greatly simplifies the work. After about seven or eight of the usual steps in ordinary algebraic eliminations, we obtain

$$x = (10395g_3^2 - 4180g_2^3)/(23868g_2g_3);$$

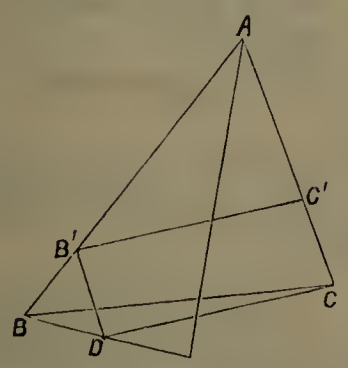
and substituting in the simplest, and reducing, we have

$$11^2\left\{7016625g_3^4 - 2922048g_2^3g_3^2 + 40432g_2^6\right\} + 189893808g_2^3g_3^2 = 0.$$

[The rest in Volume.]

10472. (L. BÉNÉZECH.) — Dans un triangle donné ABC, mener, parallèlement à une direction donnée, une sécante B'C' telle que BB' = CC', B' et C' étant les points de rencontre de cette sécante avec AB et AC.

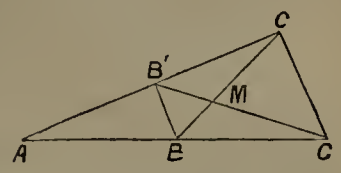
Solution by Professor ANDERSON, M.A.; J. C. ST. CLAIR; *and others.*



Through C draw a straight line parallel to the given direction, meeting in D the perpendicular from B to the bisector of the angle A; and through D draw a line parallel to CA, meeting AB in B'; then the required secant passes through B', since the triangle BB'D is evidently isosceles, and DB' equal to CC'. If BD be drawn perpendicular to the external bisector of the angle A, another secant will be obtained satisfying the given condition.

10568. (Professor DE LONGCHAMPS.)—Soient A, B, C trois points en ligne droite. Par A, on fait passer une droite mobile Δ, et des points B, C on abaisse sur Δ des perpendiculaires BB', CC'. Trouver le lieu décrit par le point de concours des diagonales du trapèze ainsi formé.

Solution by Professor IGNACIO BEYENS.



Soit M le point de concours des diagonales du trapèze (BB'CC'), on aura

$$\frac{\mathrm{MB}}{\mathrm{BC'}} = \frac{\mathrm{BB'}}{\mathrm{BB'}+\mathrm{CC'}} = \frac{\mathrm{AB}}{\mathrm{AB}+\mathrm{AC}} = \text{constante},$$

mais le point B est fixe. C' décrit une circonférence ayant (AC) pour diamètre; donc le point (M) qui divise la droite BC' en une rapport constante décrit une circonférence facile à determiner.

QUESTIONS FOR SOLUTION.

10682. (Professor CAYLEY, F.R.S.)—If ω be an imaginary cube root of unity, and

$$y = \frac{(\omega-\omega^2)\,x + \omega^2x^3}{1-\omega^2\,(\omega-\omega^2)\,x^2},$$

prove that

$$\frac{dy}{(1-y^2)^{\frac{1}{3}}\,(1+\omega y^2)^{\frac{1}{3}}} = \frac{(\omega-\omega^2)\,dx}{(1-x^2)^{\frac{1}{3}}\,(1+\omega x^2)^{\frac{1}{3}}}.$$

—683. (The late Professor CLIFFORD, F.R.S.)—In a polyhedron having n summits and only triangular faces (Δ-faced n-acron, CAYLEY), let every plane which contains three summits, but is not a face, be called a diagonal plane; and let every line which contains two summits, but is not an edge, be called a diagonal line: then (a) there is a surface of class $n-4$ touching all the diagonal planes; (b) this surface contains all the diagonal lines; (c) the conditions of passing through the diagonal lines and touching the diagonal planes are just sufficient to determine the surface, and no more; and (d) when the surface touches the plane at infinity the volume of the polyhedron is zero.

—684. (Professor CH. HERMITE, LL.D.)—Prouver la formule

$$\int_0^\pi \frac{\sin x\,dx}{\sin(x-a)} = e^{ei\alpha}\,\pi.$$

On doit supposer, dans cette formule, $a = \alpha + i\beta$, β étant essentiellement différent de zéro, et prendre pour e la valeur $+1$, ou -1, suivant que β est positif ou négatif.

—685. (Professor HAUGHTON, F.R.S.)—On April 17th, 1885, two quay-porters, each weighing, in his clothes, 150 lbs., carried on their shoulders 60 tons of cement (in 2 cwt. bags) from a schooner lying at the quay of New Ross, Co. Wexford, a horizontal distance of 55 ft., ascending on each journey $6\frac{1}{2}$ ft.; find (1) the work done in foot-tons, and (2) how much this work would heat a gallon of water.

—686. (Sir R. S. BALL, LL.D., F.R.S.)—In Laplace's theory of Jupiter's satellites, the mass of Jupiter is the unit of mass, the equatorial radius of Jupiter is the unit of length, and the gravitation of two unit masses situated at a unit distance is the unit of force. Laplace says that the square of the mean motion of Jupiter multiplied into the cube of his mean distance is *equal* to the mass of the Sun. Determine the number of mean solar seconds in Laplace's unit of time.

—687. (The late Professor SEITZ.)—Two points are taken at random in the surface of a given semicircle; find the chance that the distance between them is less than the radius of the semicircle.

—688. (Professor MATZ, M.A.)—Four points, taken at random in each semicircle of a given circle, are joined in such a way by straight lines as to enclose an octagonal surface; find the mean area of this surface.

—689. (Professor NILKANTHA SARKAR, M.A.)—On a straight line AOB, whose mid-point is O, a semicircle ACB is drawn; show that, if P, Q, R be taken at random on the periphery AOBCA of the figure, the mean area of the triangle PQR will be $(\frac{3}{2}\pi^{-1} - 12\pi^{-3})\,\mathrm{AO}^2$.

—690. (Professor LAUVERNAY.)—L'équation

$$3x^2\,(a+b+c) + 4x\,(ab+bc+ca) + 4abc = 0$$

a ses racines réelles, quels que soient a, b, c. Montrer qu'elles sont rationnelles quand on suppose (1) $b = c$, (2) $2bc = a\,(b+c)$.

—691. (Professor HUDSON, M.A.)—If a face of Cleopatra's needle be a trapezoid having its two parallel sides of lengths 5 ft. 4 in. and 7 ft. 14 in., and their distance apart 61 ft. 6 in., and if it be exposed to a uniform normal pressure of 40 lbs. to the square foot, find the moment of this pressure about the side of 7 ft. 11 in.

—692. (Professor ORCHARD.)—If a spherical soap-bubble be electrified in such a way that the internal and external air-pressures are equal when the bubble is in equilibrium, how does the tension of the film vary with the electric density?

—693. (Professor LAMPE, LL.D.)—Find all the values of x that satisfy the equation $64\sin^2 x\,\sin^2 2x\,\sin^2 3x = 7$.

—694. (Professor GOB.)—Etant donné un triangle ABC, on construit les triangles $\mathrm{P}_a\mathrm{BC}$, $\mathrm{AP}_b\mathrm{C}$, ABP_c directement semblables; les droites AP_a, BP_b, CP_c se coupent en un même point Q, dont on prend l'inverse (conjugué isogonal) P par rapport au triangle ABC. On demande de trouver le triangle ABC, connaissant les quatre points P, P_a, P_b, P_c.

—695. (Professor DÉPREZ.)—Soient M, M' deux points inverses par rapport à un cercle d'Apollonius du triangle ABC. Démontrer que les triangles podaires de ces points par rapport au triangle ABC sont inversement semblables.

10696. (Professor CATALAN.)—Soit X_n le polynôme de LEGENDRE. Si l'on fait $X_n = f_n(x)$, on a $(x < 1)$:

$$\Sigma_1^\infty \frac{1}{n} f_{n-1}(x) f_n(x) = \Sigma_1^\infty \frac{1}{n f_{n-1}(1/x) f_n(1/x)} = \tfrac{1}{2} \mathrm{L} \frac{1+x}{1-x}.$$

—697. (Professor DE LONGCHAMPS.)—Soit BB′ le petit axe d'une ellipse Γ; du point B, abstraction faite de BB′, on peut mener à Γ deux normales. Soit C le pied d'une de ces normales. En désignant par F l'un des foyers de Γ, la perpendiculaire élevée en F à BF rencontre la tangente, en B, en un certain point D. Démontrer que BD = BC.

—698. (Professor WOLSTENHOLME, M.A., Sc.D.) — In a trinodal quartic (A, B, C nodes), tangents are drawn to the curve from a point P on the curve: prove that their points of contact lie on a straight line which may be constructed as follows:—Join PA meeting the curve again in Q; join QB, QC meeting CA, AB in L, M; then LM will be the straight line required. [This will be the locus of the points of contact of tangents drawn from P to any quartic having nodes at A, B, C and passing through P, a singly infinite system.]

—699. (Professor NEUBERG.)—Soient A, B, C les centres de trois circonférences qui passent par un même point D et se coupent, en outre, deux à deux, aux points A′, B′, C′. Les cordes DA, DB, DC communes à deux des circonférences rencontrent la troisième circonférence aux points A″, B″, C″. Démontrer que les droites A′A″, B′B″, C′C″ sont doubles des hauteurs du triangle ABC.

—700. (Professor SCHOUTE.) — If in a plane the points P_1, P_2, P_3 describe three directly similar figures F_1, F_2, F_3, the centre of gravity P of constant masses μ_1, μ_2, μ_3, placed in P_1, P_2, P_3, describes a fourth figure F_4 directly similar to F_1, F_2, F_3.

$$\begin{vmatrix} 0 & \mu_{1,2} & \mu_{1,3} & \mu_{1,4} \\ \mu_{2,1} & 0 & \mu_{2,3} & \mu_{2,4} \\ \mu_{3,1} & \mu_{3,2} & 0 & \mu_{3,4} \\ \mu_{4,1} & \mu_{4,2} & \mu_{4,3} & 0 \end{vmatrix}$$

Reciprocally, when P_1, P_2, P_3, P_4 are corresponding points of four directly similar figures there can be found three masses $\mu_{i,j}$, $\mu_{i,k}$, $\mu_{i,l}$ that, when placed in P_j, P_k, P_l, have P_i for centre of gravity. To examine the relation that necessarily exists between the four figures when the determinant disappears.

—701. (Professor MORLEY.)—Prove that, (1) if a closed curve have an *odd* number of real cusps, any involute will be a closed curve; and (2) if it have an *even* number, any involute will, in general, proceed spirally to infinity.

—702. (Professor TARRY.)—On donne une droite, une conique Γ, et deux divisions homographiques sur cette conique. Les tangentes à la conique, en deux points homologues A, A′, rencontrent la droite en deux points; les droites qui joignent ces deux derniers points au pôle de la droite des points doubles, coupent la corde AA′ en des points dont le lieu est une conique. Quand la droite donnée est tangente à Γ, le lieu est un système de deux droites.

—703. (The EDITOR.)—If X, Y are two random points within a circle, and P a point in a fixed diameter equidistant from X and Y, show that the chance that P is nearer to X (or Y) than it is to the circumference is $\frac{2}{5}$; and hence solve the EDITOR's Question 1843, namely:—"Three points being taken at random inside a circle, show that the chance that the circle drawn through them will lie wholly within the given circle is $\frac{2}{5}$." [A Solution of Quest. 1843 is given on pp. 95–99 of Vol. XIII. See also the Solution of the EDITOR's Quest. 3335, on pp. 80, 81 of Vol. XV.]

—704. (R. CHARTRES.)—Find a point P within a triangle ABC, such that the tangents from A, B, C respectively to the circumcircles of PBC, PCA, PAB shall be all equal.

—705. (S. TEBAY, B.A.)—Find the radius of a circle which bisects the *area* of a given circle, and cuts the circumference at right angles. [The analogous problem for the trisection of the *circumference* has been solved under Quest. 9447.]

—706. (H. J. WOODALL. Suggested by Quest. 10659).—In a triangle ABC, a point P is taken, such that PD, PE, PF drawn perpendicular to the sides BC, CA, AB at D, E, F, and produced to L, M, N, so that PD : DL = PE : EM = PF : FN = $m : n$, and AL, BM, CN meet in P′; (1) find the locus of P, P′; (2) in the case of $m = n$, trace the loci of P, P′; find (3) the envelopes of MN, NL, LM; (4) of L, M, N; and (5) the locus of the LEMOINE-point (K) of the triangle LMN.

—707. (W. D. H. DICKSON, M.A.)—A common pendulum is allowed to swing from rest in a horizontal condition, and at any point of the motion the string is cut. Prove that the locus of the focus of the path of the bob of the pendulum in its subsequent parabolic motion is

$$4(x^2+y^2-c^2)^3 = 27c^4y^2;$$

the pendulum, of length c, being suspended from the origin, and the axes of x and y being horizontal and vertical.

—708. (H. MCCOLL, B.A.)—Three random points P, Q, R are taken in the perimeter of a square. Find the respective chances of the straight lines PQ, QR, RP forming an acute-angled triangle, an obtuse-angled triangle, or no triangle.

—709. (H. W. SEGAR, B.A.)—Solve

$$(x^2-y^2-a^2)\,x\,dy + (y^2-x^2-a^2)\,y\,dx = 0.$$

10710. (J. BRILL, M.A.)—If A, B, C be the inverses of the points A′, B′, C′ with respect to their centroid O, prove that the product PA . PB . PC is stationary when P coincides with O.

—711. (D. BIDDLE.)—Three weights m_1, m_2, m_3 are situated on three concentric circles, of radius r_1, r_2, r_3 respectively. Find the conditions of equilibrium about the common centre; and particularly give the angular relations when the weights are equal, and the radii as 3, 4, 5.

—712. (J. GRIFFITHS, M.A.)—If I be a seminvariant (of a binary quantic) of weight w and order θ as regards the coefficients, prove that the following operator, when applied to I, will form a seminvariant, viz.,

$$2wa_1 \frac{d}{da_0} + (2w-\theta)\, a_2 \frac{d}{da_1} + (2w-2\theta)\, a_3 \frac{d}{da_2} + (2w-3\theta)\, a_4 \frac{d}{da_3} + \dots.$$

—713. (W. J. GREENSTREET, M.A.)—In a circle the radii OA, OB are at right angles. Describe a circle on OB as diameter. Prove that, if the join of A and the centre of the smaller circle meet the latter in D, AD is a side of the regular in-decagon; and the chord of the larger circle tangential to the smaller is a side of the regular in-pentagon.

—714. (W. J. C. SHARP, M.A.)—If two circles cut the sides BC, CA, AB of the triangle ABC in the points A_1, A_2; B_1, B_2; C_1, C_2 and A_1', A_2'; B_1', B_2'; C_1', C_2', respectively: show that (1) the perpendiculars from A, B, and C upon the radical axis of the circle are proportional to

$$AB_1 . AB_2 - AB_1' . AB_2' : BC_1 . BC_2 - BC_1' . BC_2' : CA_1 . CA_2 - CA_1' . CA_2';$$

and (2) apply this to find the radical axis of the nine-point circle and the incircle. [This is a particular case of a proposition relative to spheres in space of n dimensions. Enunciate this.]

—715. (J. J. BARNIVILLE.)—Draw a common bisector to two triangles.

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—731. Master for Jun. Class in Eng., Lat., Fr., and out of school supervision.
—732. Pupil Teacher to teach Eng. and Ndlwk., Mus. Practice to a small class. Premium 21*l.*
16733. Master. Eng. (usual branches), Alg., Euc., Fr., Draw. Good Disciplinarian. Res.
—735. Master. Eng. subj., a knowledge of Shorthand a recommendation. 15*l.* to 20*l.*
—737. Jun. Res. Gov., chiefly to assist with Piano lessons to Jun. Mutual terms.
—740. House Master. One of a scientific turn of mind would suit, able to play harmonium. 40*l.*
—741. Gov. Good Eng., Fr., Ger., Draw. Knowledge of Mus. 25*l.*
—744. Fr. Gov. Mutual terms.
—745. Master. Eng., Class., Lat. and Gk., Shorthd., Piano a recommendation. Duty light. 30*l.* to 40*l.*
—747. Gov. Good Mus., Sing., and Har., adv. Eng. 30*l.*
—749. Master. Good Fr., elem. Lat., Eng. subj., Shorthd., Draw., or Mus. an advantage. 30*l.* about.
—751. Jun. Master. Eng. subj. Mutual terms. Help in studies.
—759. (i.) Jun. Gov. Knowledge of Kindergarten. 10*l.*
(ii.) Gov. student. Premium 18 guineas.
—764. Master. Chem. (theo. and pract.), Gen. subj., Bkkpg. or Piano a recommendation. 50*l.* to 60*l.*
—765. (i.) Class. Master. Lat. and Gk., Gen. subj. 60*l.*
(ii.) Jun. Master. Gen. subj., Sports. Small salary.
—774. French Gov. Protestant. To teach Hist., Geog., Jun. Mus. and Sing., Calisth. 25*l.*
—775. Gov. Usual IV. form subjs., Eng. and Sci. for Matric. 35*l.* to 40*l.*
—780. Gov. Eng., Mus., if possible elem. Lat. Small salary or mutual terms.
—783. Non-res. Master. Graduate. Math., Sci., Pract. Chem. and Physics, possibly Eng. Hist., Draw., and Shorthd. a recommendation. 120*l.* to 150*l.*
—786. Master. Lond. Degree Hons. pref. Tutor for Correspondence work, Math., Classics.
—789. German Nursery Gov. for 4 children. Fr., Ger., and Mus. 20*l.*
—790. Gov. Thoro. Eng., Arith. (adv.), Fr. 25*l.*
—791. (i.) Jun. Gov. Eng., Fr., Ger., Mus., Sing., Draw. From 15*l.*
(ii.) Jun. Gov. Mutual terms.
—792. Gov. Eng., Fr., Ger., Mus., Draw. 15*l.* (from).
16801. Jun. Gov. Mutual terms.
—802. Eng. Master. Prep. for Coll. P. Exams., Camb. and Oxf. Loc., Math., Shorthd. a recommendation.
—804. Two Jun. Govs. to teach Mus., Fr., Eng., Draw., Sing., Ndlwk., knowledge of Kindergarten. 20*l.* and 9*l.*
—805. Ger. Gov. Ger., Fr., Draw. (elem.), Mus., Ndlwrk. Small salary.
—807. Eng. Master. Math. (good), Fr., Ger., Mus., Piano, Sports. 50*l.*
—810. Articled Pupil. Mutual terms.
—812. Jun. Master. Eng., Lat., Fr., Draw. 20*l.* to 30*l.*
—813. Jun. Master. Gen. subj., Cricket, and Football. Small salary, or mutual terms.
—814. Pupil Master Teacher. Mutual terms.
—817. (i.) Sen. Master. Lat., Fr. (good), Math., Eng. subj. 40*l.* If with German a higher salary.
(ii.) Jun. Master. Eng. subj., Lat., Fr., Draw. 30*l.*
—819. Master. Piano (good), Violin (mod.), Fr., Ger., Drill. Fencing, Dancing, or Drawing an advantage. 40*l.*
—821. Master. Gen. Eng. subj., Draw. (freehd. and mod.), Shorthd. (Pitman's), Sports. 30*l.* to 40*l.*
—822. (i.) Foreign Master. Fr., Ger., Draw. 30*l.* to 40*l.*
—824. Jun. Eng. Gov. Jun. Eng. and Fr. 15*l.*
—825. Jun. Master. Eng., Lat., Chem. (good).
—829. Articled Pupil. Premium 12*l.*
—830. Nursery Gov. Dressmk., Ndlwk., Gen. subj. and Mus. 20*l.*
—832. Master. Fr. (conv. and gram.), an Englishman. Gen. Eng. subj. (Ger. and Classics desirable). 40*l.* with small capitation fee.
—833. Gov. Thoro. Eng., good Arith., some Lat., Euc., Alg., Bkkpg. 25*l.* to 30*l.*
—835. (i.) Gov. Pupil. Premium 15*l.*
(ii.) Gov. Eng. subj. (thoro.), Arith., Mus. (Piano), Fr., Draw. 20*l.* to 25*l.*
—836. Fr. Master. Ger., Draw. 30*l.* (abt.).
—839. Jun. Gov. Eng., Fr., Draw., Mus., Sing.
—840. Jun. Gov. Eng., Mus., and Fr. to Juns. 12*l.*

16841. Jun. Eng. Gov. Piano, Fr.
—843. Jun. Gov. Gen. subj., Fr., &c. Mutual terms.
—844. Gov. Gymns., Handwork, such as Wood-carving, direction and superintendence of games, and if possible elem. Physiol. Non-res. 90*l.* (abt.),
—845. Master. To prep. for Camb. in Classics, other subj. moderate. Res. 30*l.* to 40*l.*
—847. Gov. Student. Lessons and accomplishments. Premium required.
—849. Fr. Gov. Dip. exp. 25*l.* (about).
—850. Jun. Master. Mutual terms. Help in Reading.
—852. Exp. Governess (Head) for a New Boarding School. Stipend to increase with growth of school.
—854. Governess for two girls, ages 12 and 14. Thoro. Eng., Arith., Mus., Lat., Fr., Sing. (solo). Prep. for Jun. Camb. 30*l.* (about).
—855. Jun. Master (Math.) Draw., Eng. subj. 20*l.* (about). (No duty after school hours).
—856. Master. To take a share of teaching of S.K. Classes, chiefly Chem., Phys. and Bot.; to take a share in Lond. B.Sc. work, chiefly Physics; and to take general charge of general apparatus and arrange Headmaster's lecture table. 60*l.* to 80*l.*
—859. Gov. to teach during day in exchange for board and res. Evenings quite free.
—860. Gov. Mus. and Draw. Sing. a recommendation. 30*l.* to 35.
—861. Jun. Master. Arith., Alg., Lat., Eng. subj. (elem.). Mutual terms. Help in studies.
—862. Jun. Master. Class. and Math., Eng. subj. and Fr. No salary first term. (Two juniors.)
—863. Jun. Master. One who has passed 1st Cl. C.P. or Lond. Matric. Sports an advantage. From 20*l.*
—865. Gov. to prepare for 1st and 2nd Cl. C.P. Five days a week, 2½ hours a day. 2*l.* a month non-res.
—866. Master. Eng., Math., Shorthd. (Pitman's), Bkkpg., Fr., Lat., Sports. Disciplinarian. 45*l.*
—868. Eng. Gov. (Cert.), not less than 1st Cl. C.P. or Higher Loc. 25*l.* res. or daily.
—869. Fr. Gov. Mutual terms and lessons.
—871. Master. Lat. and Eng. 25*l.* to 30*l.*
—872. Jun. Gov. with lessons. Mutual terms or small salary.
—875. Gov. Eng. (thoro.), Alg. and Bot., Draw. 20*l.*
—876. Two Jun. Gov's., Cert. preferred. 20*l.* non-res.
—877. Jun. Gov. (Boys' Prep. Sch.). Mutual terms.
—878. Master. Eng., elem. Fr., Lat., Arith., S. & A. or Science Certs. a recommendation. 50*l.* non-res.
—879. Master. Eng. subj., Math., Lat. (good), Fr., (Chem. and Minerals desirable). 30*l.* (about).
—881. Gov. Eng. subj., Mus., Ndlwk., Kindergarten. 20*l.*
—883. (i.) Jun. Master. Good Eng., Fr., Mus., Sports. 20*l.* to 30*l.*
(ii.) Pupil Teacher.
—884. Gov. (Cert.). Eng., Mus. and Sing., or Draw. and Paint., but Mus. and Sing. preferred. 30*l.*
—885. Fr. Gov. Draw. and Paint. 20*l.*; if with Dancing, 25*l.*
—886. Headmistress required for 1st Class Girls' School in the Colonies. 200*l.* board and residence. Passage paid. A Presbyterian.
—887. Gov. to prepare for the Loc. Exam. 20*l.* to 30*l.*
—888. Master. Eng. subj., Lat. (good), Fr., Math. 30*l.* to 40*l.*
—889. German Master. Fr., Ger., and Draw., and assist generally. 30*l.*
—890. Jun. Gov. Arith., Math., Mus., gen. Eng. subj. 20*l.*
—891. Jun. Gov. Student wishing to prepare for C.P. Exams. Premium 20*l.*
—892. Master. Eng., Arith., Draw., Lat. 10*l.* Duties light.
—893. Master. Class. and Eng.
—895. Jun. Master who has passed the Higher Grade C.P. Exams. Arith., Eng., elem. Euc., Alg. Knowledge of Shorthd., Lat and Fr. Opportunity to gain experience. 15*l.*
—896. Gov. Eng. subj., Arith., &c. 25*l.* to 30*l.*
—897. Gov. Pupil. Premium required.
—898. Gov. Eng. subj., Draw., Arith. 20*l.*
—899. Gov. Eng., Fr., Draw., Phys., Domestic Econ., Calis. 40*l.* about. Non-res.
—900. Pupil Teacher.
—991. Jun. Gov. Eng., Arith., elem. Lat., Bot., Ger.
—992. Gov. Draw. (freeh., mod., landscape).
—993. Master to prepare for C.P. 2nd Class. 30*l.*
—994. Gov. Pupil. Premium required.
—995. Mus., Piano, Gen. Eng. subj., Sports. 25*l.*

II.—ASSISTANTS.

MASTERS.

No. in Register.

22058. Class., Math., Chem. (theor. and prac.), Ht., Statics, Geol., Bot., Hydros., Eng. and Fr. (elem.). Athlete. B.A. Camb. Non-res. from 150*l.*, or res. Age 21.
—059. Eng. subj., Arith., Fr. and Mus. (elem.), Draw. (jun.). Res. 20*l.* Age 20.
—060. Eng. subj., Fr. (conv. and gram.), Ger. and Lat. (elem.), Draw. (persp. and frhd.), Math. Shorthd., Chem., Sound, Lt. Res. 40*l.* to 60*l.*, or non-res. Age 49.
—061. Math., Fr., Geog., Gram., Hist., Draw. (frhd., mod., geom.), Bkkpg., Lat. (elem.), Music Theory. 2nd Cl. C.P., S.K. Certs. Res. 20*l.* (abt.). Age 17.
—062. Fr. and Ger. (conv.), Ital. (gram. and comp.), Lat., Eng., Arith. (elem.). Irish Inter. Exam., 2nd Prize, 700 students. Res. 20*l.* Age 19.
—066. Eng. Lang. and Hist., Geog., Math. (Jun.), Bkkpg., Fr., Phys., Draw. (freehd.), Pol. Econ., Script., Lat. (elem.). Res. 20*l.*; non-res. 60*l.* 1st Cl. C.P., Spec. Cert. in Gram. and Hist. Age 19.
—067. Math., Nat. Phil., Class., Fr., Ger., Chem., Shorthd., Eng. subj., Sports. Matric. Lond., 1st Div. Non-res. or res. Age 22.
—068. Fr. (all), Ger. (elem.), Draw., Athletics, Math. Brevet Sup. Cert. Pedagogue, 1st Cl. Govt. Exam. Res. or Visiting. Age 23.
—070. Class., Eng., Math. (high), Fr. (fair), Ger. (elem.), Draw., Bkkpg., Phys. and Chem. (elem.). Matric. Hons., Inter. Arts Hons., B.A. 1st Div., 1st Cl. C.P., Camb. Sen. and Jun. Non-res. 120*l.* Age 23.
—073. Chem. (theo. and pract.), Physics (general) Statics, Dynamics, Hydros., Ht., Optics, Elect., Mag., Phys. Geog., Classics, Maths., Biol., Anat., Physiol., Sports. B.A. Camb., 1st M.B. Camb., 1st Cl. Chem. Special. Res. 50*l.*; non-res. 120*l.* Age 23.
—074. Math. (all), Classics, Fr., Ger., Hebrew, Nat. Sci., Zool., Bot., Geol., Phys. Geog., Shorthd. Univ. Glasgow and King's Coll., Lond. Non-res. or Visiting.
—076. Eng. (all branches), Lat., Gk. (elem.), Fr. Math., Land Survey., Bkkpg., Mens., Nat. Phil., Sci., Chem., Bot., Geol., Draw., Phys., Nat. Sci., Mus., Agric., Lt., Heat. 1st Cl. Govt. Cert., Matric. L. Univ., S. and A. Dept. Res. 150*l.*; non-res. 200*l.* Age 50.
—078. Class., Fr., Eng., Math., Gymn., Sports. Res. 39*l.*; non-res. 70*l.* Age 27.
—079. Eng. subjs. (thoro.), Math., Bkkpg., Fr., Lat. (jun.). Non-res. 80*l.*; or res. Age 40.
—080. Class., Shorthd., Ger. (gram.), Fr. and Eng. (good), Pol. Econ. Lond. Matric., Prelim. Law, Pitman Cert. Non-res. Age 30.
—081. Fr. (elem.), Ger., Lat., Eng. Res. or non-res. Age 29.
—084. Fr., Ger., Eng., Lat. (elem.), Math., Nat. Sci., Bot., Geol., Chem. (elem.). Higher Cert. Oxf. and Camb. Board, Normal S. of Sci. Res. 30*l.* to 40*l.*; non-res. 100*l.* Age 25.
—085. Eng., Class. (elem.), Fr., Math., Draw. (jun.). Camb. for Math. Res. 35*l.* to 50*l.* Age 23.
—087. Math. (adv.), Eng. subj. (all), Fr., Ger. (Mod.), Sci., Draw. (freehd. and geom.), Sanskrit, Hindustani, Orient. Lang. Bombay Univ. and Univ. Coll. Lond. Non-res. 90*l.* to 120*l.* Age 23.
—088. Math., Mech., Dyn., Trig. (plane and spher., &c.), Class. (elem.), Eng. subj., Fr. and Ger. (elem.), Bkkpg. B.A. Camb., Jun. Opt. Math. Tripos, 1890. Res. 60*l.* to 70*l.*; non-res. 110*l.* to 120*l.* Age 22.
—089. Eng. subj., Math., Lat., Fr. (gram.). M.A. Non-res. or res. Age 55.
—090. Class., Fr., Span., Ger., Math., Geom., Eng. Lit., Physics., Hist., Geog. Res. 60*l.*; non-res. 130*l.* Age 29.
—092. Class., Eng., Fr., Ger., Math., Bkkpg. 2nd Cl. 1st Div. Class. Tripos '82. Res. 100*l.*; non-res. in London 120*l.* to 150*l.* Age 29.
—093. Class., Hist., Fr. (gram.), Math., Eng. subj. Draw. and Drill (elem.). Res. 30*l.*; non-res. 70*l.* Age 20.
—094. Eng. subj., Lat., Fr., Math. (elem.), Draw. Res. 26*l.*; non-res. 56*l.* Age 29.
—095. Arabic, Persian, Hindustani (elem.), Hebrew, Gk., Ger. (fairly adv.), Lat., Fr., Ital., Span., and Eng. (very good). Educated abroad. Non-res. 150*l.* Age 40.
—096. Eng. (thoro.), Lat., Fr., Euc., Alg., Draw., Mus. (Piano), Organ, Sing., Cul. Non-res. 70*l.* to 80*l.* Age 36.
—098. Fr., Class., Ger., Mus. (jun.), Eng. Res. 50*l.*, non-res. 90*l.* to 100*l.* B.A. Hon. Univ. Paris, 1st Prize General Competition. Age 21.
22099. Eng., Math., Class., Fr., Geom., Phys., Physiol., Logic and Mental Phil., Physics. Gov. Cert. 2nd Cl., Thesis for D.Sc., Edin. Univ., B.A. Lond. Non-res. 100*l.* to 200*l.*; or res.
—102. Class., Fr., Ger., Eng., Math., Chem. (elem. and prac.). Matric. Univ. Oxf., Frith Coll. Certs. for Fr. and elem. Ger. Res. 30*l.* Age 21.
—103. Ger. (conv.), Mus., Piano, Organ, Theory Sing., Class., Fr. (elem.). Passed various exams. Non-res. 120*l.* Age 33.
—104. Maths., Lat., Fr. (conv.), Eng. subjs. Non-res. 60*l.* to 70*l.* Age 45.
—106. Eng. (thoro.), Bkkpg., Math., Mens., Fr., Ger. and Lat. (elem.), Draw. (jun.). L.A. Trin. Coll. Res. 80*l.* to 100*l.*, or non-res. Age 56.
—107. Class., Math., Ger., Fr. M.A. St. Andrews, educated in Berlin and Paris. Res. 120*l.*, or non-res. Age 34.
—108. Eng. subj., Math. (high), Conics, Chem., Sci., Class., Fr., Ger., Geom., Draw. Res., non-res., or visit. Age 43.
—110. Class., Hist. and Geog., Ger. (very fair), Fr. (very good), Eng. Brévét Primaire, B.-es.-L. Res. 40*l.*; non-res. 100*l.* Age 26.
—111. Mus. (thoro.), Class., Eng., Fr., Shorthd., Bkkpg., Draw., Math., Sports. Res. 60*l.* (abt.); non-res. 100*l.* A. Mus. T.C. Lond., Prelim. Law, Queen Coll., Oxf., Bach. Mus. Age 21.
—112. Piano, Organ, Sing. (theory), Viol., Ger., Fr., Mus. (prefd.). Dip. Exam. Res. 50*l.* to 60*l.*, or non-res. Age 23.
—113. Math. (high), Geom., Draw., Chem., Navig., Class., Eng. Lit., Eng. subj., Mus., Piano, Organ, Viol. Formerly Loc. Exam. of S. and A. Dept. Res. or non-res. visiting.
—115. Eng., Math., Shorthd., Physiol., Chem., Fr., Gk., Draw. (elem.), Lat. S.K. Certs. Res. 30*l.* to 35. Age 20.
—116. Eng. subj., Writ., Draw., Math., Lat., Gk. (elem.), Ger., Fr. Res. 30*l.* to 40*l.*; non-res. 60*l.* to 80*l.* Age 22.
—117. Lat., Fr., Math., Trig., Mech., Elect. and Mag. (elem.), Acoust., Lt., Ht., Eng. Subj., Mens., Land Survey. Jun. and Sen. Camb., Lond. Matric., S. and A. Res. 25*l.* to 30*l.*; non-res. 50*l.* to 60*l.* Age 19.
—118. Fr., Lat., Math. B.-es-L., Public Exam., Coll. of S. and P. Non-res. Age 30.
—119. Fr., Mus., Chem., Math., Mech., Phys., Eng. (jun.). Cert. d'études Françaises Dip., and Dip. Bach. de l'enseignement. Res. Age 21.
—120. Sci., Chem., Nat. Hist., Physics, Gen. subj. Age 19. Holds many 1st Cl. Certs., and Bursey, Glasgow. 40*l.* (abt.); non-res. 60*l.*
—121. Ger., Fr., Lat., Eng. Non-res. 120*l.*; res. 60*l.* to 70*l.* Age 32.
—122. Eng., Lat., Fr. and Ger. (conv. and gram.), Draw. (for geom. persp.), Geol. 1st B.A. Lond., F. G. V. Univ. Coll. Non-res. 120*l.* Age 43.
—123. Fr., Draw., Eng. subj., Arith. B.-es-L. Univ. Gall., late of Lycée Bonaparte (Paris). Non-res. 150*l.* Age 32.
—124. Math., Class., Fr., Eng., Shorthd. B.A. Lond. Non-res. 150. Age 32.
—125. Class. (elem.), Math., Conics, Mens., Eng. subj., Fr., Sci., Acoust., Lt., Ht., Mag. and Elect., Physics, Sing., Plane and Persp. Geom. Inter. Arts Lond., S.K. and S. and A. Certs.
—126. Fr., Ger., Draw., Fencing, Riding, Horsemanship. Visiting. Age 25.
—127. Lat., Math. (elem.), Eng. subj. Inter. Exam. Hons., Matric. Exam. R.A.I. Res. 30*l.* Age 19.
—128. Fr., Ger., Ital., Span., Dutch, Eng. subj., Math., Trig., Conics, Sci., Phys., Chem., Zool., Bot., Bkkpg., Mus. (vocal), Draw., Pol. Econ., Drill. Cand. Phil. in Letters. Prof. Section d'enseignement, 1st deg. Res. 50*l.*; non-res. 80*l.* Age 31.
—129. Eng., Geog., Sing., Lat., Math., Draw., Hist. Glaister's Foundation Scholarship Civil Service Boys' Clerks. Res. 20*l.* Age 17.
—130. Class., Fr., Draw. (fr. and mod.), Math., Trig., Dynam., Statics, Chem. (Eng. all branches), Drill, Gymn., Camb. L. Hon. Prize, Kensington S. and A. Sci. (all grades). Res. 20*l.* to 30*l.* Age 19.
—132. Lat., Fr., Eng. subj., Math., Mech., Draw. Age 20. 30*l.* Matric. Lond.
—133. Eng., Fr., Math., Class., Ger., Chem. (Inorg.). Age 24. 30*l.*
—134. Eng., Lat., Fr., Shorthd., Draw., Math. Age 33. 40*l.* to 60*l.*; or 80*l.* non-res.
—136. Fr., Viol. Age 23. 25*l.* to 30*l.*
—137. Class., Eng., Fr., Math., Mech., Chem. Age 19. Inter. B.A. Lond. 35*l.* to 50*l.*

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10096. Sing. (special), Mus., Fr. Res. or non-res. Age 36.

—097. Eng. (thoro.), Draw., Mus., Sing. (class), Organ, Piano, Har., Fr. and Lat. (elem.). Res. 35*l.* to 40*l.*; non-res. 60*l.* Age 35.

—100. Mus. (good, jun.), Draw., Paint., Gen. Eng. subj. Sen. Trin., 3rd Cl. C.P. Res. or adv. pupil.

—101. Eng., Mus. (Piano), Fr., Theory, Geom., Alg. (elem.). Sen. Trin., Pass and Hons., Junior Theory, Inter. Coll. of M. Res. 20*l.* Age 23.

—103. Fr. and Ger. (conv. and gram.), Eng., Arith., Lat. and Draw. (elem.). Camb. Hr. Local, Camb. Teachers. Non-res.

—104. Eng. Lit., Hist., Geog., Hist., Bot., Pol. Econ., Draw., Class Sing., Drill, French (Lang. and Lit.), Ger., Mus., Ndlwk. 2nd Cl. C.P., Sen. Camb., L.L.A. St. Andrews. Non-res. in or near Lond. 65*l.*

—105. Piano, Sing. (class and solo), Theo. and Harmony. R.A. Hons., A. Bd. Soc. Arts. Res. or non-res. 35*l.* in Lond. Age 20.

—106. Fr. (all), Dip. Res. 30. Age 34.

—107. Fr., Sing., Piano. Dip. 30*l.* to 40*l.* Age 29.

—108. Eng. (general), Arith. (good), Euc. and Alg. (elem.), Lat., Ger. (elem.). Non-res. 90*l.* to 100*l.* Jun. and Sen. L. Camb., Matric. Lond. Age 25.

—109. Eng. (fair), Fr. (thoro.), Mus. (not adv.), Draw., Ger. (elem.), Ndlwk. (plain and fancy). Dip. Res. 40*l.* Age 36.

—110. Eng. (thoro.), Mus., Fr., Draw., Ndlwk. Res. or Daily, 20*l.* to 40*l.*

—112. Eng. (thoro.), Fr. (conv. and gram.), Lat., Math., Draw., Mus. (theo. and prac.). 2nd and 3rd Cl. C.P. Trin. Col., Jun. Camb., Matric. Lond. Res. in family 20*l.* (from). Age 22.

—113. Eng. subj., Arith., Fr., Ger. (elem.), Drill, Class Sing. Camb. Hr. Loc. Res. 40*l.* to 50*l.* Age 20.

—114. Eng., Fr., Draw., Mus. (Jun.). Daily in Brighton 50*l.* 1st Cl. C.P., S.K. Certs. Age 29.

—115. Eng. Hist. and Lit. (adv. and thoro.), Math., Fr., Ger., Mus., Script., Geog., Pol. Econ., Draw., Paint., Lat. (elem.). Higher Camb., Sen. Oxf., 1st Cl. C.P., 1st Prize Mod. Lang., S.K. Hon. Certs. Res. 50*l.* to 60*l.* or Daily. Age 24.

—116. Eng., Fr., Draw., Mus. (prac. and theo.), Ger. (elem.), Ndlwk. 1st and 2nd Cl. C.P. Jun. and Sen. Camb., S.K. Draw. Res. 20*l.* to 25*l.* Age 18.

—117. Eng. (all branches), Fr. Draw., Mus. (piano and theo.), Math., Bkkpg. 1st Cl. C.P., Sen. Camb., S.K. Certs., L.A.M. Bronze Med. (Piano). Age 19. Non-res. Morning 30*l.*

—118. Fr., Ndlwk., Mus., and Draw. (jun.), Dip. (Paris). Res. 35*l.* Age 26.

—119. Eng. subj., Draw., Flower Paint. (w.-col.), Mus. (good), Pianist (brilliant). Non-res. 25*l.* Age 19.

—121. Eng. (general), Arith., Fr., Ger., Lat., Math., Draw. (freehd), Mus., Jun. Camb., Matric. Lond. Non-res. 50*l.* to 60*l.*; or weekly res. 50*l.* Age 23.

—125. Eng., Fr., Draw. (mod. and fr.), Paint. (oil), Ger. (elem.), Piano, Jun. and Sen. Camb. Hon. 1st, 2nd, and 3rd Cl. C.P., Fr., Govt. Exam. Res. Age 19.

—126. Eng., Fr. (elem.), Draw., Kindergarten, Arith., Alg. (elem.), Mus. (elem.), Ndlwk. (plain). Home and Col. Cert. Kindergarten, S.K. Draw. Non-res. 30*l.* to 40*l.*; or res. 20*l.* Age 22.

—127. Eng. subj. (thoro.), Hist. (special), Math. Bkkpg. (double and single entry), A.C.P. Non-res. Visiting. Age 46.

—128. Draw. (all styles), Paint. (oil and w.-col., decorative and design). Art Master's Cert., Bronze Med. Non-res. or Visiting. Age 29.

—129. Piano, Theory, Harm. (elem.). Camb. Sen. Loc., Jun. and Sen. Pract., and Sen. Theor. Mus. Associate Pianist, Trin. Coll. Res. Age 18.

—130. Eng., Math., Lat., Fr., Ger. Gk., Mental and Moral Sci., Lond. Matric., Inter. Arts. Non-res. 100*l.*; res. 70*l.* Age 24.

—131. Eng. subj., Math., Fr., Ger., Class., Draw., Mus. (elem.), Inter. Arts. Lond., 1st Cl., Camb. Syndicate Exam. for Teacher. Non-res. 60*l.*; res. 30*l.* Age 43.

—132. Piano, Theory, Violin, Sing. Teacher's Cert. R.A.M. 30*l.*, or non-res.

—134. Eng., Mus., Fr., Draw. 2nd Cl. C.P., Trin. Coll. (Theo. of Mus.). Res. 20*l.* to 25*l.* Age 19.

—135. Eng., Ger., Fr. (seven years in Paris), and Piano (all good), Draw. (elem), 4 years at Stuttgart Conservatoire, Cert. Non-res. or Visiting. Age 30.

—136. Paint. (oil and water), Draw. (all branches), Mus., Fr., Eng. (elem.). S.K. Cert. Draw. Vere Foster's Prize for Adv. Flower Paint. Res. 20*l.* to 30*l.* Age 25.

10138. Eng., Fr., Ger., Ital., Russ., Hungarian (all spoken), Mus. and Draw., Sci. (elem.). Examined and approved by Prof. Bendon, Pub. Exam. Res. or non-res. Age 40.

—139. Eng. (thoro.), Math., Fr. (conv. and gram.), Lat., Piano, Mus. (theory), Har., Draw. (fr. and landsc.), Pol. Econ. Jun. and Sen. Oxford, 2nd Cl, C.P., Trin. Coll. Res. 20*l.* to 25*l.* Age 20.

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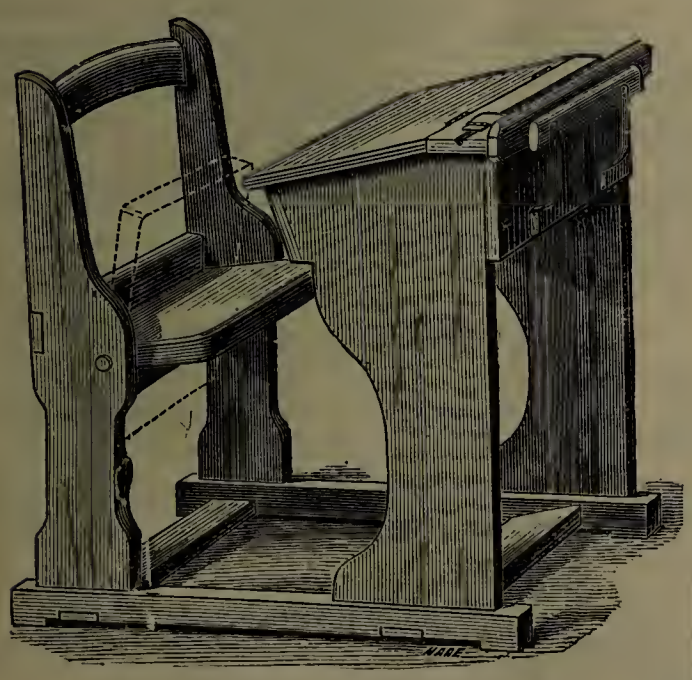

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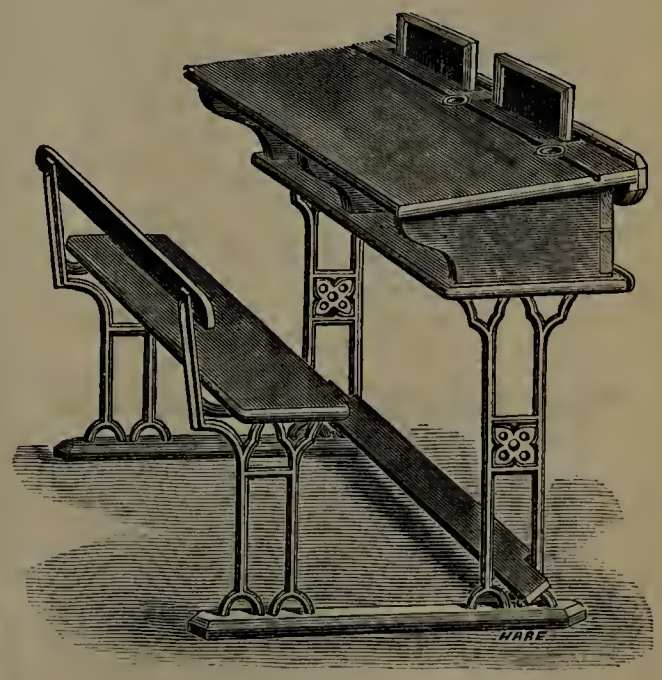

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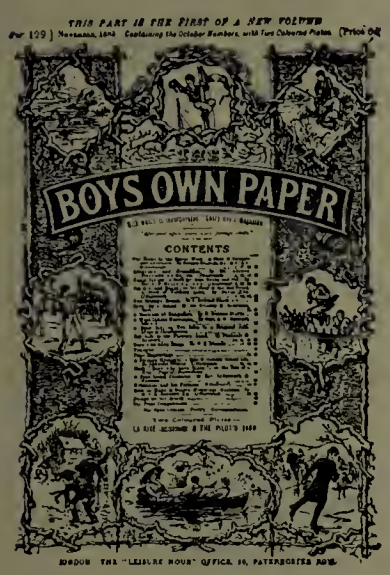

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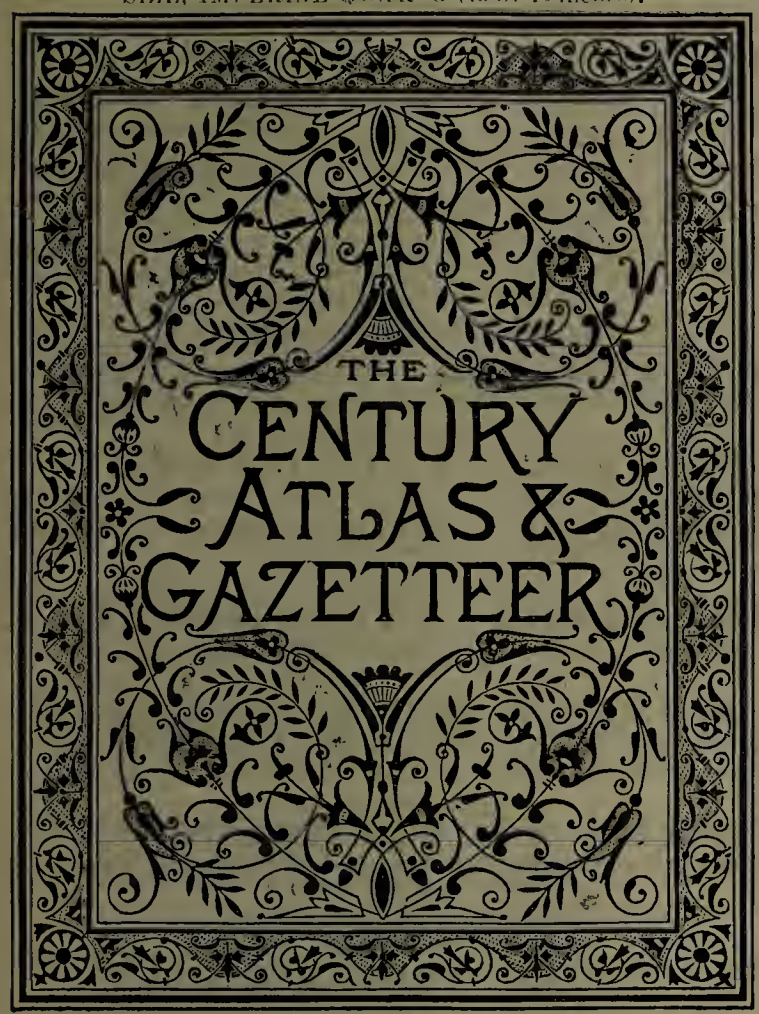

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[1] γίγνονται, the historical present, used for the past.
[2] μὲν — δὲ. These particles cannot properly be translated into English, but have a general signification similar to our phrases, "indeed — but," "on the one hand — on the other," "in the first place — in the second."
[3] ἐπεὶ δὲ, but when = now when.
[4] τελεύτη often occurs, like βασιλεύς, ἀρχή, ἀνήρ, and other words of common occurrence, without the article.

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The Educational Times.

COMMERCIAL EDUCATION ABROAD.

V.—*Conclusion.*

It seems that the force of the impulse in favour of special commercial education has long since spent itself in Germany, and, to a great extent, in France also. It has travelled west. The Governments of these countries have done little or nothing in response to it. The Chambers of Commerce and Associations of Merchants everywhere have bestirred themselves in the matter, and some of them have done much in the past, and still retain their interest in the results. But, so far as the Governments are concerned, special commercial education is now considered only in the general system in which professional training generally has a place. Even while we have been collecting information a most important Commission has been sitting at Berlin, and holding an exhaustive inquiry into the whole question of the higher professional education of the country. The Commission has received evidence from all parts, has examined witnesses, and has discussed very fully every point involved. Many minor questions, such as the opening up of congenial University careers for students of the Realschulen, have formed parts of the subjects considered. The Commission has just finished its labours, and it is expected that the report will be out by the end of November, when we hope to present a summary of the conclusions to the readers of the *Educational Times*. We understand, however, that the conclusions arrived at are in favour of carrying up the modern side parallel with the classical side right through to the highest rung of the ladder.

To return, however, to the lessons to be learnt from the facts we have published, we remark that the London Chamber of Commerce is far behind the Continental Chambers, and the former has something to learn both from the example and the experience of the latter. For instance, if they ask how the foreign Chambers sought to promote commercial education, the answer is easily given—namely, by founding and maintaining schools and colleges for the purpose. But what kind of commercial institute has been most appreciated and has been of greatest service to the cities and districts in which such institutes have been placed? Undoubtedly, the class of highly specialised continuation schools. There are in many places signs of dissatisfaction with the results of the High Commercial Schools. Many of them have almost lost that special character which they had at their foundation. Upon some a scheme of general education has been forced by influences from without, and the superposed scheme has gradually overwhelmed the purely commercial programme. But in no city or district in Germany, Austria, France, or America do we find any, even the slightest, complaint that the institutes for instructing those who have laid the foundation of a good general education, and for specialising after-studies, have not fulfilled the purpose for which they were founded. If any lesson is to be learnt from the experience of commercial schools abroad, it is that nothing but good can come of the founding of continuation schools which will encourage apprentices, young clerks, and young merchants to seek special instruction in those subjects which have a direct bearing on their daily work, and which they find they need to make them more valuable and efficient in their several careers.

No lessons can be learnt abroad as to how far specialised commercial education may be assisted by means of examinations only. This is an English notion, and is not found in any shape in any other country. If it be granted that in England this must be the way in which any form of education is to be stimulated, then we may ask how far the programmes of study in continuation Commercial Schools and Institutes abroad will serve as examination programmes for England. The question then becomes immediately very complicated. When a Chamber of Commerce or a Corporation founds and maintains a school, no one will deny that it has the right to prescribe such a programme as it pleases, and the right, which is generally conceded, is generally acted on. Only when the assistance of others outside their own body is required, or when some privilege emanating from a higher authority has to be secured, do we find the programmes dictated by the founders and promoters departed from. Hence, if we are to learn something from these foreign programmes, we must settle the ends to be sought in England with its peculiar methods, and consider what parts of the original programmes have been devised for similar ends.

We may remark that, abroad as in England, it is clearly understood that a good general education must be the foundation, and that foreign Governments care more for the foundation than for what is built upon it. They will not grant official recognition to commercial institutes, unless this general education is guaranteed. In England there are already examining bodies which will efficiently test attainments in the ordinary subjects of education. New certificates and new tests for this part of the work are not necessary. If they were necessary, the Chamber of Commerce is not a suitable body to establish them. But they are not necessary—the Universities and other corporations whose proper function it is to provide these tests and certificates, have not neglected their duty. They hold annual or biennial examinations, to which all who will may come. In a criticism of the programme of studies of the London Chamber of Commerce, it has recently been said that "frivolous and showy studies must disappear from our programmes, but even the merchants must agree that humanizing studies are not to be excluded." And again, "even when we are arranging for a commercial certificate, we must take account of the fact that other studies have to be provided for which it is not the province of the commercial certificate to register." This doctrine was very generally accepted, but a wrong deduction was made from it, namely, that the certificates of the Chamber should be given for proficiency in ordinary school subjects having a direct commercial bearing, and even for subjects having no such bearing. Some, indeed, suggested the bringing of the conditions to a par with those for University and school certificates. This suggestion, however, is opposed by the two considerations named above. Yet, it may be asked, is not the Chamber of Commerce right in requiring evidence of the good general education which all agree must form the foundation for commercial success, and underlie the special trade education? Ought not merchants to require evidence of both? True, but the evidence of the acquirements of a good general education may be supplied already, if asked for, in the various certificates to which we have referred. It is true that many young men who are drawn into the currents of trade, and who prove themselves to be naturally cut out for commerce, never have had the opportunity of securing these certificates, or, it may be, have never discovered the possibility of securing them until it is too late. There remains, therefore, the question whether the special commercial certificates ought not to meet the needs of such cases. There is wisdom in granting opportunities for those who have never fallen on them before. It is wise to leave a way of repentance open to those who may have been indolent; it is still wiser to provide for the industrious from whom fate has withheld the opportunity. The two cases of those who can bring certificates certifying a good general education, and those who cannot, will be met by the introduction of all essential subjects, coupled with the exemption of the candidates from examination, when they produce certificates of success in other recognised examinations which quite cover the requirements. This is a principle which the Chamber has

already recognised, and it has only to be followed to its logical consequences. In the Examination for the Commercial Certificate of the University Joint Board, Drawing is included amongst obligatory subjects; but, if a candidate brings certain South Kensington certificates, the examination in Drawing is dispensed with, adequate qualification being assumed. This plan might be extended further; for instance, let us suppose that Mechanics, treated as an ordinary school subject, is to be included in the curriculum. In this case the certificate of the London Matriculation First Class or Honours, the First Class Certificate of the College of Preceptors, including Mechanics, or the possession of a degree by examination in which the subject is taken, should be allowed to carry exemption from examination. When the programmes of the High Commercial Institute abroad include subjects which have been imposed upon it by the military regulations, most of these belong to the class of subjects which, in England, are provided for by existing examinations, thereby falling under the rule before us. On the other hand, the subjects which the influence of the merchants brought to the programmes originally, are generally special subjects for which there are no examination diplomas, except, in part, those of the Society of Arts. For these the certificate of the Chamber of Commerce would be very useful.

Only one suggestion is afforded by the military privileges attached to certificates, which may be stated as follows:—If the British Parliament would pass and enforce an Act condemning all males to two years' penal servitude, to be commenced at the age of twenty-one, but exempting all who could secure the certificate of the Chamber of Commerce, the powers of application of our boys and youths would be immensely stimulated, and, however defective the programmes might be, students would toil day and night to obtain the certificates. Schoolmasters and tutors would be spared the task of spurring their students to greater industry, and private coaches would be everywhere in demand. This suggestion may be left, in passing, for the use of any politicians out of work, to whom it may commend itself.

During these inquiries we have received many suggestions, not more practical and not more likely to be adopted than this one, and also many comparisons of English and Continental modes of educating, not always to the disadvantage of the former. In educational matters, patriotism is no longer a virtue, and these suggestions and comparisons are withheld lest they should be attributed to patriotic exaggeration.

There is, however, another and more real lesson to be learnt from foreign schools. Those schools amongst them are most used, and are most useful, which allow of the qualification for certificates to be established in groups of subjects. It ought not to be expected that the same certificate should mark a man as highly efficient for any and all of the following posts:—accountant actuary, foreign correspondent, English correspondent, commercial traveller abroad, commercial traveller in England, wholesale buyer, broker, colonial shipping agent, banker's clerk, &c.

If this mode of selection were applied to the subjects of the Continental programmes, the following would probably appear in the English programme for commercial certificates:—*Arithmetic.*—The ordinary examination in Arithmetic will not serve the purpose. What are needed are knowledge of commercial transactions, speed of working, short methods, requiring no more figures than are necessary to give practically accurate results, generally close approximations. For example, suppose the question to be as follows:—What is the cost price per cwt. in English money when 1 cwt. in America costs \$102·50, freight being \$5·25 a ton, and exchange in London 4·80½? The answer, £21. 7*s.* $8\frac{748}{961}$*d.*, would probably bring full marks in a University Local Examination, but to a business man the answer is only £21. 7*s.* 9*d.*; the other being absurd. The latter answer is obtained by rather less than one-third of the figures required for the former. *Bookkeeping.*—The principles and accountant's work generally. *Materials* (raw and manufactured).—A practical acquaintance with the articles of commerce. *Imports and Exports.*—Customs. *Geography and History* bearing on commerce. *Shorthand and Writing. Political Economy and Commercial Law. Chemistry and Physics. Mathematics* in sections suitable for the different businesses. *Modern Languages.*—French and German having the first places, but Spanish, Italian and Russian, Greek and Eastern Languages being provided for, and registered when offered. *English.*—Chiefly the use of English. To these would be added subjects a certain number of which must be taken unless other recognised certificates can be produced for them, such as Drawing, Mechanics, Science, &c.

The combinations of these subjects and degrees of merit to be arranged for, should correspond with the real needs of trade, not with the theoretical, and still less with the sentimental. They should attract *bonâ fide* candidates for business, and should attract them in thousands. To do so they must apply the motto of business men—"As, in races, it is not the large stride or high lift that makes the speed; so in business, the keeping close to the matter, and not taking too much of it at once, procureth dispatch."

R. Wormell.

EDUCATION AT THE MEETING OF THE BRITISH ASSOCIATION AT LEEDS.

The various matters having an educational bearing which were brought before the meetings of the British Association for the Advancement of Science, may be classified as follows:—(1) References in the Report of the Council; (2) References in the Address of the President; (3) References in the Addresses of the Presidents of Sections to the teaching of the special subjects of the Sections; (4) Reports of Committees on Science Teaching; (5) References to Technical Education, and discussions on them.

(1) In the Report is a curious correspondence on the assigning of marks for physical qualities in certain competitive examinations. The committee of Section H had referred to the Council some resolutions which they wished to be brought before examining departments, and the Council forwarded the resolutions with their own suggestions, which were in fact opposed to the resolutions of the sectional committee. These resolutions were as follows:—

"That the Council of the Association be requested to consider the following resolutions of the committee of Section H, and, if approved, to bring them under the notice of Her Majesty's Civil Service Commissioners and of the chief authorities of the Army, Navy, and Indian Civil Service Departments:—

"(*a*) That the committee concur in the opinion of Her Majesty's Civil Service Commissioners (Report xxxiii., page 15), that there is no especial difficulty in assigning marks for physical qualifications with adequate precision.

"(*b*) They urge that it is reasonable to include marks for physical qualifications among those by which the place of a candidate is determined in competitive examinations for posts where high physical efficiency is advantageous."

The Council considered this question, and resolved to bring the resolutions under the notice of the Civil Service Commissioners, the Secretaries of State for India and for War, and the Lords of the Admiralty, and this was duly done in March last. In their letters the Council referred to the result of experiments made at Eton, Marlborough, and Cambridge, and then proceeded to make the following general observations as expressing the views at which they had arrived:—

"It seems to them that the paucity of available *data* makes it scarcely possible at the present moment to elaborate as complete a system of assigning marks for physical qualifications as is desirable, and as, in their opinion, would be otherwise feasible. They therefore think it very important that suitable steps should be taken to obtain these *data*. For instance, if a temporary system of marks were tried, with the avowed determination of reconsidering the subject after some experience had been gained, the desired information would rapidly accumulate in the hands of the inspectors, the attention of schoolmasters would be strongly aroused, and it is probable that they would attempt a variety of experiments analogous to those alluded to at Eton and Marlborough, but on a much larger scale. In a very few years it might then become feasible to arrange a system that should be generally acceptable.

"In furtherance of these views the Council of the British Association beg to submit the following recommendations:—

"(1) That an inquiry should be held as to the best system of assigning marks for physical qualifications, on the double basis of inspection and anthropometry, with a view to its early establishment as a temporary and tentative system.

"(2) That the marks to be given under this temporary system should be small, so as to affect the success of those candidates only who would be ranked by the present examinations very near to the dividing line between success and failure, and whose intellectual performances would consequently be nearly on a par, though they would differ widely in their physical qualifications.

"(3) That a determination should be expressed to reconsider the entire question after the experience of a few years."

The following replies were received:—

"The Civil Service Commission convey to the Council of the British Association the thanks of the Commissioners for the communication, and state that the Commissioners have the matter under consideration.

"Viscount Cross replies from the India Office that he is already in communication with the Civil Service Commissioners with reference to the question of making physical qualifications an element in the competitions for the Civil Service of India.

"The Secretary of State for War replies that the subject has received the consideration of His Royal Highness the Commander-in-Chief and of the Secretary of State for War, who concur in the opinion that, with regard to the army, it is not desirable to depart from the existing system, which exacts from all candidates a certain standard of general health and physical fitness, leaving the competitive result to be determined by educational tests."

(2) The President's references to Education were limited to the provision made for it in the town of Leeds, and to the uses of Museums. He said that—

"An examination into the present educational resources of Leeds places beyond any doubt the fact that her present prosperity in commerce and industries is in no small degree ascribable to the paramount importance long since attached here to the liberal provision of facilities for the diffusion of knowledge among the artisan and industrial classes, and especially for the acquisition of a sound acquaintance with the principles of the sciences and their applications to technical purposes, with particular reference to the prominent local industries, by all grades of those who pursue or intend to pursue them. There is probably no town in the kingdom more amply provided with efficient elementary and advanced schools for both sexes, while the special requirements of the artisan are efficiently met by the prosperous School of Science and Technology. The resources of the Yorkshire College provide, in addition, a combination of thorough scientific education with really practical training in the more important local industries; indeed, during the sixteen years of its continually progressive work this institution has acquired so widespread a reputation that students come from abroad to reap the advantages afforded by the unrivalled textile and dyeing departments of the Leeds College. The keen competition now existing between these departments and the corresponding branches of the much younger but more vigorous sister college at Bradford, can only conduce to the further development of both, and to their thorough maintenance up to the requirements of the day. The very important pecuniary aid afforded to these establishments, and to a number of other technical schools in Yorkshire, by one of the most important of the ancient companies of the City of London, the Clothworkers, affords an interesting illustration of the good work in the cause of education performed by those Guilds, and, especially of late years, by means of their flourishing institute for the advancement of technical education, which, through its two great instructional establishments in London, and through the operation of its system of examinations throughout the country, extending now even to the Colonies, has afforded very important aid towards eradicating the one great blot upon our national educational organisation. To have been first in the field in practically developing a far-reaching scheme for the advancement of technical education in this country, must continue to be a source of pride to the City of London and its ancient Guilds in time to come, when the operation of efficient legislation, supported and extended by patriotic munificence and by the hearty co-operation of associations of earnest and competent workers in the cause, shall have placed the machinery and resources for the technical instruction of the people upon a footing commensurate with our position among nations. The remarkable address delivered by Owen here in 1858, wherein the condition, at that time, of those branches of natural science which he had made particularly his own was most comprehensively reviewed, included some especially interesting observations on the importance to the cultivation and progress of the natural sciences, and to the advancement of education of the masses in this country, of providing adequate space and resources for the proper development of our National Museum of Natural History; and it cannot but be a source of great satisfaction and pride to him to have lived to witness the thoroughly successful realisation of the objects of his own indefatigable strivings and powerful advocacy in that direction. Comprehensive as were the views adopted by Owen regarding the scope and possible extension of that museum, it may, however, be doubted whether they ever embraced so extensive a field as was presented for our contemplation by his successor last year, when he told us that a natural history museum should, in its widest and truest sense, represent, so far as they can be illustrated by museum specimens, all the sciences which deal with natural phenomena, and that the difficulties of fitly illustrating them have probably alone excluded such subjects as astronomy, physics, chemistry, and physiology from occupying departments in our National Museum of Natural History."

(3) J. W. L. Glaisher, D.Sc., F.R.S., President of the Mathematical Section, spoke on the attractions of studies and researches in Pure Mathematics, and particularly "The Theory of Numbers."

"He did not wish, even if it were possible, to obtain more recruits for the Pure sciences at the expense of the Applied, nor did he desire to see the system of instruction which had found favour in this country so modified that pure mathematics could be carried on by narrow specialists. He should be sorry, for example, that a student, after learning algebra and differential calculus, should pass directly to the theory of curves, and devote himself to research in this field without ever having acquired a general knowledge of other branches of mathematics or of any of its applications. Every person who proposed to engage in mathematical research should be equipped at starting upon his career with some knowledge of, at least, all the subjects included in the first part of the Mathematical Tripos. In conclusion, he referred in some detail to one special subject—the Theory of Numbers. It was much to be regretted that this great theory, perhaps the greatest and most perfect of all the mathematical theories, should have been so little cultivated in this country, and that no portion of it should ever have been included in an ordinary course of mathematical study. The chapters in books upon algebra which bore the title 'Theory of Numbers' gave a misleading idea of the nature of the subject, the results there given being mainly introductory lemmas of the simplest kinds. The theory had nothing to do with arithmetic in the ordinary sense of the word, or numerical tables, or the representation of numbers by figures in the decimal system or otherwise. Many of the greatest masters of the mathematical sciences were first attracted to mathematical inquiry by problems relating to numbers, and no one could glance at the periodicals of the present day which contained questions for solution without noticing how singular a charm such problems still continued to exert. This interest in numbers seems implanted in the human mind, and it was a pity that it should not have freer scope in this country. It was extremely desirable that some portion of the theory should be included in the ordinary course of mathematical instruction at our Universities. He hoped that the apathy of so many years might lead to a splendid awakening in this country, and that our past neglect of this most beautiful theory might be atoned for in the future by special devotion and appreciation."

In the address of the President of the Geological Section, A. H. Green, M.A., F.R.S., Professor of Geology at the University of Oxford, attention is drawn in a marked way to the right and the wrong uses of geology in education. After referring to the hypothetical nature of many geological inferences, the President said:—

"If I am right in thinking that the mental health of the geologist of matured experience and full-grown powers is liable to a disorder of the kind I have indicated, how much greater must the risk be in the case of a youth, in whom the reasoning faculty is only beginning to be developed, when he approaches the study of geology! And does it not seem, at first sight, that that study could scarcely be used with safety as a tool to shape his mind, and so train his bent that he shall never even have a wish to turn aside either to the right hand or to the left from the strait path that leads through the domain of sound logic?

"That it is hazardous, and that evil may result from an incautious use of geology as an educational tool, I entertain no doubt. The same may, indeed, be said of many other subjects, but I feel that it is specially true in the case of geology. But I should be guilty of that very haste in drawing conclusions against which I am raising a warning word, if I therefore inferred that geology can find no place in the educational curriculum.

"To be forewarned is a proverbial safeguard, and those who are alive to a danger will cast about for a means of guarding against it. And there are many ways of neutralising whatever there may be potentially hurtful in the use of geology for educational ends. It has been said that the right way to make a geologist is not to teach him any geology at all to begin with. To send him first into a laboratory, give him a good long spell at observations and measurements requiring the minutest accuracy, and so saturate his mind with the conception of exactness that nothing shall ever afterwards drive it out. If a plan like this be adopted, it is easy to pick out such kinds of practical work as will not only breed the mental habits aimed at, but will also stand him in good stead when he goes on to his special subject. Goniometrical measurements and quantitative analysis will serve the double purpose of inspiring him with accurate habit of thought, and helping him to deal with some of the minor problems of geology. And I cannot hold that this practice of paying close attention to minute details will necessarily unfit a man for taking wider sweeps and more comprehensive views later on. That habit comes naturally to every man who has the making of a geologist in him directly he gets into the field. Put such a man where a broad and varied landscape lies before him, teach him how each physical feature is the counterpart of geological structure, and breadth of view springs up a native growth. I do not mean to say that the plan just suggested is the only way of guarding against the risk I have been dwelling upon. There are many others. This will serve as a sample to show what I think ought to be aimed at in designing the geological go-cart. And any such mind-mould leads, be assured, not to hesitancy and doubt, but to conclusions, reached slowly it may be, but so securely based that they will seldom need reconstruction.

"There is another aspect of the question. The uncertainties with which the road of the geologist are so thickly strewn have an immense educational value, if only we are on our guard against taking them for anything better than they really are. Of those stirring questions which are facing us day by day and hour by hour, none perhaps is of greater moment than the discussion of the value of the evidence on which we base the beliefs that rule our daily life. A man who is ever dealing with geological evidence and geological conclusions, and has learned to estimate these at their real value, will carry with him, when he comes to handle the complex problems of morals, politics, and religion, the wariness with which his geological experience has imbued him.

"Now I trust the prospect is brightening. Means have been indicated

of guarding against the danger which may attend the use of geology as an educational instrument. Need I say much to an audience of geologists about the immense advantages which our science may claim in this respect? In its power of cultivating keenness of eye it is unrivalled, for it demands both microscopic accuracy and comprehensive vision. Its calls upon the chastened imagination are no less urgent, for imagination alone is competent to devise a scheme which shall link together the mass of isolated observations which field-work supplies; and if, as often happens, the fertile brain devises several possible schemes, it is only where the imaginative faculty has been kept in check by logic that the one scheme that best fits each case will be selected for final adoption. But, above all, geology has its home, not in the laboratory or study, but *sub Jove*, beneath the open sky; and its pursuit is inseparably bound up with a love of Nature, and the healthy tone which that love brings alike to body and mind.

"And what does the great prophet of Nature tell us about this love?

'The boy beholds the light and whence it flows;
The man perceives it die away,
And fade into the light of common day.'

"Will it not, then, be kind to encourage the boy to follow a pursuit which will keep alive in him a joy which years are too apt to deaden; and will not the teaching of geology in schools conduce to this end? Geology certainly should be taught in schools, and for more prosaic reasons, of which the two following are, perhaps, the most important. Geography is essentially a school subject, and the basis of all geographical teaching is physical geography. This cannot be understood without constant reference to certain branches of geology. Again, how many are the points of contact between the history of nations, the distribution and migrations of peoples, and the geological structures of the lands they have dwelt in or marched over.

"But geology is not an easy subject to teach in schools. The geology of the ordinary text-book does not commend itself to the boy-mind. The most neatly-drawn sections, nay, even the most graphic representations of gigantic and uncouth extinct animals, come home to the boy but little, because they are pictures and not things. He wants something that he can handle and pull about; he does not refuse to use his head, but he likes to have also something that will employ his hands at the same time.

"The kind of geology that boys would take to is outdoor work; and, of course, where it can be had, nothing better could be given them. A difficulty is that field-work takes time and filches away a good deal of the intervals that are devoted to games. Still, cross-country rambles and scrambling about quarries and cliffs are not so very different from a paper-chase; and if the teacher will only infuse into the work enough of the fun and heartiness which come so naturally in the open air, he need not despair of luring even the most high-spirited boy, every now and then, away from cricket and football.

"But there are localities not a few—the Fen country, for instance—where it is scarcely possible to find within manageable distance of the school the kind of field-geology which is within the grasp of a beginner. But even here the teaching need not be wholly from books. The best that can be done in such cases is to make object-lessons indoors its basis. For instance, give a lad a lump of coarsish sandstone; let him pound it and separate by elutriation the sand grains from the clay; boil both in acid, and dissolve off the rusty coating that colours them; ascertain, by the microscope, that the sand grains are chips and not rounded pellets, and so on. All such points he will delight to worry out for himself; and, when he has done that, an explanation of the way in which the rock was formed will really come home to him. Or it is easy to rig up contrivances innumerable for illustrating the work of denudation. A heap of mixed sand and powdered clay does for the rock denuded; a watering-can supplies rain; a trough, deeper at one end than the other, stands for the basin that receives sediment. By such rough apparatus many of the results of denudation and deposition may be closely imitated, and the process is near enough to the making of mud pies to command the admiration of every boy. It is by means like these that even indoor teaching of geology may be made life-like.

"I need not dwell upon the great facts of physical geology which have so important a bearing on geography and history; but I would, in passing, just note that these too often admit of experimental illustration, such, for instance, as the well-known methods of imitating the rock-folding caused by earth-movements. I would add that wherever, in speaking of school teaching, I have used the word 'boy,' that word must of course be taken to include 'girl' as well.

"In conclusion, I should like to give you an outline of the kind of course I endeavour to adopt in more advanced teaching in the case of students who are working at other subjects as well, and can give only a part of their time to geology. During the first year the lectures and book-work should deal with physical geology. In the laboratory the student should first make the acquaintance of the commoner rock-forming minerals, the means of recognising them by physical characters, blowpipe tests, and the simpler methods of qualitative analysis, and may then go on to work at the commoner kinds of rocks and the elements of microscopic petrography. During the summer months I would take him into the field, but not do more than impress upon him some of the broader aspects of outdoor work, such as the connexion between physical feature and geological structure.

"During the second year, stratigraphical geology should be lectured upon and studied from books, and so much of animal morphology as may be necessary for palæontological purposes should be mastered. The practical work would lie mainly among fossils, with a turn every now and again at mineralogy and petrology to keep these subjects going. Out of doors I would not yet let the student attempt geological mapping, but would put into his hands a geological map and descriptions of the geology of his neighbourhood, and he would be called upon to examine in minute detail all accessible sections, collect and determine fossils, and generally see how far he can verify by his own work the observation of those who have gone before him.

"Indoor work during the third year would be devoted to strengthening and widening the knowledge already gained. Out of doors the student should attempt the mapping of a district by himself. It will be well, if there is any choice in the matter, to select one in which the physical features are strongly marked."

(4) The report of the Committee, consisting of Dr. J. H. Gladstone (Chairman), Professor Armstrong (Secretary), Mr. Stephen Bourne, Miss Lydia Becker, Sir John Lubbock, Dr. H. W. Crosskey, Sir Richard Temple, Sir Henry E. Roscoe, Mr. James Heywood, and Professor N. Story-Maskelyne, appointed for the purpose of continuing the inquiries relating to the Teaching of Science in Elementary Schools was presented.

The report recorded with great regret the death of Miss Lydia Becker, who had been a member of the committee from its first appointment. While in some former years the committee have had to chronicle a decreasing attention to elementary science in the schools, and futile attempts of the Legislature to improve education, they are able this year to speak of good promise, if not of actual progress. The return of the Education Department, issued this spring, shows a slight turn of the tide in 1888–9. The statistics of the class subjects and specific subjects for seven years are given, with the number of scholars in Standards V., VI., VII. There is a considerable increase in mechanics (A), due, no doubt, to the fact that this subject has been the one selected by some of the largest School Boards in the kingdom to be taught by their peripatetic science demonstrators. There has also been a marked proportionate increase in botany over the last two years. Algebra and domestic economy have about held their own, while animal physiology, chemistry, and magnetism and electricity show a considerable actual decrease. The New Code provides that science and manual instruction are recognised subjects "in making up the *minimum* time constituting an attendance." The model course of elementary science in Schedule II. is made complete, and several alternate courses are suggested which are essentially the specific subjects of Schedule IV. extended over five years, with object-lessons bearing upon each subject for the two preceding years. It will be seen also that in the alternate courses for geography the first is especially physical, the second especially commercial, while the third runs through only the first four standards, and the fourth is arranged to be taught in three divisions in order to adapt it to small schools in which the average attendance does not exceed sixty. The general scheme of these schedules will greatly encourage and facilitate the taking up of these subjects; but the members of the committee, who are practical teachers of science, are not satisfied with the final form in which they appear. They disapprove of the way in which object-lessons in Standards I. and II. are treated, and especially that, in the alternate courses, they are made so closely connected with the special science which is to occupy the learner's attention in the latter standards. They also disapprove of many details of arrangement in the respective standards, and of the minute subdivision in the schedule of sciences which are closely related to one another. The National Association for the Promotion of Technical Education endeavoured to get some modifications of these schedules, and drew up an alternative scheme of three courses, in which the specialisation began at the fourth standard. None of these suggested improvements, however, appear in the modifying Minute. The alterations in the Code with regard to evening schools are important, and, as far as they go, are in accordance with the proposals of the Council of the British Association in 1881. These are the rescinding of the requirement that scholars in the evening schools must be presented for examination in reading, writing, and arithmetic, so far as those that have passed the fifth standard are concerned; and of the requirement that, if special subjects are taught, English must be one. Those scholars who have already passed Standard V. in the day school may be presented for examination in not less than two, and not more than four, of the special subjects. The omission of the elementary subjects necessitated the passing of a Bill to legalise the making of grants to schools where elementary instruction was not the principal part of the instruction given. This Bill of Sir W. Hart Dyke, which passed without opposition, opens the way for a considerable extension of natural science teaching. There is still, however, one serious omission in the Code—the want of any stipulation that pupil teachers shall receive instruction in some branch of natural science. It still remains the case, as has already been pointed out, that a pupil teacher may gain a Queen's scholarship without any acquaintance with scientific subjects. This is the more anomalous as pupil teachers are very frequently called upon to give object-lessons in the schools to which they are attached. The Code, it is true, gives this encouragement, that marks are given at the Queen's scholarship examination to pupil teachers and other candidates who have passed in one scientific subject at a previous science and art examination; and last year 853 males and 559 females,

out of 1,774 males and 2,453 females, received credit for having passed in some branch of science. This is a considerable advance upon previous years; but still it represents barely half of the male, and less than one-fourth of the female, teachers. This year has been fruitful in legislative and administrative changes that bear upon the teaching of science in elementary schools. They have generally met with the approval of those educationists who are interested in science and its applications; but it has yet to be seen how far they may be practically adapted to the object which the committee have in view.

(5) Sir Henry Roscoe introduced the discussion on recent legislation as facilitating the teaching of science. He said it was perfectly clear that the progress made in England during the last few years in the spread of science instruction, both of the masses of the people and for the more advanced student, had been very considerable, though at the same time it had not attained those proportions which those who desired to see their education made more scientific hoped it would do in the future. If we desired to have science instruction, then the question arose as to how we are to meet the necessary expense. There were two methods now by which grants could be obtained for science instruction. By the Technical Instruction Act of 1889 the County Councils or other local authorities were empowered to supply or aid in the supply of technical or manual instruction. The term "technical" was one that had lately come into vogue, but they of the British Association would rather say "science instruction." The definition of technical education in the Act practically included all scientific, art, and commercial subjects—therefore a very wide range of subjects might be taught according to the requirements of particular districts. There was some feeling in the country that the Act did not give local authorities sufficient power to choose their own subject, but that was a mistake. The Education Department and the Science and Art Department were as anxious as any one could be to give local authorities full scope and a free choice of subjects—to stimulate local interest rather than to tie a locality down by any cut-and-dried red-tape action on the part of central authorities. So far from the Department discouraging the establishment of classes in which instruction was given in matters desired by the locality, a case of refusal was almost unique. He had heard of only two, and one was in the case of a Midland town, where it was proposed to establish a class for instruction in the subject of navigation. The second instance, he was told, was that in an upper storey in Bishopsgate Street Within a class of agriculture was held, and that was not considered a necessary subject in the locality. Apart from those two cases, he believed there had been no cases of refusal. The Town Council of Leeds were carefully considering the question. At Manchester they had adopted the Act, and had made an allocation of a certain portion of the 1*d.* rate, to which they were restricted, to certain institutions which had applied. He believed a grant of £4000 would be divided between the institutions in that town *pro ratâ*. At Birmingham the same thing had taken place; there the Borough Council had decided to establish a large technical school of its own, and under its own direction. Sir Henry proceeded to refer to the prominence given in the Queen's Speech at the end of the recent session to the progress made with regard to the education of the people, and especially to the provision made for the furtherance of technical and intermediate instruction, and said that the action of the Chancellor of the Exchequer, which placed in the hands of the County Councils this year the sum of £743,200, to be devoted, whole or in part, for the purposes of technical education, including agricultural and commercial education, within the meaning of the Technical Instruction Act, 1889, showed that that prominence was in no way misplaced. And the County Councils might make that contribution over and above any sum which might be raised by the rate under that Act. A Parliamentary statement had been published showing the amount which it was estimated each county in England and Wales, including the boroughs, would receive from the beer and spirit duties proposed to be appropriated in aid of local taxation; but up to the present moment it had not been possible to publish the amount which the county boroughs within the counties would receive from that grant separately. It might be interesting, however, to quote a few of the figures given. The City of London was to obtain £163,192; the county of Lancaster obtained £87,977 (Manchester and Liverpool would get something like £10,000 each, and similar towns in like manner would have a share of this £88,000 appropriated to them); in the West Riding of Yorkshire no less than £47,045 fell to their share, and that included, of course, the county boroughs of Leeds, Bradford, Halifax, Huddersfield, and Sheffield. Under Clause 1, Section 3, of the Act, a County Council was empowered to hand over either the whole or part of the contribution to any Town Council or other urban sanitary authority in their district for the purpose of the same being applied by them under the Technical Instruction Act of 1889, over and above any sum which might be raised under the Act by rate by such council or authority. The fact that the sum of £700,000 was being appropriated to technical education showed that the Legislature was now fully alive to the importance of the spread of technical and scientific education. It was not only in the great centres of industry that the money would be made available. The agricultural districts would have the benefit of it. Farmers did not now attribute their so-called misfortunes so much to the weather as to the want of technical instruction. The County Councils, he believed, were anxious to do all they could for the welfare of the counties.

Sir Philip Magnus said that the interesting statement of Sir Henry Roscoe ought to be widely known. In spite of the sums that had recently been spent on education, no country was more in need of a further expenditure of funds, particularly for secondary and technical instruction, than England. So far, the Technical Instruction Act had been put in operation in very few places, and the County Councils in many towns might be glad to avail themselves of the opportunities now offered of providing funds for technical instruction without increasing the rates. Speaking as a Londoner, he could say that no city was worse off than the Metropolis. It was scarcely any exaggeration to say that education was starved in London. University education had been almost neglected during the past fifty years. University and King's Colleges were crippled in their sphere of usefulness for want of funds. The University itself, with which it was hoped the colleges would in the near future be more closely associated, had been receiving from the State a constantly diminishing subvention. Intermediate education was helped only by the necessarily desultory action of the Charity Commissioners; and the two Polytechnic Institutions were about to be launched into existence with funds wholly inadequate to their wants, with the result that the teachers would be deprived of all spontaneity and would be compelled to direct their instruction by the necessity of earning the maximum grant from the Department. The sum of £160,000, which Sir Henry stated would fall to the share of London, secured a large sum; but it was none too large for the rapidly increasing educational wants of the Metropolis.

In the ensuing discussion, Mr. G. W. Balfour, M.P., was of opinion that, while we had nothing to fear in contemplating the progress of other nations, they had a distinct advantage in the technical education which they provided. The discussion was continued by Mr. H. Gladstone, M.P., Sir Douglas Galton, Sir G. Morrison, and Dr. Crosskey.

EDUCATIONAL NOTES AND SUMMARY.

A Conference of the Trainers of Kindergarten Teachers took place on September 12th, 1890, at the rooms of the Charity Organization Society, 15 Buckingham Street, Strand. Miss Emily Lord took the chair during the first part of the Conference. The subject of discussion during the morning was the National Froebel Union's Syllabus for 1890. The Trainers present made suggestions on various points of the syllabus, for the consideration of the Joint Board. Among those who took part in the discussion were Miss Ward, of the Maria Grey Training College; Madame Michaelis, of Croydon; Mrs. Charles Greene; Miss Sim, of Bedford; Miss Snell, of Manchester; Miss Heerwart, Miss Wallich; Miss James, of Stamford Hill; and Mrs. Taylor, of Plymouth. In the afternoon the chair was taken by Mr. Claude Montefiore. The discussion was on the papers set for the last examination. Mr. MacNaught was present, and spoke of the admirable answers received to the questions in the "Theory of Music," and Miss Wallich and other examiners present remarked that the theoretical knowledge was, in other subjects, far in advance of the practical attainments of the students. With some discussion as to the time of year most suitable for examinations, and on the advantages of appointing an itinerant Examiner for the special Kindergarten subjects, the meeting broke up. Among other points agreed upon by the Trainers, was the use of the forthcoming edition of Mr. Quick's book, "Educational Reformers" (Longmans), as the text-book for "History of Education, 1891," as set in the syllabus.

Germany will celebrate this month the centenary birthday of one of her most distinguished educationists of recent times. Adolf Diesterweg, who was born October 29th, 1790, at Siegen, in Prussia, has been one of the most energetic and most enlightened educational reformers during the present century, and the most successful continuator of Pestalozzi's great work. His activity was chiefly directed to the improvement of the teaching profession, and to rational school reforms in keeping with the times. His numerous works in this direction are of considerable and permanent value, and so are his arithmetical and geometrical manuals. Diesterweg died at Berlin in 1866, and his memory has been reverentially preserved by the educational profession in Germany, and so it is to be hoped that the centenary commemoration will be worthily celebrated there.

We learn from the *Pall Mall Gazette* that the Rev. E. F. M. MacCarthy, of Birmingham, is lying at Montreux, at the north-eastern extremity of the Lake of Geneva, suffering from somewhat serious injuries, which he sustained, as the result of an accident on the 2nd September, near Glion, on the slopes of the Jaman Hills. Mr. MacCarthy lost his footing on a steep spur of the hill covered with slippery grass, and rolled down the declivity into

a snow *couloir*. Down this he continued to slide for some distance, and his fall was not checked till a distance of between 400 and 500 feet separated him from his companion. More than an hour elapsed before he could be reached, and then his friend found him unconscious, and bleeding from wounds on the head. By dint of great exertions he was got down to Glion, where means were found to carry him to Montreux. The diagnosis of his hurts showed that, in addition to general bruises, some loss of blood, and a severe shock to the system, he had sustained a fracture of the collar-bone. On making inquiry at Birmingham, we are informed that Mr. MacCarthy is now doing well, and rapidly progressing towards what it is believed will prove an entire recovery from the effects of his serious accident.

In the First Section of the Congress of the Sanitary Institute, held at Brighton, Dr. Arthur Newsholme, medical officer of health for Brighton, read a paper on "The Bearing of School Attendance upon the Spread of Infectious Disease." He pointed out that the danger of the spread of infectious disease through school attendance was not so great as was usually supposed, and chiefly applied to measles. He urged that information received through compulsory notification should be communicated to head-teachers of schools, and strongly condemned the practice of some schools of sending children to look after absentees. He expressed the view that measles and whooping-cough should be added to the diseases of which notification was required, and that, if this were done and prompt measures taken, it would seldom be necessary to close schools except for sanitary defects in the premises.

The following advice given to young teachers about to begin their first year's work, appears in *The New York School Journal*. It will probably be interesting to English teachers as well.

1. Consider your manner—your personal bearing. Let the teacher be sure to bear himself as a cultured human being, walking erect, looking at the people he talks with, speaking with a pleasant voice, and having engaging manners.
2. Consider the pupils as beings that must be interested in you, in themselves, and in school work. Don't think they have got to come to school anyhow, and that if they are not interested it is because of their innate wickedness.
3. Put aside at once and for ever a feeling of antagonism with the pupils.
4. Try to arrange what you know about children and young human beings, and get it into a practical shape for use. Your success as a teacher, remember, will come from *your knowledge of children, your ability to interest and direct them*. So you must gather your knowledge of children under proper heads, as (1) Employment; (2) Incentives; (3) Management; (4) Training to Self-Government, &c. You should think over the matter a great deal. In a few days the novelty you are to the pupils will wear off, and then you must hold and direct them by your personal force.
5. Try to get hold of the idea of teaching. You know much about arithmetic; but do you know how to teach it? That is quite a different thing. You must get a good conception of teaching; it is not telling, it is not cramming; it is directing a mind that has an object of thought.
6. You must be sure to make many strong resolves that you will be an educator; that is, a scientific teacher. You should have at least one book on teaching, and read and study it.
7. Don't worry over the order, or probably disorder, you have. See what the cause is, and remove the cause. If they walk heavily—it is because they have not been trained to walk lightly; train them. If they whisper, train them not to disturb others—don't scold at them, don't think they are particularly wicked, don't scowl. Tell them they disturb others, and train them not to do it. Don't ask John if he is whispering, for it will give him a good chance to lie.
8. Be pleasant and bright. If you are half frightened to death, don't let anybody know it. Don't be discouraged at the result of the first day. Praise everybody you can. Don't have any prejudices against those who have poor clothes. See to the outhouses; keep them in order. Have the school kept clean; ornament all you can. Make the scene of your work attractive.

A students' residence in connexion with the Chelsea centre for University Extension Lectures is about to be established in that neighbourhood. The idea is to enable those students who desire it to enjoy, while pursuing their business occupations, some of the advantages of college life, and to afford encouragement and facilities for systematic study in connexion with the lectures. Rooms to accommodate eight residents have been taken in Marlborough Buildings, now in course of erection in Walton Street, Chelsea, and will be ready for occupation in October.

In the immediate vicinity of Toynbee Hall another students' residence is about to be established, capable of accommodating thirty-six men, and arrangements have been made to secure the services of a resident tutor, who will direct the studies of those living there.

"Hand to mouth for a few years, and then the workhouse," was (says the *Pall Mall Gazette*) the laconic summary once given by a teacher in one of the best London high schools of her prospects. This remark has been very fairly justified by the report recently issued by a committee formed to investigate the salaries of mistresses in the large public schools for girls. What would be thought of a mastership, we will not say at Eton or Harrow, but at Clifton, Marlborough, Shrewsbury, or Merchant Taylors', where the master was required to have taken an honours degree at Oxford or Cambridge, to have had some years' experience in teaching, to find his own board and lodging, and to consider himself adequately paid on less than £120 a year? Is a woman, then, supposed to need food and clothing and a roof over her head less than a man while she works from morning till night at an exhausting occupation? Is she supposed never to need a good holiday, or a few new books and magazines? Is she to be keenly sensitive on the intellectual side, and yet to have no means to indulge her finest instincts from time to time in travel or pictures or music; to have a perpetual demand made upon her faculties by her profession without any at all adequate refilling? It must be noted that it is only the University graduates, as a rule, that reach the munificent wage of £100 to £120 a year. Some non-resident teachers have to be content with £1 a week or less. Bishop Mitchinson the other day told the girls of Ashby-de-la-Zouch Grammar School that he thought teaching was a profession for which women were pre-eminently fitted; "there is no teacher like a woman." Women, as a rule, are far more patient than men in the elucidation of difficulties, and quicker in their sympathy with the young mind. Therefore, would seem to be the inference of that queer-reasoning apparatus, the mind of the "practical" British Philistine, because their labour is more skilled they shall be paid for it at a lower rate than we should pay to only moderately skilled men. What, it may be asked, is to be the remedy for this lamentable state of things? The answer is twofold—(1) endowment of schools, so that the salaries of the teachers shall not be wholly dependent on the pupils' fees; (2) the raising of the fees themselves. The first alternative may be dismissed as being impracticable. If we wait for founders and benefactors to endow the innumerable girls' schools scattered all over the country before the teachers are rescued from starvation wages, we may as well wait for the Greek Kalends or the coming of the Coqcigrues at once. The sole practicable remedy, it would seem, lies therefore in raising the fees. And this might very well be done without inflicting any hardship upon numbers of the parents who use the high schools for their children. The fees paid at a good high school for girls are not at all in proportion to the fees paid for the same girls' brothers at their schools.

The Prussian Minister of Education recently invited a number of eminent educators and representatives of other learned professions to a special conference on secondary education and high school curricula in response to the Emperor's desire for reforming secondary and higher education. The conference lasted two weeks, and was held in the office of the Minister. The Prussian Ministers of Finance, of the Interior, and of War participated. The results of the deliberations will be submitted to the Emperor and the Prussian Diet, and it is confidently expected that a memorable school reform in Prussia will take place in the near future.

At the meeting of the Welsh National Eisteddfod, held at Bangor, Dr. Isambard Owen, in the Cymmrodorion section, read a paper on linguistic training in elementary schools. He observed that intermediate education had to be conducted with one eye on the outer world and the other on the "higher" course. And until Wales was empowered to place the stamp upon its own educational work the procedure of Welsh schools must be to a large extent governed by the requirements of the English Universities. Within these lines, however, there was a large field for choice, and their representative school authorities would no doubt set about their work with a fearless hand and scant regard for convention. A discussion followed the reading of the paper, in the course of which Professor Rhys contended that a scientific study of Welsh would be an admirable substitute for Greek and Latin.

In view of the measure which the Senate will shortly be called upon to discuss with regard to the creation of new Universities in France, the Ministry of Public Instruction has prepared a very interesting return showing the number of students who at present attend the different French faculties. The total is 16,857, of whom 15,316 are Frenchmen and 1,471 are foreigners, as against only 9,863 fifteen years ago. Out of this total 5,843 students attend the faculty of medicine, 4,570 those of law, 1,834 those of literature, 1,590 those of pharmacy, 1,276 those of science, and 101 that of Protestant theology. Rather more than half of these (8,653) are students of the different Paris faculties, and of the 1,271 foreign students, 1,078 are in Paris. With regard to the nationality of the foreign students, there are 989 Europeans (313 Russians, 159 Roumanians, and 121 Turks), 201 Americans (of whom 173 come from the United States), 68 Africans (of whom 51 are Egyptians), 12 Asiatics, and one Australian. The great majority of these foreigners are studying medicine, as 907 belong to those faculties, while 240 are studying law, 58 science, 39 pharmacy, 24 literature, and 3 Protestant theology.

In Austria there is not only a high school of agriculture, costing the State 125,000fl. a year, but there are fifteen intermediate and eighty-three primary agricultural schools, besides nine chairs of agriculture in polytechnic establishments and agricultural experiment stations. Moreover, there are 162 courses of agricultural lecturers, attended on an average by about 10,000 persons a year. The whole expense of agricultural subventions is set down in the Austrian Estimates for the present year as 1,777,048fl.

The results of the examinations for higher and lower certificates, held by the Oxford and Cambridge Schools Examination Board in July last, have been issued by the joint secretaries, Mr. E. J. Gross (Cambridge) and Mr. P. E. Matheson (Oxford). Supplementary tables are also given to show the degree of success attained by each of the candidates. In the examination for higher certificates the total number of candidates (including those who from illness or other cause were unable to go through the examination) was 1,442. Of these, 91 girls were candidates for letters only. Higher certificates were awarded to 941, and letters were given to 72. The number of candidates who entered for lower certificates was 645, while the number of certificates awarded was 398. The total number examined for the commercial certificates was 51, and the number of certificates awarded 15.

With respect to the examinations conducted by the Society of Arts, the secretary writes stating that in 1858 the Society successfully carried out a simultaneous examination of candidates at 58 different centres in various parts of the kingdom. Three years later, in 1861, the first general examination of the Science and Art Department was held, on similar lines. Since that date the Society's examinations have been held annually, modified as time went on to meet changing circumstances. At first they covered a very wide ground; in fact, all the branches of a liberal education. The science subjects were left to the Department. Latin and Greek were dropped when the University Local Examinations were established. Gradually the programme of the Society of Arts was restricted to commercial subjects only—modern languages, arithmetic, book-keeping, shorthand, &c., and now every effort is made to make them as complete as possible within this limited range. Thus the list of modern languages includes Danish, Chinese, and Japanese, and this year type-writing has been added. It has long been a question with the Council whether it is better to give a general certificate, the candidate taking which must have passed in certain prescribed subjects, or to give special certificates for each subject. Perhaps the former plan is theoretically the best; it is certainly the most attractive to theorists; but in practice the Society has found the latter system, if not best, at all events most attractive to the classes it desires to serve. The object of such examinations is to induce people to study, and such study can, in the case of young people with only a limited amount of time available, be more easily and more profitably directed to special subjects, taken one or two at a time, than to many subjects at once. Young clerks and shop assistants will attend, perhaps, two or three sets of evening classes; they will take up one subject one winter, another the next. They cannot, very often, do more. It is satisfactory evidence of their value that the Society's examinations are very nearly self-supporting. The small fee charged (2*s.* 6*d.*) pays most of the course, while the rapidly-increasing number of candidates shows that they do, to some extent, meet the want of a test for commercial knowledge. Last March 2,474 papers were worked by 2,315 candidates, and as the numbers of late years have shown a rapid tendency to increase, we may expect a much larger total next year. The examinations are held all over the United Kingdom, wherever a volunteer committee can be formed for the purpose.

In the course of an article on recent progress in Egypt, the *Times* says:—"Both Egyptians and English are now alive to the need of educational progress. The people are no longer apathetic, as they were in the days of Mehemet Ali, who collected his pupils by force as he did his conscripts, and only kept them together by giving them food, lodging, clothing, and a monthly money payment of considerable value. Parents no longer believe the Koran contains everything, or, rather, that what it does not contain is worth nothing. They are not yet alive to the advantages of trade or handicrafts, but they are fully alive to the advantages of Government employment, and even in the villages a better class of education is urgently demanded. But want of funds stops the way. A general system of sound elementary education throughout the country would be one of the greatest blessings the English could confer; but it would cost money, and it cannot be done. All attention is concentrated on the higher schools in the big towns and in Cairo. You might as well try to build a pyramid without a base. Then, again, there are no teachers to teach the pupils. Inspection of such teaching as there is, and the establishment of normal schools for the training of the teachers of the future, are sadly wanted. Although the obvious duty of the English is to produce a class of Egyptian teachers, still the higher schools must remain for some time in the hands of professors from Europe. The educational system does not look so bad on paper. There are over 7000 schools in the country and 7,764 teachers. But the teaching is miserable, and out of a population of nearly 7,000,000 of people only 200,000 can read and write."

Now that many changes have been made in the Government regulations concerning Evening Classes, the School Board for London are, we understand, arranging to conduct their classes on a much more popular plan than has been possible in the past. Two of the chief results of the changes are that a pupil who has passed the Fifth Standard may now take up any two or more subjects without being obliged to be examined in the three R's, and that a greater variety of subjects can be taught. Thus, Evening Schools will now be "Continuation" as well as "Elementary" schools, and so afford opportunities of improvement to both advanced and backward pupils. The ninth Session of the Classes, in which male and female pupils are taught separately, commenced on Monday evening, September 15th. The classes are held in every district of the Metropolis, and the schools in which they meet are set out on posters affixed to every Board School. The subjects of instruction are very numerous, including languages, science, drawing, manual training, practical cookery, bookkeeping, grammar, shorthand, and needlework, together with reading, writing, and arithmetic. It is also proposed to open special classes for instruction in science subjects in connexion with the Science and Art Department. Under the auspices of the Recreative Evening Schools Association, the lantern will be used to illustrate some of the subjects of instruction, and there will be introduced musical drill, or some other form of physical exercises. The fee is, as a rule, only 3*d.* per week, or 2*s.* for first term (14 weeks), or 3*s.* 6*d.* for first and second terms (26 weeks), and the payment of this fee entitles a pupil to attend the classes on three evenings a week, and receive instruction in any of the subjects. Prizes and certificates are awarded by the Board. The classes should, considering the advantages they offer, be well attended by all who desire to continue their education.

The King of Samoa has issued an edict prohibiting the game of cricket, owing to the fascination it had exercised on the natives. It is said, however, that the edict has had but little effect. The

latest intelligence is that cricket goes on as merrily as ever: sides of fifty and even 100 are travelling from village to village; games are spread out over a fortnight, and, in the words of the *Samoan Times*, "the industries of the country are neglected, and the evil effects of cricket are telling on the productions of the islands."

The National Union of Teachers have drafted a superannuation scheme for their class. They propose that every certificated teacher in a public elementary school or training college shall be entitled to a pension on reaching sixty years of age if a male, and fifty-five years if a female teacher; and, further, that they shall be entitled to pensions if incapacitated before reaching this age, provided they have seen a certain length of service. It is proposed that the amount of pension shall be for every year of service one-sixtieth of the retiring salary, and that, to create a pension fund, the Education Department shall deduct from the grant payable to each school authority a sum equal to four per cent. of the salaries of all the certificated teachers. It is suggested that the fund be administered by a committee consisting of members nominated by the Education Department and the National Union of Teachers respectively, its solvency being guaranteed by authority given to the Education Department to meet any deficiency out of moneys provided by Parliament. Teachers who retire from service before becoming eligible for pensions are to be repaid the deduction made from their salaries.

CORRESPONDENCE.

THE "OXFORD LOCALS" AND THE GERMAN TEXT-BOOK FOR BEGINNERS.

To the Editor of the Educational Times.

Sir,—Will you allow me to ask the Delegates of the "Oxford Locals," through the medium of your journal, whether it is their intention to ruin the subject of German in their excellent Examinations?

A book less adapted for Juniors than Goethe's poem could not be imagined. It is the finest modern German epic, and requires not only a thorough knowledge of the language, but a mature mind, in order to understand it thoroughly. Surely there are enough easy books in German literature which might have been selected. If the Delegates persist in their choice, they will find out that the number of German candidates will considerably fall off.—I have the honour to be, Sir, yours obediently,

The Principal of a College for Ladies.

London, 24*th Sept.*, 1890.

To the Editor of the Educational Times.

Sir,—On my return from abroad I was gratified to find that you were good enough to insert in your valuable journal my brief protest against the selection of Goethe's "Hermann und Dorothea" for the junior candidates in the "Oxford Locals." Unfortunately we are approaching the end of the month, and so I must again limit myself to a short remonstrance if my letter is to be inserted in the next number of your periodical. But, after all, a well-founded protest does not require many words, and so I will confine myself to briefly repeating what I said in my last letter on the subject, viz., that Goethe's exquisite idyll is, in every respect, an unsuitable text-book for young students of German. In this opinion I was fully confirmed by some distinguished German educationists to whom I mentioned the subject when at Wiesbaden. "It is doubly wrong," they said, "to select such a work for young students. They cannot appreciate its beauties, and become only aware of its difficulties; and, what is worse, they are beforehand deprived of an intellectual pleasure which they might enjoy later on. No one who has been obliged to wade through that beautiful poem in early youth, with an imperfect knowledge of the language, could enjoy it when grown up." I believe that this verdict will fully suffice to induce the Delegates of the "Oxford Locals" to reconsider the unfortunate choice, and to recommend another German book which, both in conception and language, is perfectly suitable to the age and knowledge of junior candidates.—I remain, Sir, yours truly,

A Headmaster.

Sept. 23*rd*, 1890.

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THE EDUCATIONAL TIMES.

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The proceedings of the British Association—a report of which is given elsewhere — afford some indication of the general interest now excited by all branches of public education, though it cannot be said that much light has been thrown upon any of the knotty problems which came under discussion. Still, the fruitfulness of such formal or informal conferences and debates as can be held at such gatherings is not to be measured by exact results, especially as regards the many vexed and complicated questions raised by all genuine attempts to bring "theory" into "practice" in new regions of activity. Only those who have had something to do with the multifarious details of such meetings know how many crudities and crotchets are extinguished by the mere interchange of ideas between those who are really in earnest in their desire to grapple with the difficulties which beset all those who would carry on their advance in new and untried fields. There are, it is true, some one-idea'd incorrigibles who never can be brought to see the futility of their panaceas, and may for the moment get the field to themselves from their notorious inaccessibility to all reasonable argument. But this patent evil is, after all, a small price to pay for the manifold advantages of free debate. Intensity of conviction is a power in the world; it does afford some warrant for the truthfulness of the individual, and this with many will be regarded, *primâ facie* at all events, as extending to the theories advocated. Their weakness is most thoroughly demonstrated by giving fair play to their exponents. On the other hand, true workers from all parts of the world can well afford to grant this indulgence. They find each other out by a common instinct, and together make good their progress by that "unhasting and unceasing" process by which sound knowledge is organized, and by sure steps makes good its hold upon the common conscience of the community at large. The "impossibilities" of one decade become the "obvious duties" of the next, and afford valid precedents for further efforts.

Thus much as regards the common complaint that such congresses "settle nothing"—come to no conclusions, and are therefore of no avail. How a week's congress is to settle out of hand problems which tax the highest energies of those who know most of the conditions which have to be satisfied by their solution, is a question which does not occur to the *dilettante* reformer. By far the most important part of the work done is of a different nature altogether. The triumphs of science are indeed a most legitimate source of congratulation, but the patient methods by which success is achieved are not the less worthy of attentive study, and this applies

specially to so complex a question as that of welding sound education into all and every section of the community.

The President's address, as far as it touched upon education, referred chiefly to the provision made for it in Leeds, especially as regards scientific and technical training, which has, to a great extent, realized the desire of Owen, who two-and-thirty years ago delivered his address in the same town. It is worthy of notice how far this realization has been coincident with the extension of education to the poorest classes of the community. The Education Department was formed in 1856, only two years before Owen spoke. The Duke of Devonshire's Commission, which led up to the Elementary Education Act of 1870, was constituted in the same year (1858). It was only on going to the very root of the subject that the necessity of a fully organized system of education was forced upon the nation at large.

The President of the Mathematical Section, though dwelling chiefly on pure mathematics, had something to say in favour of the attractions of this branch of science, and especially of investigations into the abstract theory of numbers: and even as regards these, it is a cause of deep satisfaction to know that not even the highest and most abstract branches of knowledge are beyond the range of our national system of education.

Professor Green discusses more at length the uses of Geology as a means of education, and his remarks are well worthy of careful perusal. If we rightly apprehend him, one of his points, briefly stated, is this: that a subject so complex, and necessarily depending so largely upon the skilful use of *hypotheses* as the higher branches of this science are not a fitting means for training the young student. Such investigations are only for those of mature experience and ample preparation. The popularization—if such a word may be allowed—of these will merely lead to "the confusion of useless knowledge." While in other branches, such as physical or "field geology," the observable effects of natural agents on rocks of various kinds, the nature, position, and formation of these rocks themselves, and so on, much may be taught which is well calculated to awaken an intelligent interest in boys and girls, and afford excellent means of training their faculties of observation.

These instances are typical of the more discriminating interests now generally felt in the educational value of the sciences, and the readiness with which the leading minds in them lend their aid to the appropriate use of their own branches of science.

Two reports also of a more formal character were presented to the Association. The first of these relates to the possibility or desirability of assigning "marks" for physical qualifications in the examinations for entrance into the public services, upon which there appears to be some difference of opinion, though it is apparently conceded that such qualifications might "turn the scale in doubtful cases." No one proposes to dispense with the medical examinations which are always applied; so the question very much turns upon the way in which these tests should be applied. The public interest, it should be borne in mind, is not so much concerned in the physical qualifications which a youth may possess, as upon the prospect of his enjoying a fair measure of health and energy in the after-years of his actual service. There is an old story of a hale old man, well on in his nineties, who was asked whether he had not enjoyed very vigorous health in the days of his youth. "Na, na," was the reply, "I was no but a sickly laddie till I was saxty." This may be taken as an extreme case; still we all know many cases of youths who gain health in the earlier years of their manhood, and who, though never enjoying that robustness which would be likely to gain "marks," are thoroughly up to their work during their after-career. For the present, at all events, we incline to the belief that the existing medical opinion will not be improved upon by the suggested addition of any system of definite "marks" awarded in a competitive examination.

The more important Report is that regarding the teaching of science in elementary schools. Though somewhat lengthy, it deserves careful consideration. That science and technical instruction should be effectually given to the class who use our public elementary schools will be fully admitted by all educationists, but how this can be best accomplished is a question which calls for much forethought and the most careful consideration. It will be generally admitted that, as far as the school is concerned, the course of instruction given should be determined by the advantages which any such teaching affords as a method of general mental and manual training. The school is not the place for "specializing" the faculties, whatever they may be, but rather for affording a sound basis for those many varied "specializations" which must hereafter be accepted as one of the imperative conditions of after-life, the more so because these conditions are such that some degree of flexibility and power of modification is so frequently required to meet the demands made upon all skilled labour. If this be not kept fully in mind, the persistent teaching of any large school in one branch of industry might well prove to be little less than a disaster. Moreover, the same kind of employment could not be expected to suit all alike. On all grounds, science and technical teaching within the common schools must be given with a primary regard to the educational advantages which they afford.

Our space will not now permit us to enter fully into this subject. Two points only may be very briefly referred to. The first is that the full solution of one part of the problem must be found mainly in the training colleges. The teachers themselves must first be taught not only something of science and technical art, but also the way in which it can most effectively be employed.

Much also may be done by organizing science and technical schools and classes in connexion with primary schools. It is quite possible that far more latitude could be given to individual pupils in the choice of subjects by such an arrangement, and the restriction on the practical application of the subjects chosen might often be very materially relaxed if it appeared desirable to do so.

It might be feasible also, in many places, to associate such classes with "half-time." No doubt the very word is now obnoxious to teachers, and justly so, as long as half-time means only the authorized irregularity of children in attending the classes required by the constitution of the school. But a school with a curriculum adapted to half-time would be in a very different position, and there seems no reason why in the larger towns, where half-time is common, such an institution might not beneficially be associated with special classes, though the sooner half-timers are disallowed altogether in whole-time schools, the better both for the teachers and the taught.

Most of our readers have, no doubt, heard that we are very soon to have a new edition of Mr. Quick's well-known *Educational Reformers*, and are looking forward to its appearance with considerable interest. We can assure them that they will not be disappointed, and will not have many weeks to wait. The new edition contains much new matter, and to a great extent has been re-written; the essays on "Pestalozzi" and "Froebel," which hitherto have been the weak points in the book, are now two of its strongest; while the charm of the style is greater than ever. The advent of the book naturally sets one thinking again of the value to the teacher of a study of the history of education and educational reforms.

How far, and in what ways, can the history of education help a teacher? Many of us have no answer to give, never having definitely thought over the matter. And yet, with a Teachers' Registration Act in the near future (as we hope), it is high time that we should make up our minds on the subject. The College of Preceptors used to have lectures on the history as well as the theory and practice of teaching. For some years these have been discontinued. Are teachers to take this to indicate that the history is no longer thought of much importance, or is it only a hint that they had better study the subject in books? We believe we are right in stating that this last is the real reason why this particular series of lectures has been discontinued. Personally we do not share the view, but we will content ourselves for the present with assuring teachers that no slur is meant to be cast on the subject, which, they will notice, still holds its place in the syllabus of the examinations for teachers.

We suppose we shall carry every one with us when we say that the teacher ought to know his business if he is to accomplish its objects in the best way—meaning by "business" not mere money-making, but teaching. The question is, how one is to get to know one's business. The ready and usual answer is—by personal observation and personal practice. In a modified sense it is a good answer; and it *seems* definite and practical enough. But, as a matter of fact, it does not help us far: for we are not told *what* to observe and *what* to practise, nor *how* to do either; and it is a common experience that the observation and the practice of the unskilled and unlearned are of very little value. It is not to a country yokel that we go for information on the mineral resources of his district, or on the qualities of its soil, though he may have grubbed in it all his life. Still we may provisionally accept the answer so far, that we agree that personal observation and personal practice of some kind must form *part of the means* for getting to know one's business. What else is needed? We must *think over* what we observe, and endeavour to arrive at some first rough general principles; and these principles we must apply in our practice, and watch carefully how they hold good in work. But even then the experience and the thought of an individual are not enough: they do not furnish us with sufficient examples and precedents. We must call in the help of others, and consult with our neighbours and fellow-workers as to *their* experience and conclusions. The more we do this, the better; and, unless we do it, our general principles are sure to be parochial, narrow, unsound, and we shall miss many a valuable hint as to what to observe and how to observe. Nor need we be restricted in our choice of counsellors to our own neighbourhood or even our own country. We should go abroad also for help; and we should strive to find out what is useful in what has been observed, and thought, and tried, in times long past, by those who have been teachers and observers before us. Education is not a subject which is the sole property or invention of the present day. It has been observed and studied for many hundreds of years, and many of the most thoughtful and keenest-minded men and women who have ever lived have dealt with its aims and methods and material. And it is nothing better than boorish narrowness and amateurish conceit to imagine that *they* have nothing to tell us which it is worth *our* while to consider.

To understand the present we must study the past. "All the institutions of man," said Dr. Bridges a few years ago, "all his problems, his works, and his ways—all are growths. They have grown out of something very simple and commonplace into something very manifold and complicated. . . . None of these things came at once. They all grew, some slowly, some quickly, but none were created suddenly. To understand them well, one of the best ways is to see how they grew." Dr. Bridges was speaking of political, commercial, and social history; but his words are equally true of educational history. To change the words of his conclusion slightly, "the history of education should be studied by the light of present practice of education; and present practice should be studied by the light of history." The necessity for in this way understanding the present becomes still more evident when we recall to mind that, as a matter of fact, our school methods and practices are largely, are *mainly*, traditional—not only in large particulars, but even down to little details of which we are scarcely conscious. To understand these methods and practices, we must understand how and why they came into use; otherwise we shall be in grave danger of employing them unintelligently, and, worse still, we shall be in danger of retaining methods and practices long after the aims which gave them a meaning and a value have ceased to be our aims; and it would not be hard to show that many of our schools are in reality making this same very serious mistake. And again, if we wish to advance safely and usefully, the first thing to do is to find out where we are. If we wish to reform wisely, we must first ascertain the true nature of that which we are to reform; otherwise we are sure to produce a disconnectedness and a discontinuity which are always most harmful in human affairs, and in education more than in any. So in every way it is a wise thing for a teacher and for an educational reformer to study the history of education.

But even here we are met with an objection which has to be faced and answered. You tell us, says the objector, that education is to be treated as a science. Of what use to a man of science is the history of his subject? It can tell him nothing of real value. For the most part it is a history of failure and mistake. Well, in the first place, we are not ready to admit that the history of failure and mistake can teach us nothing. It is on the occasions of disaster that the machinery we have been using is commonly most exposed to view. As long as things go smoothly we are wont to take success, like the other good things of providence, as natural and right. It is when things go wrong that our attention is attracted, and we observe and examine into them. In the next place we do not admit that the history of education is nothing more than a history of failure and mistake. In the main it is an account of many valuable experiments. In

very many cases what was done was admirably suited to the circumstances of the time, though it would not be suitable now; and it is always helpful to study attempts to effect a definite aim by definite means. Moreover, we must remember that, while education is a science—by which we mean an orderly application of sound scientific principles—the history of education is valuable and interesting as part of the history of the growth and development of human thought and human views of life. As the view of life shifts, the educational process changes. When man is to be a doer and a thinker, we have one process. When he is to be merely a learner, we have another. When life on this earth of ours is despaired of, we have one plan; when our be-all and our end-all are mainly here, we have another. Pedagogic doctrines are never wholly fortuitous; nor are they without consequences. As Compayré has admirably remarked, the education of a people is at once the consequence of what it believes, and a potent factor in what it will become. Viewed in this light the history of education is of very high value, and is keenly interesting. We see at once the necessity for studying its projects and reforms in chronological order and *in situ*—in proper relation, that is, to the thought, and life, and aspirations of the time, without which these projects and reforms are but half intelligible. We see, too,——but we will reserve the rest for another occasion, lest perchance we should weary any of the neophytes of pedagogy, who are mostly tender souls and require very delicate nursing.

The Reports recently issued by the Education Department on the work of the Training Colleges for the year 1889 supply the latest evidence of the steady gradual progress of these institutions. The progress may not be very conspicuous when their work and efficiency in any one year is compared with their work and efficiency in a year immediately preceding; but if the comparison be between the colleges in the past year, and as they were in 1870, the advance they have made becomes very striking. It is true their number has not since increased. Then, as now, there were eighteen institutions for the training of schoolmasters, and twenty-six for the training of schoolmistresses; but in the past twenty years very considerable changes have been made in the syllabus. As the Chief Inspector of Training Colleges for Schoolmasters, Mr. Oakely, in his Report remarks: Acting teachers, when Mr. Forster's Act was passed, were only required to work up to Practice in Arithmetic, and were not obliged to take Mathematics at all; whilst students only went as far as Quadratics in Algebra, and did not touch the sixth book of Euclid. Further, the requirements in Physical Geography have been much extended, the processes of reasoning, the laws of health, notes of lessons, and a special book have been added to school management. The supply of candidates for admission to the colleges has also largely increased—namely, from 792 to 1843. In the former year, of the 698 candidates who passed, 672 entered the colleges; last year, 1,202 passed the entrance examination, and 706 of these were selected for the vacant places, which signifies a higher standard of attainment in the men now entering the colleges than obtained twenty years ago. The total number of men students has risen from 1,112 to 1,403, the grants from £41,522 to £59,807; the fees paid by the students have increased from £2,017 to £11,063, the average cost per student from £55 to £60. Ten per cent. only of the students reached the first division in the class list in 1870, whereas 40 per cent. reached it last year. All this, as Mr. Oakely remarks, indicates considerable progress, and that the students leave the colleges, on the average, much better prepared for their work than formerly. Equally satisfactory is the Report of the Chief Inspector for the Training Colleges for Schoolmistresses. Dr. Fitch does not contrast the present condition of the twenty-six colleges for women with their condition twenty years ago, but he states that they are now, "with one or two exceptions, filled with students to the utmost extent of their capacity." At Christmas last, there were 1,855 residents; of whom 942 were in the first year, and 913 in the second year.

The Chief Inspector's Report in respect to their Examination is that—"Only one of the first year students failed to pass, the rest being classed as follows: 202 in the first division, 646 in the second division, and 93 in the third. There were no failures among the students of the second year who had completed their full period of normal training, and the proportion passing in the first class was 321, in the second 536, and in the third 56." This shows that a satisfactory standard of efficiency is reached in the women's colleges so far as ability to pass an examination in prescribed courses can test efficiency.

Dr. Fitch does not state in terms, and on his own responsibility, that the quality of the candidates seeking to enter the colleges has improved, but he expresses satisfaction "to be able to report that, in the opinion of most of the principals, there is a steady and gradual, though not a rapid, improvement visible in the social standing, manners, and general character of the female students. One little indication of this fact is that no difficulty is found in obtaining from their parents and friends a somewhat larger contribution towards the cost of their maintenance in the College than it would have been possible to exact a few years ago. Several of the colleges have lately increased the charge on admission. In four of the colleges an entrance fee of £20 is required from those candidates who have not been pupil-teachers, and in four others the same sum is paid by all candidates alike. A rather larger proportion of the candidates than formerly is now found on admission to possess some knowledge of instrumental music and of the elements of the French language."

That there should be improvement in the quality of candidates for the office of an elementary teacher seems to us to need no explanation. If there were no such improvement, we should indeed feel puzzled to account for the fact that the educational activity of the last twenty years, and the marked improvement in the elementary teacher's position and prospects during that period, did not attract more highly educated candidates than formerly for the office of elementary teacher. Dr. Fitch offers a very adequate explanation when he says: "If one looks back to the year of the Education Act, 1870, one finds that the average salary of a certificated mistress was £57. 11*s*. 1*d*., and that a stipend of £100 a year was exceedingly rare. The average salary of a certificated mistress is now £75. 4*s*. 5*d*, and upwards of twenty per cent. of these are reported to be in receipt of salaries exceeding £100. This year, seven of the training colleges in their returns state that the average salaries of the students on going out of the college, generally as assistants, exceeded £70." "No one," says Dr. Fitch, "can contend that these emolu-

ments are high; but they represent pecuniary prospects as good as those of assistant-mistresses in high schools, and the work is in no sense less interesting and honourable." Probably very few capable of forming an opinion on these matters would differ very much from Dr. Fitch, except possibly in respect to the assertion that the work of an elementary school "is in no sense less interesting" than that of a high school. However this may be, it seems to us obvious enough that the tendency of recent changes, and the high salaries now obtainable in elementary schools, will draw into the ranks of elementary teachers men and women of higher social standing and better education than those who have hitherto entered there.

Favourable as are, on the whole, the Reports of the Chief Inspectors, it is not to be supposed that the work of the existing colleges is not capable of very much improvement. In fact, the Reports abound in criticisms which show that there are still many things which might be done better, and many things that had better be left undone. We are not sure that in the important matter of lesson-giving there is not more amiss even than is pointed out by the Inspectors. For instance, Mr. Oakely mentions with approval the illustrations by models, drawings, and diagrams of certain lessons in Physical Geography, given at the Wesleyan Training College. His words are:—"Again, one of the lecturers who gave a lesson on the Gulf Stream had copied Mr. Clayden's model, assisted by some of the students. In this the trade-winds and prevailing American winds are represented by the motion of air forced by bellows on the floor through pipes brought to the surface of the water in the model of the Atlantic and its bounding shores; some sawdust, being thrown into the water, moved through the tropics, round the coast and through the Florida Straits to Europe." Surely this is overdone, the means employed being out of all proportion to the end in view. No teacher could afford to spend the time necessary to get such a model into working order, nor would it be worth while to do so. Besides, it makes the dynamics of the Gulf Stream appear to be much simpler than is really the case, by ignoring the agencies other than the winds to which this great ocean current owes its origin and direction. It is too frequently forgotten, we fear, by the lecturers in training schools, that the young people they lecture are intended to be teachers, and that therefore each lesson in the training college should serve as a model of the way in which the subject in hand should be treated when taught to young children.

Dr. Fitch draws attention to the inadequacy of the present provision for normal training; the consequence of this being that many candidates for admission to the colleges are unable to find places in them. He holds it evident that the difference in public estimation between the trained and untrained teacher will become more strongly marked, and that teachers of the latter class will take a lower position than heretofore in their profession. As a partial remedy for this, he points to the admission of day students to the existing residential colleges, and notices that the objections entertained at first to such plans by the college authorities have in many cases disappeared on further consideration. Such admissions would not, however, meet the exigencies of the situation, and, if there be no probability of any increase in the existing type of residential college, the State or the School Boards, separately or in conjunction, will have to see that all candidates for the office of teacher shall have the means of obtaining the systematic preparation for that office only now obtainable in the existing training colleges.

REVIEWS, NOTICES, &c.

Switzerland (The Story of the Nations Series). By Mrs. Lina Hug and Richard Stead. (T. Fisher Unwin.)

We agree with the authors that "for many reasons the history of Switzerland is peculiarly interesting," and that "a country with such a story to tell of its earlier times should not have that story left untold." The story begins here with an account of the Lake-Dwellers and the recent discovery of the Lake Settlements, and it treats in succession of the various ancestors of the Swiss nation, of the history before the Confederation, then after the Confederation, of the Reformation, of the Renaissance, of the Constitution of 1815, and that of 1848. We have found the story, as here told, sufficiently interesting to carry us right through it; but at the end we are conscious of a feeling that it might have been told in places with more force and with fuller detail, and in other places with a clearer demonstration of what was cause and what effect. We are disappointed, not because the work before us is badly put together, but because it falls far short of what the imagination leads us to expect when Switzerland is the subject of the story.

Switzerland is the political as well as the geological keystone of Europe. A neutral and almost impregnable fortress, she separates four great Powers—France, Germany, Italy, Austria. With a frontier of equal length towards each, she prevents 160 millions of Europeans from clashing together at a point of contact common to all. At the final settlement of the European Polity of Nations, in 1815, the dismemberment of Switzerland was broached. Carried along by the statesmanlike and patriotic Congress speeches of Charles Pictet, Europe voted for the existence of a neutral and inviolable Switzerland. To Charles Pictet de Rochemont, Switzerland owes her life; and, thanks to him, Europe has been spared many a sanguinary conflict. Not only is Switzerland "the playground of Europe," but for ages it has sent forth in a continuous stream its shining lights to recoup the worn-out intellects of other states. Hence, for this and many other reasons, the book before us ought to interest teachers; for Switzerland is and always has been the pioneer of education. Even so early as the eighth century this was evident, and is pointed out by the authors, who tell us that—

"Charlemagne was fond of visiting and occasionally teaching in his Court school. He took great interest in the progress of his scholars, praising the diligent and admonishing the indolent. The 'Monk' informs us that on one occasion, finding the compositions of the poorer boys praiseworthy, whilst those of the young nobles were unsatisfactory, the Emperor rose up in anger, and warned these latter youths that their high birth and fine manners should not screen them from punishment if they did not get rid of their laziness. Then, turning to the poor but meritorious youths, he highly commended them, and exhorted them to be always thus diligent, promising them rewards and preferment if they continued in their good course.

"Full of the conviction that religion and learning are essential to happiness, Charlemagne made the education of his people the chief object of his later years. All parents ought, he says, 'to send their boys to school and let them abide there till they are well-informed,' a principle only imperfectly understood and acted upon even in our own day. To our mind there is but one who bears comparison with him for greatness of character and lofty aims—Alfred the Great, of Wessex. Clerical colleges, and secular schools attached to them, sprang up all over the country, and the knowledge of the Scriptures, hitherto confined to the clergy, was freely placed before the people. The bishops were charged by the Emperor to take care that the priests were 'well qualified as religious teachers.' The clergy were enjoined to open schools, and 'teach the children with love, and to accept no fees but what the parents chose to give.' The Emperor also admonishes the monks to learn better grammar and get rid of their uncouth modes of speech. He strongly reprimands a choir-boy whose wrong notes grate on his delicate ear."

This is the beginning of State compulsory education.

The points in which the work falls short of our expectations are the following: the history of the constitutional customs is but loosely traced, and much more might be said on the influence of Swiss mental activity and differences of mental character produced by differences of climate in the different cantons. All these are touched upon but too briefly, and causes are but rarely pursued until found. Many points of French and of American law were conceived by the Swiss. For example, the equal distri-

bution of patrimony among the parents' children, which is the law in France as in Switzerland, was introduced to Mirabeau by Reybaz, a Genevese. As an evidence of the vigour with which Reybaz advocated his theories, we quote a speech of his on the Testamentary Bill before the French Assembly :—

"Well, gentlemen, you are aware that the happiness of society is mostly made up of private affections. The domestic hearth is the nursery of the feelings and habits that determine public felicity. What a source of quarrels, of embarrassments, of litigations, would be dried up if this simple and natural method of equal distribution of patrimony were adopted! What! is not society sufficiently clogged by the whims and passions of the living! Must we submit to the whims and passions of the dead? Is it not enough that society groans under the weight of all the follies, all the mad legacies of the dead from time immemorial to this day, must we burden future society with all the follies and mad legacies that the future dead may heap upon it by their crabbed and unnatural wills? How many testaments have we not seen where pride or revenge, or an unjust estrangement, or a blind predilection was the inspiring passion? The law annuls wills made *ab irato*, but all the wills which might be called *a deccpto*, *a moroso*, *ab imbecilli*, *a delirante*, *a superbo*, the law annuls them not, and cannot annul them. How many of these deeds notified to the living by the dead, where folly seems to rival passion, where the testator makes legacies he blushes to avow while living, makes legacies so unprincipled that he needs must banish himself from his own consciousness, and dwell on the thought that the grave will screen him against ridicule and reproach."

There are many such interesting subjects which are but briefly and dryly touched upon in the story of Switzerland before us.

The intellectual influence of the Swiss is fully recognised by the authors; but, as we shall show, they stop short in their narrative and fail to point the moral. In the chapter on the Revival of Letters, we read :—

"Basel prided herself on her naturalists and mathematicians, Merian, Bernoulli, and Euler; while Zurich could boast of her botanists, Scheuchzer and John Gessner. Berne produced that most distinguished naturalist, Haller, who was also a poet; Schaffhausen claims Johannes von Müller, the brilliant historian; and Brugg (Aargau) Zimmerman, philosopher and royal physician at Hanover; Bodmer and Breitinger formed an æsthetic critical forum at Zurich. A whole colony of Swiss savants settled at Berlin, and another at Halle. A perfect stream of Swiss intellect poured into Germany."

Now we naturally ask here for two causes: first, what is it, common to the whole of Switzerland, which leads to this intellectual vigour? and what produces the local differences?

The answer to the first question we may find in the following quotation, which we venture to make from *The American Traveller* of 1881 :—

"There is a reason for the intellectual superiority of free countries, and especially of republics, over countries of limited liberties, and that reason is *unfettered individuality*. To that cause may be assigned the fact that Athens, Venice, and Florence, in size no larger than Breslau or Magdeburg, occupy as much space in the history of the human mind as the German Empire with its forty million souls. To that cause may be assigned the fact that the town republic of Geneva, with her 50,000 inhabitants, has produced many more men of mark than the Russian Empire, which, by the bye, is the creation of a Genevese brain,—that of Lefort's. To the intellectual flora of Genevan soil and republican culture, the United States and the kingdom of Italy owe some of the greatest events in their respective histories; for Gallatin, the eminent financier and statesman of the United States, was born and bred in Geneva, and so was Miss Sellon, who became the mother of Cavour, the founder of the Italian kingdom."

With regard to the second question, we find the differences in the mental quality of the geniuses produced by towns but twenty miles apart very great. Geneva, for instance, excels in scholars of one type, Zurich of another, Berne of another. Geneva has produced whole dynasties of philosophers—the De Candolles (three generations), the De Saussaures, the De la Rives (three generations), &c. In the fifty years (1730–1780) Geneva gave birth to ten artists of the first rank, some of whom, such as Leotard, Dossier, and Huber, had no rivals in their department of art; Zurich and North Switzerland produced in the same period eight artists, and yet there is as much difference in the style and character of the works of the two sets as if they belonged to different countries.

Nineteen distinguished Genevese were born in the short period of 1780–1790. Amongst them we notice especially one writer on agronomy, one strategist, one archæologist, the discoverer of the medical properties of iodine, one great financier, one famous philhellene, one distinguished mathematician, the originator of the Italian Antologia, one man of versatile genius being remarkable as a theologian, a linguist, a painter, a musician, a lithographer, and a sculptor. A population of 25,000 Genevese in the last ten years of the eighteenth century gave birth to one astronomer, two novelists, one grammarian, one historian, one political writer, two philologers, one famous physician, one Celtic scholar, one art critic, one famous caricaturist, and—what is more important in the eyes of a Swiss—Dufour, the general-in-chief of the liberal cantons during the Sonderbond war, the pacifier of the Swiss Confederation, and the Swiss national hero. During the fifteen years of Napoleonic sway in Europe, Geneva gave birth to thirteen men of repute, three of them being luminaries of world-wide renown, viz., De la Rive, Sturm, Thalberg. It produced four historians, two mathematicians, one electrician, one plenipotentiary, one jurist, one hellenist, one statistician, one miscellaneous writer, one pianist and musical composer, one medical writer. Like most of their predecessors, these Genevese worthies have had and still retain a *distinctly cosmopolitan influence*.

The question which necessarily follows is, how has that difference come about? Why is the bent of mind in West Switzerland so different from that of North or South Switzerland? Several factors combine to explain the phenomenon; but no doubt the first are the climatic influences on the Leman valley. The bleak north-east wind braces the nervous system, and makes of the Genevese a sensitive, energetic, irritable, but highly intelligent race. The Vaudois that live within twelve miles of Geneva, on the northern shore of the Leman lake, are less energetic, more imaginative, and far less critical than the Genevese. Why? Because their canton, mainly screened from the "bise," enjoys a climate remarkably mild and balmy. Lausanne and the neighbouring villages have always ranked amongst the favourite health stations of Europe; but, charming as the Vaudois sky may be, it is less bracing than that of Geneva, and does for its inhabitants what Capua did for the troops of Hannibal, viz., it mellows their character and blunts their acumen.

The story of the Reformation is well told here, particularly as regards such biographies as that of "Ulrich Zwingli, the reformer who was born amongst the song-loving Toggenburger, in the canton of St. Gall." The personal description of Calvin is excellent—as good as a portrait; but here again we seem to want to trace causes further back. What led to the ascendancy of Calvin?

The world knows Geneva mainly on account of Calvin, Jean-Jacques Rousseau, and its watchmakers; in other words, Geneva is known as being the cradle of republicanism in religion, of republicanism in politics, and the home of scientific handicrafts. The intensely critical spirit of the Genevese intellect lies at the root of these three phenomena. It is, in our opinion, more correct to say that Calvin and Jean-Jacques Rousseau are the outcome rather than the precursors of the Genevese mind. Had Calvin alighted in some French, English, or German town, he would not have found therein the mental alertness, the intelligence of general principles, which in the sixteenth century were the heirlooms of every Genevese, thanks to several centuries of self-government. Calvin's thought was made a reality and a power by the will of the Genevese themselves.

The Lutheran doctrine reached Geneva in 1522, brought thither by Agrippa, a learned physician and theologian. Ten years later, in the autumn of 1532, Farel and Saunier, natives of Dauphiné, came to preach the reform. Then Froment, another reformer, appeared, and held forth at the Molara. On August 8th, 1535, Farel advocated Lutheranism for the first time, in St. Peter's. Prior to these reformers, men like Levrier, Berthelier, Bonivard, by standing up against the despotism of the Genevese citizens and against the rule of their Papal princes, prepared a way for Froment, Farel, and Calvin. Geneva became the seat of the Reformation because of all towns in Europe she was the one that was thrilled with the most determined, the most passionate love of freedom. Geneva was called the Protestant Rome because, in order to carry out her liberty programme, she felt it necessary to submit to the ascetic discipline of Calvin. But, as time rolled on, Geneva was backed by the sympathy of empires, and her self-imposed despotism became needless for her self-preservation. Safe against the interference of Rome, the inhabitants of Geneva during the eighteenth century yearned for emancipated citizenship and struggled for it, yearned and struggled for religious and political equality, for universal suffrage and its consequences, cheap, unsectarian, and compulsory education. The result of this intense political fermentation was the forming of political thinkers who have started the modern world on its democratic career. Jean-Jacques Rousseau, the philosopher; Necker, the

liberal finance minister of Louis XVI.; Clavière, who succeeded Necker as finance minister; Dumont, Du Roveray, and Reybaz, the coadjutors of Mirabeau, the suggesters and composers of his speeches;* and, lastly, Madame de Staël, Necker's daughter, the champion of liberal ideas during the Napoleonic empire, and the most brilliant writer of her time.

Then, again, our authors seem to forget that, even when their services are carried to foreign countries, the Swiss are Swiss still. We read that "Madame de Staël, though born in Geneva, was in heart a Frenchwoman," and that, though Voltaire the realist and Rousseau the idealist "both did battle for Geneva, neither was reckoned a prophet in that city." Let us examine the case of Rousseau.

"*Emile; ou, de l'Education,*" was published in 1762. It was anathematized by the Archbishop of Paris, and ordered to be burned by the Parliament of Paris and the authorities of Geneva. During the Middle Ages, up to Rousseau's day, the methods of education were tyrannical. Rousseau pointed out that the most respectable thing in a child is his instinct of freedom, and that a wise educator should guide and not crush. Rousseau's doctrine being in opposition to the despotic instincts of society and of religion, he got for himself the persecution of the society he was endeavouring to reform, not so much in Switzerland as elsewhere. What he had been doing for the emancipation of the child he wished to do for the emancipation of man, so he wrote his *Contrat Social* which produced a profound sensation everywhere but in Switzerland itself, where the principles he advocated were widely known. What must be steadily borne in mind is that, throughout, Jean-Jacques Rousseau is a typical Genevese, a Genevese of the people. He describes his father, after a citizen militia review, saying to him with an embrace, "Jean-Jacques, love thy country. Look at these good Genevese; they are all friends, they are all brothers; joy and concord reign amongst them. You are a Genevese; one day you will see other peoples, but were you to travel as much as I have you would not see the like of them." In the Dedication to the Genevese that precedes his discourse on "Social Inequality," Rousseau says: "Having had the happiness to be born amongst you, how could I meditate on our native equality and our artificial inequality, without thinking of the deep wisdom which, in your state, blends them so as to satisfy nature and society and be a stay to public order and private happiness? When searching for the best maxims which good sense could suggest for a political constitution, I have been struck by seeing them all practised in yours." In the first page of the *Contrat Social*, Rousseau, speaking of Geneva, exclaims: "Happy am I, when I think out political problems, ever to find in my research fresh reasons for loving the constitution of my country!" In his *Lettres écrites de la Montagne*, he says: "I have taken the admirable constitution of Geneva as a model of political institutions, and have proposed it as an example to Europe." In one sense he may not have been a "prophet," for the opinions he taught were well known in Switzerland; but Rousseau was not without honour in his own country.

There are other criticisms we should have made if we had not already carried this notice to an inordinate length; but we must add that fifty-four excellent illustrations add to the value of the book, which in this respect is one of the best of the series.

Modern Ideas of Evolution as related to Revelation and Science. By Sir J. William Dawson, C.M.G., LL.D., F.R.S. (Religious Tract Society. 1890.)—Sir William Dawson tells us in his Preface that the object of his work "is to examine in a popular manner, and to test by scientific facts and principles, the validity of that multiform and brilliant philosophy of the universe, which has taken so deep hold of the science and literature of our time"; and there cannot be the slightest doubt that the world of general readers "greatly needs some clear and intelligible exposition of its nature and tendency, some classification of its variation, and some attempt to explain its agreement or discordance with science and religion." Perhaps Sir William Dawson has failed to be quite as impartial as his Preface leads us to hope, and has assumed too much the *rôle* of the partisan anti-evolutionist; but all who wish to see the more conservative side of opinion presented in its most attractive form will find this book a valuable compendium. The objections to evolution are marshalled with skill, expressed in felicitous language, and adorned with a wealth of illustration seldom found in such treatises; and, while the exponents of the evolutionary hypothesis are handled with a freedom which the position of this distinguished critic justifies, there is no lack of courtesy, nor any misrepresentation of their views. After a few introductory pages, a long chapter is devoted to answering the question, "What is Evolution?" Sir William Dawson illustrates the mental confusion which largely prevails in the use of the popular term: the fascinating character of the original conception has led to the use of the word as a kind of "Open Sesame" to unlock the doors of all mysteries, and has caused a good deal of mental jugglery. There is much force in the suggestion that it would now be desirable to insist on the terms *causation* and *development* to denote the two entirely distinct ideas of *causal* and *modal* progress which are so frequently confused under the one term evolution; for while Darwin concerned himself hardly at all with the former, and to the end of his life abstained from committing himself to any definite theory as to the origin of the universe, the term which he popularised has been used to cover the origin of life, as well as the development of species; and to embrace many partially conflicting theories. It is in the chapters which deal with the "Origin of Life," and with the geological arguments, that the author seems to us to be at his best; and it is impossible to read them carefully without being impressed with the small amount of the evolutionary hypotheses that has yet been actually established; and without being led to the conclusion that the geological evidence shows "that the introduction and extinction of species, and even of races and varieties, depends on the interaction of causes too numerous and complicated to be covered by any existing hypotheses of evolution." Haeckel's scheme of *monistic* evolution is discussed at length, and the absurdly exaggerated theory of this brilliant man is shown, perhaps with disproportionate care, to be untenable. For the various forms of theistic evolution which, of course, start from the Supreme First Cause, and seek to find in evolution only an explanation of the modes of His working, the author exhibits a mild contempt, mingled with a fear that they tend to ally religion with a theory likely to be discarded by exact science. Without endorsing all the conclusions reached, we cordially commend this book to all interested in the subject as likely "to mitigate present extremes of feeling and belief."

Outlines of General Chemistry. By Wilhelm Ostwald, Professor of Chemistry in the University of Leipzig. Translated, with the Author's sanction, by James Walker, D.Sc., Ph.D., Assistant in the Chemical Department, University of Edinburgh. (Macmillans.)—This book might be entitled the "Principles of Chemistry." It has the same kinds of relation to the science of chemistry as Lyell's "Principles of Geology" has to general geology, or as the first volume of Miller's "Chemistry," which is an introductory book of principles, bears to the second and third, which are on Inorganic and Organic Chemistry respectively. It brings, in an elementary manner, the theories of mechanics, dynamics, heat, light, electricity, and mineralogy to bear on chemistry. The author says: "I have abstained as far as possible from the use of mathematical formulæ, and have always striven after clearness of exposition. The task has been all the more difficult that the course of study still pursued by the average chemist has laid upon me the necessity of avoiding the employment of higher mathematics. When possible, I have applied graphic methods: when a clear proof could not be given in an elementary way, I have contented myself with simply stating the result. The reader who has only an acquaintance with elementary mathematics may thus be brought to see the necessity of acquiring at least the rudiments of the higher analysis. Without such knowledge it is possible (as I have endeavoured to show) to understand both the methods and the results of general chemistry; but for successful work in this field such knowledge is indispensable. Within the last three or four years an enormous advance has been made in chemistry by the theories of solution and of electrolytic dissociation, due respectively to Van't Hoff and Arrhenius. I hope not only to have rendered a service to students by the elementary exposition of these epoch-

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* There are in the Library of Geneva sixty-nine letters written by Mirabeau to Reybaz; the following is one of them:—

"August 27th, 1790. I send you all the congratulations I have received, thanks to the excellent speech you have bequeathed me. Do not be angry with me for having attenuated two or three words; they will appear in the report. The fact is, I feared the assembly might be, or rather might think itself, treated with too high a hand. So I have omitted as a matter of euphony the word '*bien*,' &c. Now I do assure you, first, that the success of the speech was enormous; secondly, that the question will be carried. I beg leave to go and correct the proof-sheets with you. I also ask you at once to exercise the most absolute dictatorship over the speech where you are kind enough to grant admittance to the few pages I have added thereto."

making theories, and the experiments on which they are based, but also to have contributed towards their general recognition amongst my fellow-teachers—a recognition which can scarce be longer delayed." To this the translator adds the following:—"The singular disregard of the discoveries of Van't Hoff and Arrhenius amongst the English-speaking scientific public must be, in great measure, attributed to the want of a connected account of them from one uniform point of view—a want which this volume amply supplies." The book is in two parts:—Part I., Chemical Laws of Mass. *Mass:* Numerical Relations of the Atomic Weights, &c. *The Properties of Gases:* Specific Gravity, the Kinetic Theory of Gases, the Specific Heat of Gases, and the First Law of Thermodynamics. *Liquids:* Refraction, Polarization, Surface Tension, Internal Friction, Specific Heat of Liquids, &c. *Solutions:* Gases in Gases, Gases in Liquids, Liquids in Liquids, &c. *Solids:* Fusion, Solidification, Solution Crystals, Optical Properties, &c. *Chemical Systematics:* Molecular Theory, &c. Part II., Chemical Laws of Energy, Thermo-, Photo-, Electro-Chemistry, Chemical Dynamics and Affinity. The work is an excellent illustration of the remarks made at the meeting of the British Association, and printed in another column, that the student of any branch of science must nowaday have at least an elementary knowledge of all other branches. It is clearly written and well printed, and is cheap at ten shillings *net*, a term explained by the publishers as follows:—"This book is published at a *net* price, *i.e.*, the terms on which it is supplied to booksellers are not such as will enable them to allow a discount to purchasers."

Homeric Grammar. By F. E. Thompson. (Rivingtons.)—Mr. Thompson has here followed up his larger and smaller volumes on Attic syntax by a compendious treatise on the accidence and syntax of Epic Greek, though, curiously enough, the page-heading throughout gives the subject as Homeric Prosody. The arrangement of the ordinary school grammars is followed, and only what is exclusively or characteristically Epic is given. As the author confesses, this method tends to confirm boys in the belief that Epic is a mere "sport" from Attic, but that belief is already an inevitable, though a temporary, result of our necessary practice in beginning with Attic. The execution of the book is all that can be desired, and it is far from being a mere compilation from Mr. Monro's larger work. It is suitable only for the highest forms in schools, in which a considerable knowledge of later Greek may be presumed. We have noticed one or two terms used without explanation, such as "weak root" and "vowel of inflexion" (p. 41). A serious misprint of "α" for "a" occurs twice on p. 36, and another of "verb" for "ending," on p. 32.

Comparative Grammar of Greek and Latin. By Victor Henry. (Sonnenschein.)—In spite of the appearance of Messrs. King and Cookson's *Sounds and Inflexions in Greek and Latin*, a very great service has been done to English scholars by the publication of M. Henry's well-known work in English. There has been hitherto no comprehensive work of moderate compass giving with accuracy the chief results of modern linguistic science as applied to Greek and Latin. The translation has been executed by Mr. R. T. Elliott, with the co-operation of the author, who has made a number of corrections and additions. Indeed, considerable pains have been taken by both author and translator to adapt this English edition to the needs of English scholars. It need scarcely be said that the volume is not a school book to be put into the hands of boys. But no teacher of Latin or Greek, who wishes his teaching to be real and fruitful, can afford to be without it.

Elementary Arithmetic. By C. Pendlebury and W. S. Beard. (Bell & Sons.)—It is fairly typical of this book that the only matter about which in the Preface the authors show any anxiety is the correctness of the answers. They have taken great pains with these. It does not seem to have occurred to them that it was necessary to inquire how a child gains his ideas of number, and how these ideas develop, in what order and by what means. This is how the pupil is introduced to the subject of arithmetic:—

"A unit is a single thing; as *one boy, one penny, one book*. Quantities *of the same kind*, or LIKE quantities, are such as have the same unit; for example, *five horses* and *eight horses* are like quantities, the unit, one horse, being the same for both. A number is a unit, such as *one* girl, or a collection of units of the same kind, as *six* pennies. In the latter case the *unit* is *one* penny. ARITHMETIC is a part of the SCIENCE of numbers, and of the ART of using them. A number, such as *four* or *five*, not attached to any particular things or units, is called an ABSTRACT NUMBER. A number of particular units, such as *four horses*, or *five men*, is called a CONCRETE NUMBER."

And so on. Shade of Froebel! was there ever anything more foreign to child-mind! Fortunately both pupil and teacher will skip all that, and will turn to the examples, which are numerous and fairly well framed; and then there are the answers, with which so much care has been taken. May we say, in conclusion, that we wish writers of school-books, especially books on arithmetic, would give up using the term "elementary" when what they mean is *rudimentary*, or *primary*, or *simple?* The *elements* of the science of numbers and *examples* of the simple rules are not synonymous. Nor if, in any sense, they were, would this be a recommendation. We do not *begin* a subject with the study of its *elements*—this belongs to a *late* and not to the *first* stage. At least we do not begin with elements when we pay any regard to child-mind and its development. We only begin so when we neglect child-mind altogether, and think only of the subject and how it may be neatly packed into a book. We do not see any signs that the authors of this book have thought at all about child-mind.

OUR LIBRARY TABLE.

English Writers. Vol. V. By Henry Morley, LL.D. (Cassells.)—The fifth volume of Dr. Morley's *Attempt towards a History of English Literature* completes the account of the literature of the fourteenth century, and continues an extremely interesting and scholarly series. "Church Reform" is the title of Chapter I.; the four following chapters are devoted to Wyclif, the subject being dealt with under the headings of "Wyclif's Earlier Years," "Wyclif the Reformer," "Wyclif as Teacher," and "Wyclif's Later Years"; the remaining eight chapters, embracing 265 pages, afford as complete an account of Chaucer, and as impartial a criticism of his works, as one could wish. We sincerely hope that Dr. Morley's health will allow him to continue the half-yearly volumes of a series which gives us the faithful labour of a lifetime.

The Sancta Respublica Romana. By R. H. Wrightson, M.A. (Henry Frowde.)—Much attention is being directed to mediæval history, especially to that of Rome and Italy. The study is an attractive one, but so complicated and lengthy that few people have the requisite leisure to pursue it. The *Sancta Respublica Romana* is a continuous account of the changes and calamities which befell the ancient centre of Roman power during five eventful centuries, A.D. 395–888, from the division of the Roman world between the sons of Theodosius to the breaking up of Charlemagne's empire in the West, and will fitly supply an existing want. Stout paper, distinct type, and wide margins all help to enhance the value of the work.

Models and Exercises in Unseen Translation. By H. F. Fox, M.A., and Rev. T. M. Bromley, M.A. (Clarendon Press.)—The striking feature of this book of "Unseens" is the presence of thirty-two translated passages selected from Latin and Greek, forming Part I. of the work. Lewis Campbell, A. Sidgwick, E. Abbott, Dean Bradley, Prof. Jowett, and others figure among the translators. The student will certainly find here a different standard of translation from what is usually aimed at or found in books of this nature. Part II. contains 158 selections from Latin authors, Part III. about the same number from the usual Greek authors, if we except Apollonius Rhodius and Callimachus.

We have received from the *University Correspondence College Warehouse* several of their Tutorial Series, edited for the B.A. Examination (1891) of the London University. *Cicero de Finibus, I.*, by *S. Moses, M.A.*, and *C. S. Fearenside, B.A.*, is a very complete text-book, containing an immense amount of information indispensable to intending candidates. The Introduction contains a Life of Cicero, General Introduction to the text, Sources of the Treatise, Summary of Philosophy down to the time of Cicero, and an Analysis of the Book. The text is clearly printed, and the notes are mainly grammatical and explanatory. An index of proper names and a translation of the text complete a well-bound and attractive work. With such a text-book the student should thoroughly appreciate and master a difficult treatise of the great author. *A History of the Reigns of Augustus and Tiberius*, by *A. H. Allcroft, B.A.*, and *J. H. Haydon, M.A.*, although at times somewhat too succinct, will yet amply suffice for the purpose required. Due attention is paid to the rise of the principate, the new constitution, and the literature of these two important and interesting reigns. *A History of Sicily*, B.C. 490–289, by *A. H. Allcroft, B.A.*, and *W. F. Masom, B.A.*, is a much-needed work. We do not envy the student who attempts to study the periods without its aid, the time spent in discriminating the necessary information from any large History would be enormous. Another of the series is the *Intermediate Science and Prel. Sci. Directory*, which gives in four parts much information as to the examinations and the text-books required, with specimen papers and solutions. The ever-improving nature of these books shows plainly that the College is thriving.

Shakespeare's (1) *Julius Cæsar*, (2) *The Merchant of Venice, each by K. Deighton (Macmillan)*, maintain the excellence of the Series of English Classics, written by Professors of Indian Colleges, and originally intended for the use of native students. The plan of the series and the nature of the notes continue to be the same as in former volumes. In each there is a lengthy introduction dealing with every aspect of the play.

The Townley Algebraical Tests. By T. B. Ellery. (A. C. Dawson.)—These books of Algebraical Tests are three in number, each containing

forty sets of five examples in elementary algebra. There are separate detached answers to each part.

The Modern Language Monthly. Edited by J. J. Beuzemaker, B.A., B.Mus. (*William Rice*).—We have received No. 5 of Vol. III. of the above monthly journal, which, under Mr. Beuzemaker's editorship, is making a new start, and which all who have to teach or to learn French, German, or Spanish will find very useful. The number before us chiefly consists of extracts for translation into and from the languages just mentioned. There are also two very good first instalments of articles, one on "French Pronunciation," and the other on "Modern Philology," the latter by Mr. W. H. Widgery, who has already made himself an authority among teachers on this subject. Of course there are also the usual "translation prizes," which few educational journals seem to be able to do without. Here, however, they are quite in place, and are already attracting many competitors. We wish Mr. Beuzemaker every success.

The New Little Folks Painting Book. (*Cassells.*) — The outline sketches in this book are adapted for painting in water colours. When painted, they will make pretty and effective pages. As an example, the frontispiece has been painted by hand. There is a competition in connexion with the book, and all copies sent in will be distributed among the children's hospitals of the United Kingdom.

Dictionary of Book-keeping Terms and Definitions. By Henry Bickerstaff. (*Percival & Co.*)—This is a small book of about fifty pages, containing the abbreviations used in book-keeping, terms and definitions, and the recent examination papers of the Oxford Local and Society of Arts Examinations.

Elementary Mechanics, Part III. (*Blackies*). — This is an excellent elementary text-book. The subject is placed before the beginner in a simple and extremely lucid manner, and the examples for solution afford good practice in the study. The illustrations are numerous, and in many cases new; those exemplifying the Inclined Plane are particularly good.

Primer of Book-keeping. By J. Thornton. (*Macmillans.*)—The Ledger, and how to prove it, occupies a prominent position in this primer, and is dealt with in a very simple manner. It is quite an experience to find a book on this subject "chatty," yet Mr. Thornton has turned his gift to good account. We have no hesitation in saying that he has made the subject clear and interesting. The numerous graphic examples are responsible for a great deal of the success with which the book will meet. A *Key* to the Primer is published separately.

Elements of Structural and Systematic Botany. By D. H. Campbell, Ph.D. (*Ginn & Co.*)—A knowledge of a plant is far more important than its name, and the author's strong protest against the idea that the chief aim of botany is the ability to run down a plant by means of an "analytical key," the subject being exhausted as soon as the name of the plant is discovered, is perfectly just. This is the keynote of the whole work, which is sufficiently comprehensive to serve as a beginning book for college students. A word of praise is due to the excellence and correctness of the drawings which are found on every page of the book.

Cameos from English History: The Rebellion and Restoration (1642–1678). *By the Author of "The Heir of Redclyffe."* (*Macmillans.*)—This is the seventh of the "Cameos from English History" from the pen of Miss Charlotte M. Yonge. Although the period which it embraces is somewhat complex, and one on which there are a bewildering amount of lights, the author has weighed her facts in such an impartial balance that they come out with great fairness.

Biblioteca Italiana.—(1) *Merope, Tragedia di Scipione Maffei.* (2) *Un Curioso Accidente, Commedia in tre atti di Carlo Goldoni.* (3) *Novelle di Edmondo de Amicis. With Notes and Vocabulary. By Rev. A. C. Clapin, M.A.* (*Hachette & Cie.*)—These three little text-books for English students of Italian will supply a genuine want, and are, we hope, the forerunners of an interesting series. They are neat in appearance and well printed. The notes, mainly the translation of difficulties, are at the foot of the page. We would rather see them at the back of the book, but possibly this will be remedied in subsequent editions.

Elementary Science Lessons. By W. Hewitt, B.Sc. (*Longmans.*)—This is a systematic course of Practical Object Lessons, designed for the purpose of developing and training the mind of young children. It forms the first year's course of a system of Elementary Science Lessons, as contemplated by the New Code. The simple experimental illustrations ought to cultivate the intelligence of the children.

A School Algebra. By G. A. Wentworth. (*Edward Arnold.*)—The student who works through this School Algebra will be able to take up the author's College Algebra, which we have already noticed, as an extended course. The problems are carefully graded, varied and interesting, and mostly new. The greatest novelty in the book is the introductory chapter, which brings before the student in review the knowledge he has already gained from the study of Arithmetic, states and proves the general laws of numbers, sets forth the advantage of using letters to represent numbers in the statement of general laws, and leads him to see that Algebra, like Arithmetic, treats of numbers. The meaning of negative quantities, too, is explained, and the laws which regulate the combinations of different arithmetical numbers are shown to apply to algebraic numbers. In printing and binding, the firm seems almost to have surpassed itself in the book before us.

How they Form a Series of Sloyd Models at Nääs. (*Thos. Laurie.*)—On the three pages of this quarto sheet is crowded a good deal of information about the Nääs Sloyd. There is a list of the manipulations necessary to make the four concurrent series of models, a list of the fifty models in that series—the Boys' High School series—most usually worked through by English students; and to that list is added the exact size of each model, and the kind of wood which can best be used for it, with the manipulations which are necessary to make it. But all that is by the way. The real object of the sheet is to show the method, the way in which the work is laid out. For it is in that method, rather than in any particular set of models, that the essence of Sloyd consists. The method is perfectly general, being the only one the successful teacher can adopt, whatever be his subject. What is noteworthy in this special application of it is the thoroughness with which Director Salomon has worked it out, and the graphic way in which it is represented. For proof of this we must refer our readers to the sheet itself. We may add that it is printed from Herr Salomon's own copy, and that it is so arranged that it can usefully be hung on the wall of any workshop in which Sloyd is taught.

Handcraft. The most reliable basis of Technical Education in Schools and Classes; being an English Exposition of Slöjd, explained and illustrated. by John D. Sutcliffe. With an Introduction by Mr. T. C. Horsfall. 4to, pp. 79. (*Griffith & Farran.*)—Mr. Sutcliffe, who is an engineer at Manchester, and is also a member of the Recreative Classes Committee there, was a student last year in the Slöjd Training Class taught by Miss Andrén from Nääs. The work interested him so much that he executed working drawings, on a fairly large scale, of the things he had made. These he has reproduced in the handsome book before us, and has also given some account of tools and appliances, as well as detailed directions for making each of the first twenty-five objects or models in the Boys' High School Series. These drawings, with the accompanying text, will give school managers and others a better idea of what Slöjd is than anything that has yet appeared in English. But the book makes no claim to supersede the work of the teacher. It will admirably supplement that work; and will greatly help the student when he himself begins to teach, by reviving directions and cautions partially or wholly forgotten.

Gaudeamus: a Selection of Songs for Colleges and Schools. Edited by John Farmer. (*Cassells.*)—Here are one hundred of the best-known songs, such as "Auld Lang Syne," "John Peel," "St. Patrick was a Gentleman," "The Leather Bottel," "Sally in Our Alley," "Vicar of Bray," "Robin Adair," and "Ye Banks and Braes." The pianoforte accompaniments are arranged by Mr. Farmer. Eight of the songs, namely, "Forty Years on," "Willow the King," "Larry," "St. Joles," "Jack and Joe," "October," "Euclid," and "How does the Song come," are all from the *Harrow Song Book*, the words being by E. E. Bowen, and music by John Farmer. Three or four are from the *Balliol Song Book*; one of them, the "Epilogue," is by Browning, and is probably the last poem he wrote. There are also four or five adaptations from the German by the Rev. F. W. Farrar, and some new songs by Farmer. All are hearty and some are jovial. As a rule, they have but limited range or register. Thus the tune to the Ode to Tobacco lies within the compass of an octave.

A New Elementary French Course. By F. E. Darqué. (*Joseph Hughes & Co.*)—This course is specially designed for young students, pupil-teachers, and Queen's scholarship candidates. Its initial method is worthy of praise—to make the pupil at first familiar with everyday expressions before concentrating the attention on the study of grammar.

The All-England Mental Arithmetic. By T. B. Ellery. (*Gotch & Gomme.*)—The examples in this book are arranged in seven divisions, each division containing nearly 300 sums, and being preceded by useful hints to the teacher.

Victor Hugo's Ruy Blas. By H. A. Perry, M.A. (*Longmans, Green & Co.*)—The great literary value of "Ruy Blas," and the numerous historical facts connected with its action, will cause this edition to be read in many schools. It contains a life of the author and history of the play, historical notes on the characters of the play, and the position of the Spanish Monarchy, 1695–1700, and brief notes on the text sufficient to direct the student's efforts rather than to render effort unnecessary.

Handbook of English Literature. Part V. By R. McWilliam, B.A. (*Longmans.*)—The final volume of the Handbook deals with our own century, from Burke to the present time; but the names of living English writers, with the exception of two, Tennyson and Ruskin, are excluded. There is a short record of American literature, and a chronological table of English writers from Bæda, with lists of their works. In the one hundred and fifty pages of the volume, the author has compressed a deal of interesting and useful information. As a brief review of our literature the Handbook should hold a high place in schools.

A Brief Geography of the World. (*W. & R. Chambers.*)—We fail to find in this short Geography any features distinct from those of the many books of geography lately published. The maps are numerous, but far from clear; the method of showing the locality of mountain-ranges is extremely bewildering, and, in many cases, the ranges themselves are wrongly situated. The adoption of a bolder type in the printing of the names on the maps would be an advantage.

Tot Cards. (*Blackies.*)—This packet of cards contains a series of compound sums ranging from five columns to more than thirty. No two cards contain the same sums, so that copying is impossible. The figures are printed in large type, and in imitation of written figures. With the tots are four answer-cards, which, so far as we have tested, are absolutely correct.

A Shilling Book of Arithmetic. By the Rev. J. B. Lock, M.A. (*Macmillans.*) — This little book is founded principally on the author's "Arithmetic for Schools," with slight modifications to adapt it for more

rudimentary teaching. The chief differences are—(i.) the separation of the examples on £. s. d. from those on other compound quantities, (ii.) the complete separation of the Unitary Method from that of Ratio, (iii.) the treatment of the method of Ratio.

Swiss Travel. By C. H. Parry, M.A. (*Longmans.*)—The selections in this volume are taken from the series of Dumas' *Impressions de Voyage*, which relates especially to Switzerland. The *Impressions* are full of life and interest, written in the form of a diary of travel and adventure, interspersed with tales and historical sketches. It is eminently the book for school use.

Histoires Choisies, 1st Series. By J. Belfond. (*Hachette & Cie.*)—The literary extracts in this volume are compiled with the view of familiarising the student with the characteristic styles of the French prose-writers of sterling merit of the nineteenth century. Fourteen authors are represented, and a short account of his work and life precedes the extracts of each. The explanatory remarks are limited to idioms and unusual constructions.

New Editions.

New Spanish Reader, with Notes. By C. M. Sauer and W. A. Rochrich. (*David Nutt.*)—The usefulness of this Reader is greatly increased by the addition of a complete vocabulary to the second edition, increasing the size of the book by about eighty pages, and enabling the beginner to dispense with the necessity of purchasing an expensive Spanish dictionary.

The Romans under the Empire. By the Very Rev. C. Merivale, D.C.L. (*Longmans.*)—A new edition of this well-known work fitly finds a place in the new three-and-sixpenny *Silver Series* of these energetic publishers. It is contemplated to publish the History in eight volumes. The first is before us, and brings us down to Cæsar's sixth campaign against the Gauls. *Field and Hedgerow, by Richard Jefferies*, is another of the series. The last essays of this talented writer, the first among those who have told or sung to us of the life of the English homesteads and meadows, have been collected by his widow. They appeared originally in the daily papers, the reviews, magazines and journals. Although, in comparison with his complete works, these essays betray some degree of haste and carelessness, occasioned doubtless by the fact that he was writing for bread, yet his beautiful style rises high above all blemishes, and commands instant attention. *Carlyle's Early Life, by J. A. Froude*, and the *Story of the Creation, by Edward Clodd*, also belong to the *Silver Library*. The former is to be published in four volumes, two of which we have received.

Beneh Book for Test Tube Work in Chemistry. By H. T. Lilley, M.A. (*Simpkin, Marshall, & Co.*)—In this edition numerous slight alterations have been introduced, chiefly in arrangement and with a view to greater clearness. There is also a new graphic Table of Solubility.

The Round World: A Reading Book of Geography for Standard II. By M. J. Barrington-Ward, M.A. (*Bell & Sons.*)—In the new edition of this little book the vocabulary has been greatly simplified, and several of the lessons have been shortened. All the more difficult words are grouped alphabetically at the end of the work.

The Elements of the English Language. By Ernest Adams, Ph.D. Revised by J. F. Davis, D.Lit., M.A. (*Bell & Sons.*) — The twenty-fourth edition of this well-known work has been revised by a competent authority. The greater part of the fresh matter inserted has been based on material supplied by Dr. Adams. The simple character of the work is unchanged, and the essential features of former editions are retained.

Analysis of English History. Based on Green's Short History of the English People. By C. W. A. Tait, M.A. (*Macmillans.*)—A new edition of this successful attempt to facilitate the study of English History is now published.

The Civil Service History of England. By F. A. White, B.A., and H. A. Dobson. (*Crosby Lockwood & Son.*)—A seventh edition of this book, which appeared twenty years ago, is now before the public. The present edition has been subjected to careful revision; it has been corrected in places and somewhat extended, and it has been continued to the date of publication.

A Treatise on Practical Chemistry and Qualitative Analysis. By Frank Clowes, D.Sc. (*J. & A. Churchill.*)—The fifth edition of this exhaustive treatise contains several emendations and additions. The principal of these is an extension of the short Appendix containing the reactions of a few important organic substances.

System of Upright Penmanship. By John Jackson. (*Sampson Low, Marston, Searle, & Rivington.*) — This new series of copybooks is an improvement on the original series in several respects. It is adapted to the New Code, and shows a direct advance in engraving, paper, and printing.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending September 30th, 1890.

Ashton's (J.) Social England under the Regency, 2 vols., 30s.
Baedeker (K.): Great Britain, Second Edition, 10m.
Bar Bahlule (H.): Lexicon Syriacum, Part 2, 20fr.
Beuttler's (J. O.) Inorganic Chemistry, 12mo, 2s. 6d. cl.
Blake's (W.) Poetical Works, edited by W. M. Rossetti, 12mo, 2s. 6d. cl. (Aldine Poets.)
Bower (A. M.) and Tolra's (Prof. Don Eduardo) First Steps in Spanish Idioms, containing Alphabetical List, 2s.
Coues's (Prof. E.) Handbook of Field and General Ornithology, illustrated, 8vo, 10s. cl.
Davenport's (E.) The Girl's Own Poetry Book, cr. 8vo, 3s. 6d. cl.
D'Hérisson (Comte): Le Prince Impérial, Napoléon IV., 3fr. 50.
Delectus Veterum Carminum Arabicorum, ed. T. Nöldeke, 7m.
Eagles's (T. H.) Descriptive Geometry, with Illustrations and Examples, cr. 8vo, 3s. 6d. cl.
Farrar's (F.W.) With the Poets, a Selection of English Poetry, cr. 8vo, 2s. 6d. cl.
Fream's (W.) Soils and their Properties, illustrated, 12mo, 2s. 6d. cl. (Bell's Agricultural Series.)
Gardiner's (S. R.) The Student's History of England, Vol. 1, B.C. 55 to A.D. 1509, cr. 8vo, 4s. cl.
Glazebrook's (M. G.) Lessons from Old Testament, Senior Course, Vol. 1, 12mo, 2s. 6d. cl.
Half-Hours with the Best English Authors, selected and arranged by C. Morris, 2 vols., cr. 8vo, 7s. 6d. cl.
Hamilton's (W.) A Transatlantic Voyage, or Twelve Days on the Ocean, cr. 8vo, 2s. 6d. cl.
Harrison's (F. B.) True Stories from Italian History, 2s. 6d. cl.
Homer's Iliad, Books 22 and 23, literally translated, with Notes, by J. H. Freese, cr. 8vo, 2s. swd.
Hugo's (V.) Select Poems and Tragedies, cr. 8vo, 2s. cl.
Internationaler Atlas seltener Hautkrankheiten, ed. P. G. Unna, &c., Parts 3 and 4, 20m.
Jaeger (E. v.): Atlas d'Ophthalmoscopie, Tr. Française du E. Berard, 30m.
Johnson's Lives of the Poets, edited with Notes by Mrs. A. Napier, 3 vols., cr. 8vo, 3s. 6d. each, cl.
Keats's (J.) Poetical Works, 12mo, 2s. 6d. cl. (Aldine Poets.)
Lallemand (H.) and Antoine's (A.) French Composition and Idioms, cr. 8vo, 2s. 6d. cl.
Lang's (Rev. J. M.) Gideon and the Judges, cr. 8vo, 2s. 6d. cl.
Larsen (S. C.): Studia Critica in Plutarchi Moralia, 3m.
Leblond (E.): Electricité Expérimentale et Pratique, Cours proposé à l'Ecole des Officiers Torpilleurs, Vol. 3, Part 1, 6fr.
Malleson's (Col.) Dupleix, cr. 8vo, 2s. 6d. cl. (Rulers of India.)
Moore's (T.) The Education Brief on behalf of Voluntary Schools, cr. 8vo, 2s. 6d. cl.
Morris's (J. H.) Practical Plane and Solid Geometry, including Graphic Arithmetic, cr. 8vo, 2s. 6d. cl.
Parkinson's (R. M.) Structural Mechanics, cr. 8vo, 4s. 6d. cl.
Shakespeare's Works, edited by H. Irving and F. A. Marshall, Vol. 8, royal 8vo, 10s. 6d. cl.
Trousset (Jules): Histoire d'un Siècle, Vol. 4, 7fr. 50.
True Stories from French History, compiled by N. M. Paul, cr. 8vo, 2s. 6d. cl.
Walpole's (S.) History of England from the Conclusion of the Great War in 1815, Vol. 4, cr. 8vo, 6s. cl.
Ward's (C. S.) Surrey and Sussex (including Tunbridge Wells), 12mo, 3s. 6d. cl.
Xenophon's Memorabilia, edited for Schools, with Notes, &c., by J. Marshall, 12mo, 4s. 6d. cl.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A meeting of the Council was held on Wednesday, the 17th ult. Present—Mr. J. Stewart, Vice-President, in the Chair; Miss Bailey, Mr. Baumann, Mr. Charles, Rev. Dr. Hiron, Mr. Milne, Rev. R. Lee, Sir Philip Magnus, Mr. Mason, Rev. G. P. Pearce, Mr. Pinches, Mr. Rule, Rev. W. J. Savell, Rev. Dr. Scott, Mr. Southee, Mr. Stièvenard, and Dr. White.

The minutes of the last meeting were read and confirmed.

The Diploma of Associate was granted to Mr. R. Brotherton and Mr. F. Oldham, who had passed the required examination.

The Treasurer submitted the report of the Finance Committee, which was adopted.

The report of the Education Committee was adopted, and it was resolved that the Diplomas awarded on the results of the Teachers' Examinations at Midsummer and Christmas should be presented to the successful candidates at the same meetings at which the Prizes awarded on the results of the Certificate Examinations were distributed.

The following persons were elected Members of the College:—

Mr. E. A. Brennan, Caldwell, Texas, U.S.A.
Mr. E. C. Duchesne, The Hollies, Tregonwell Road, Bournemouth.
Miss M. Disteli, Queen's College, Wood Green, N.
Miss H. S. Jones, B.A. Camb., Beaumont House, Llanelly.
Rev. R. B. Poole, D.D., Modern School, Bedford.
Mr. T. H. Slade, Bawnmore, Archers Road, Southampton.
Mrs. Tuppenney, La Haye, Blacklands, Hastings.
Mr. J. Whitmore, Blue Coat School, Oldham.

The following books had been presented to the Library since the last meeting of the Council:—

G. Bell & Sons.—"The School Calendar" for 1890 (2 copies).

Clarendon Press (Oxford).—Buchheim's Schiller's "Jungfrau von Orleans."

Clive & Co.—University Corr. Coll. Tutorial Series:—Matriculation Directory; Intermediate English (1891); B.A. Greek Test Papers; Blagrave and Fearenside's Translation of Plato's "Phaedo"; Wyatt and Johnson's B.A. English (1891); B.A. Latin Notabilia and Test Papers for 1891; Allcroft and Haydon's History of the Reigns of Augustus and Tiberius; Allcroft and Masom's Livy, Book 1.; W. H. Low's Shakespeare's "Henry VIII."; Masom and Fearenside's Herodotus, Book VI.; R. Wallace Stewart's Elementary Heat and Light.

Hachette.—A. C. Clapin's Maffei's "Merope."

Longmans.—School Atlas; Junior School Atlas; New Five-Shilling Atlas; G. A. Bienemann's Dahn's Felicitas; Jago's Inorganic Chemistry; Strangway's Tales of the Black Forest; New Arithmetic, Book VII.; W. Hewitt's Elementary Science Lessons, Standard I.

Macmillan.—Hayward's Elements of Solid Geometry; Lock's Shilling Book of Arithmetic; Macmillan's Southey's Life of Nelson, and Milton's Paradise Lost (Part I.); Milne and Davis's Geometrical Conics (Part I.); Ransome's Short Studies

of Shakespeare's Plots; Thompson's Primer of Book-keeping; Deighton's Shakespeare's "Merchant of Venice," "Julius Cæsar"; Nichol and M'Cormick's Questions and Exercises on English Composition ("Literature Primers" Series); C. Smith's Elementary Algebra; J. Talboys Wheeler's Primer of Indian History.

Routledge.—Low's Battles of the British Army.

By Mr. Pinches.—H. Bué's First French Reader; W. H. Riehl's Culturgeschichtliche Novellen, with Notes by H. J. Wolstenholme.

Edinburgh University Calendar (1890–1891).

Glasgow University Calendar (1890–1891).

St. Andrews University Calendar (1890–1891).

Thirty-fifth Report of the Science and Art Department.

Calendar of the Queen's College, Birmingham.

Calendar of the Yorkshire College, Leeds.

Calendar of the Royal University of Ireland.

COLLEGE OF PRECEPTORS.

PROFESSIONAL PRELIMINARY EXAMINATION.—PASS LIST.

September, 1890.

The Supplementary Examination by the College of Preceptors for Certificates recognised by the General Medical Council, the Incorporated Law Society, the Royal College of Veterinary Surgeons, the Pharmaceutical Society of Great Britain, and other bodies, was held on the 9th, 10th, and 11th September, in London, and at four other local centres, viz., Birmingham, Bristol, Leeds, and Liverpool. The following candidates obtained Certificates:—

First Class.

Allen, P.

Second Class.

First Division.
Allen, E.
Bentham, E.
Binsteed, C. E.
Bull, H. A.
Clay, F. E.
De Brunet, J. R.
Dixon, H. E.
Kenyon, F. J.
Langley, J. E.
Leach, E.
Madden, F. B.
Matheson, F. M.
Messiter, F. G.
Moregan, F. C.
Phillips, O. T. A.
Pooley, W. E.
Richardson, R. P.
Savin, L.
Weeks, C. C.

Second Division.
Bradbury, C.
Hodson, V. S.
Hughes, H.
Lewer, H. G.
Renshaw, G.
Rogers, J. P.

Third Division.
Clarke, M. H.
Coghill, A. I.
Connell, A. M.
Jeffs, S. G. A.
Johnston, T. S.
Procter, G. L.
Smith, J. A.

The following qualified for Registration as Medical Students, but did not pass in all the subjects required for a Second Class Certificate:—

Abbott, H. W.
Armitage, F.
Bartholomew, E.U.
Barton, W.
Fulton, H.
Holmes, B. W.
Hounsfield, S. C.
Macdonald, J. N.
Shaw, K. R. D.
Trehane, J. W.

The following passed in subjects required to complete their qualification for Registration as Medical Students:—

Badcock, T.
Baker, W. H. G.
Barritt, J. T.
Bird, A. D.
Blake, C. W.
Bromwich, T.
Brown, W. H.
Clague, H. J.
Coker, A. P.
Constant, F. C.
Cooper, W.
Crane, C. E. D.
Cross, W. F.
Curtis, A. M.
Davies, J. L.
Dearden, C. R.
Dobbs, F. A.
Dolman, A. J.
Dow, A. M.
Eley, N. W.
Foulds, G. S.
Freer, H. W.
Harding, S. G.
Hardy, F. H.
Hardy, H. W.
Harper, J. E.
Hill, L. V.
Jones-Hughes, J.
Kennard, H. P.
Knott, W. M.
Laslett, M. H.
Little, A. E.
Lumb, E. J.
Maurice, W. B.
Munro, M.
Musgrove, E.
Pitt-Taylor, F. S.
Provis, C. H. R.
Richards, W. J.
Sexton, W.
Turner, G. D.
Wright, A. B.

UNIVERSITY AND COLLEGE INTELLIGENCE.

Cambridge.

A course of twelve lectures on the Theory of Education will be delivered by Mr. H. Courthope Bowen, M.A., in the Literary Schools, on Wednesdays and Saturdays, at 2.15 p.m., beginning Wednesday, October 29th. The lectures will in the main consist of brief descriptions of the modes and inter-relations of mental activities, together with a more detailed application of psychological principles to the art of teaching.

Oxford.

Mr. G. C. Richards, B.A., Fellow of Hertford, has been elected Derby Scholar for 1890.

Other Universities, Colleges, and Schools.

The Council of King's College, London, has decided not to fill up the vacant Chair of Public Reading and Elocution.

The Commissioners of the Exhibition of 1851 propose to award scholarships in Science of £150 per annum, tenable for two years, to a large number of provincial and colonial Universities and Colleges. The number of scholarships is said to be about seventeen.

Mr. Ronald Bell, B.A., of Nottingham, has been elected Headmaster of Huntingdon Grammar School.

Mr. A. Hodgson, M.A., Headmaster of Bridgnorth Grammar School, has been elected Headmaster of Bewdley Grammar School.

The Council of Clifton College will not appoint a successor to the Rev. J. M. Wilson before Christmas. Meanwhile the headmastership will be put in commission, the Rev. T. E. Brown acting as deputy, while Mr. E. N. P. Moor superintends Mr. Wilson's house.

MATHEMATICS.

10651. (Prince Camille de Polignac.)—A right line of constant length moves so that three of its points remain on three cylindrical surfaces the generators of which are parallel to a given line. Prove that any other point must remain on a cylindrical surface of the same nature.

Solution by the Proposer.

This is a generalisation of Quest. 10109, by Professor Mannheim, and the solution is immediate. Taking the axis of z parallel to the given line, the given surfaces are

$$\phi_1(x_1y_1) = 0, \quad \phi_2(x_2y_2) = 0, \quad \phi_3(x_3y_3) = 0.$$

Let a, b denote the direction cosines of the moveable line at any moment; l_1, l_2, l_3 the distances from the three given points to an arbitrary point xyz on the line. Then we have the three pairs of equations

$$x - x_{1,2,3} = al_{1,2,3}, \qquad y - y_{1,2,3} = bl_{1,2,3},$$

in all nine equations. Now, owing to the parallelism of the axis of z with the generators of the cylindrical surfaces, the coordinate z has been abliminated (according to Professor Sylvester's happy terminology).

[The rest in Volume.]

10559. (Professor Lampe, LL.D.)—Let A be the upper end, F the foot, of a vertical staff $AF = l$, standing on the horizontal plane at F under the latitude ϕ; then, if the declination of the sun is supposed to be constant during a day, the shadow of A is known to describe in our latitudes one branch of an hyperbola the declination being $+\delta$, the other branch if the declination is $-\delta$. The asymptotes of all these hyperbolas for different days envelope a parabola tangent at its vertex to the straight line described by the shadow of A on the days of equinox, and having the latus rectum $4ltg\phi$. The locus of the extremities of the conjugate axes of all hyperbolas is again a parabola with the latus rectum $ltg\phi$. [These theorems hold, similarly, for the sections of a series of coaxial and concentric cones of revolution by an arbitrary plane.]

Solution by Professor Anderson, M.A.

The line AS which joins the upper end of the staff to the centre of the sun's disc describes on any day a right circular cone whose semi-vertical angle is $90° - \delta$, and axis the polar axis of the earth, the declination being supposed positive. When the declination is negative and equal to δ, the same cone will be described again by SA produced through the point A. The curve traced out will be the intersection of this cone with the horizontal plane through F, and will therefore be a conic section. It will be an ellipse, an hyperbola, or a parabola, according as $\phi >, <,$ or $= 90° - \delta$.

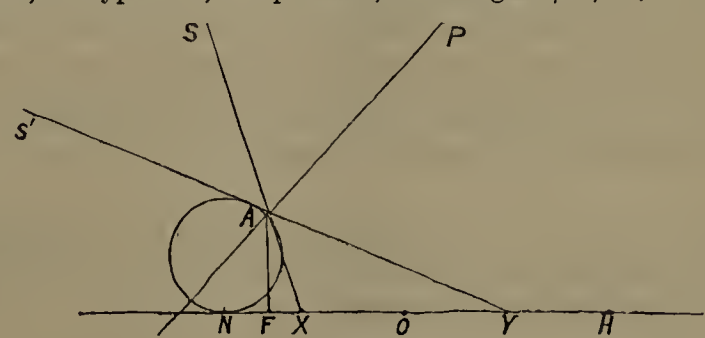


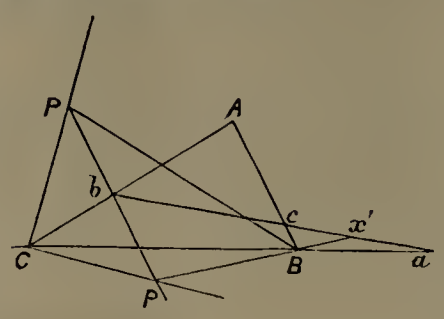
Fig. 1.

At all places between the Arctic and Antarctic Circles, since $90° - \delta$ cannot be $< 66\frac{1}{2}°$, the curve is an hyperbola, one branch being described when the declination is δ, and the other when it is $-\delta$. At the equinoxes δ vanishes, the cone becomes a pair of planes, and the curve a pair of coincident lines, one being described at one equinox, and the other at the other.

[The rest in Volume.]

4014. (C. H. Hinton.)—Let ABC be a triangle, and through a on BC draw a straight line cutting AC in b, AB in c. From centre b distance bC, draw a circle; from centre c distance cB, draw a circle cutting the other in P, P′. Bisect the external or internal angle of the triangle Pbc or $P'bc$ by a straight line cutting ab in x. Let x' be a point on another straight line $ab'c'$ similarly obtained, and so on; then x, x', x''... line on a straight line passing through A.

Solution by Profs. ANDERSON, DÉCAMPS, *and others.*

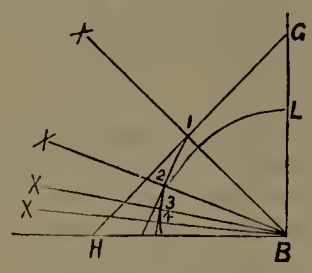


The problem is identical with finding the locus of the points X and X′, where the line bC which passes through a is divided internally and externally in the ratio of Cb to eB, a being a fixed point on CB.

The following construction, which is easily proved, determines the points x and x'. Draw CP making an angle PCA with CA equal to $\frac{1}{2}$A, and CP′ perpendicular to CP. [The rest in Volume.]

10082. (D. BIDDLE.)—The circumference of a circle being represented as to length, by a given straight line; show how (by *pure* geometry) to find the radius, with at least sufficient accuracy for any practical purpose.

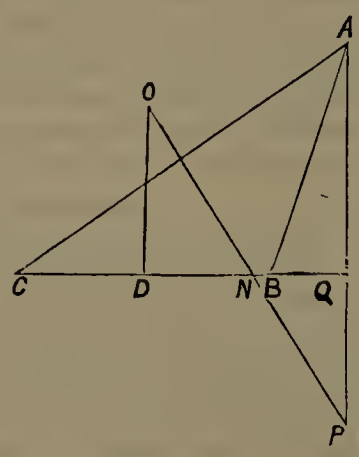
Solution by the PROPOSER; Rev. J. L. KITCHIN; *and others.*



The radius may be found to any degree of accuracy by an extension of the following method:—Let BG = $\frac{1}{4}$ circumference. Draw BH at right angles, and equal to BG. Join GH and bisect in 1. On BH mark a point equidistant with 1 from B; join and bisect in 2, and so on. It is clear that the points 1, 2, 3, 4, &c., vary in distance from BH as the size of the angles denoted; the angles are the same aliquot parts of the quadrant as the several distances are of BG; and the ratio of each such distance (from BH) to the distance from B, is that of the sine of the angle to its radius. [The rest in Volume.]

10600. (Professor HUDSON, M.A.)—If the mid-centre of a triangle lies on a side of the triangle, prove that the difference between the angles to which that side is adjacent is a right angle. [The mid-centre is the centre of the mid-circle, that is to say, of the circle that passes through the middle points of the sides.]

Solution by R. H. W. WHAPHAM, B.A.; J. D. WILLIAMS; *and others.*



Let P, O, N be ortho-, circum-, and mid-centres, and D the mid-point of BC;

then $OP^2 = 4ON^2 = 4\,(OD^2 + ND^2)$

$= 4\left\{R^2\cos^2 A + \frac{1}{4}R^2\right\}$;

but $OP^2 = R^2(1 - 8\cos A\cos B\cos C)$,

$\therefore\ 4\cos^2 A + 1 = 1 - 8\cos A\cos B\cos C$;

therefore $\cos(B - C) = 0$.

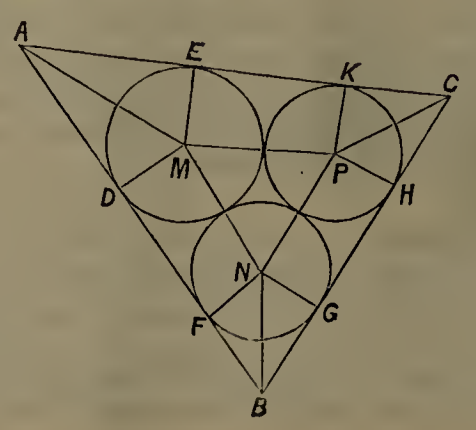
[The coordinates of the mid-centre are $\cos(B-C)$, $\cos(C-A)$, $\cos(A-B)$;

hence, substituting in the equation to BC, we get $\cos(B-C) = 0$.

Geometrically, if PA meet BC at right angles in Q, then PQ is a tangent to the mid-circle, and therefore PA is a tangent to the circumcircle, P being their centre of similarity; hence PAB is equal to the angle in the alternate segment C, and therefore B exceeds C by a right angle.]

4219. (N'IMPORTE.)—Given the radii of three circles inscribed in a triangle, so that each circle touches the other two, and two sides of the triangle; find the sides of the triangle.

Solution by Professors ZERR, BEYENS, *and others.*



Let ABC be the triangle; M, N, P the centres of the circles; MD = EM = a, NF = NG = b, PH = PK = c. Let $a+b+c=s$,

$\angle PMN = \delta$, $\angle NMD = y$,

$\angle PME = \rho$, $\angle EMD = w$;

then

$\tan\frac{1}{2}y = (b/a)^{\frac{1}{2}}$, $\tan\frac{1}{2}\rho = (c/a)^{\frac{1}{2}}$,

$\tan\frac{1}{2}\delta = (bc/as)^{\frac{1}{2}}$,

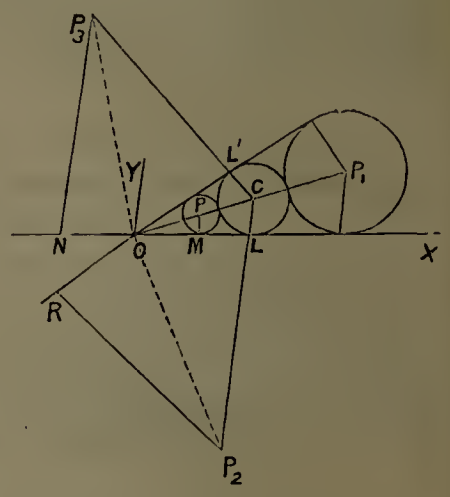
$A = \pi - w = \pi - 2\pi + (\delta + y + \rho)$

$= (\delta + y + \rho) - \pi$.

[The rest in Volume.]

10507. (J. WHITE.)—A circle of given radius a rolls upon a fixed straight line, and from a given point in it tangents are drawn to this circle; prove that the loci of the centres of the four circles which can be described to touch the rolling circle, the given line, and the tangents from the given point, are two equal parabolas, and the curve $x^2(y-a)^2 = 4ay^3$.

Solution by D. T. GRIFFITHS; Professor ANDERSON; *and others.*



Let O be the fixed point in the given line OX. Let C be the centre of the circle which rolls upon OX, and P, P_1, P_2, P_3 the centres of the four circles which touch OL . OL′ and the circle with centre C.

Since O is the centre of similitude of the circles with centres C and P, we have

$$\frac{CL}{PM} = \frac{CP + PO}{PO};$$

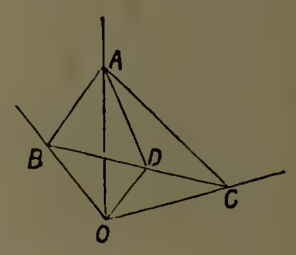
$$\therefore\ \frac{a}{y} = \frac{a + y + (y^2 + x^2)^{\frac{1}{2}}}{(y^2 + x^2)^{\frac{1}{2}}};$$

therefore P is a point on the curve $x^2(y-a)^2 = 4ay^3$.

The rest in Volume.]

10264. (Professor DÉCAMPS.)—Si, dans un tétraèdre OABC, trirectangle en O, α représente l'angle dièdre formé par les faces ABC et OBC, on a $\tan^2\alpha = \tan^2 ABO + \tan^2 ACO$.

Solution by J. J. BARNIVILLE; Rev. T. GALLIERS, M.A.; *and others.*



Draw AD perpendicular to BC. Then

$AO^2 + OB^2 = AB^2 = BD^2 + DO^2 + AO^2$;

therefore $OB^2 = OD^2 + DB^2$, and OD is perpendicular to BC. Again, $\tan^2 ABO + \tan^2 ACO$

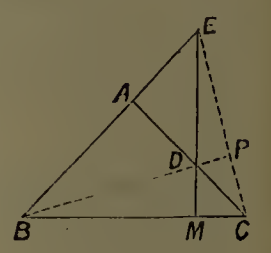
$$= \frac{AO^2}{OB^2} + \frac{AO^2}{OC^2} = AO^2\left(\frac{OB^2 + OC^2}{OB^2 . OC^2}\right)$$

$$= AO^2\,\frac{BC^2}{OB^2 . OC^2} = AO^2\left(\frac{BC}{OD . BC}\right)^2$$

$$= \frac{AO^2}{OD^2} = \tan^2\alpha.$$

10293. (G. RUSSO.)—En un point quelconque de la base BC d'un triangle isosceèle ABC, on élève une perpendiculaire, qui rencontre AC en D, AB en E. Démontrer que le lieu du point de rencontre des droites BD, CE est une ellipse.

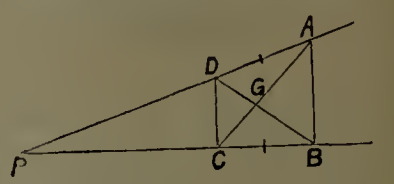
Solution by Rev. T. GALLIERS, M.A.; J. C. ST. CLAIR; *and others.*



Let A be projected orthogonally on to a plane through BC, so that BAC becomes a right angle. Then D is the orthocentre of ΔEBC, and therefore BPC is a right angle. Hence in this case the locus of P is the circumcircle of ΔABC. Therefore in the original figure the locus is an ellipse having BC for one axis, and A for an extremity of the other axis.

10371. (R. KNOWLES, B.A.)—The sides AB, CD of a quadrilateral inscribed in a conic, centre O, are parallel; the diagonals AC, BD intersect in G; a second conic, centre O′, is drawn through A, B, C, D; prove that the points O, O′, G are collinear.

Solution by R. H. W. WHAPHAM, B.A.; C. MORGAN, M.A.; *and others.*



Take P, where BC and AD meet for origin, and BC, AD for axes.

Let AB be $ax + by - 1 = 0$, and CD, $a'x + b'y - 1 = 0$; therefore, any conic through ABCD being

$\lambda xy + (ax + by - 1)(a'x + b'y - 1) = 0$,

the locus of centre is $2aa'x^2 - 2bb'y^2 - (a + a')x + (b + b')y = 0$.

[The rest in Volume.]

10517. (Professor STEINER.)—Par un point fixe P de l'axe focal d'une ellipse ou d'une hyperbole, on mène une sécante quelconque rencontrant la courbe en M, M′. Démontrer qu'il existe une constante r, telle que le produit $(FM + r)(FM' + r)$ a une valeur constante, F étant l'un des foyers.

Solution by Professor ANDERSON, M.A.; H. J. WOODALL; *and others.*

The polar equation of a conic referred to the focus F as origin is $l = \rho(1 - e\cos\theta)$, and that of a straight line through P, $\rho\cos(\theta + \alpha) = d\cos\alpha$,

d being the constant distance FP, and α the complement of the angle which the line makes with the major axis. Eliminating θ, we get

$$\rho^2(1-e^2\sin^2\alpha)-2\rho(l+ed\cos^2\alpha)+l^2+2edl\cos^2\alpha+e^2d^2\cos^2\alpha=0.$$

[The rest in Volume.]

10560. (Professor GENESE, M.A.)—If $\{a_1b_2c_3\ldots\}$ be a determinant, and $a_\alpha b_\beta c_\gamma\ldots$ a term, prove the following rule for the sign of a term:—Let p be the number of suffixes after α and *less than* α; q, r, &c., the corresponding numbers for β, γ, &c.; then the sign of the term is $(-1)^{p+q+r+\ldots}$.

Solution by H. J. WOODALL; Professor SARKAR; *and others.*

This follows at once because $p+q+r+\ldots$ is identically the number of "inversions" which occur in the term $a_\alpha b_\beta c_\gamma\ldots$.

Thus, for the term $a_5b_1c_4d_3e_2$ of $\{a_1b_2c_3d_4e_5\}$ after the 5, 1, 4, 3 there are 4, 0, 2, 1 less suffixes, 7 in all; and the sign of the term is minus.

Of course, even numbers may be "cast out" from the counting of $p+q+r+\ldots$.

QUESTIONS FOR SOLUTION.

10716. (Professor CAYLEY, F.R.S.)—In a hexahedron ABCDA′B′C′D′ the plane faces of which are ABCD, A′B′C′D′, A′ADD′, D′DCC′, C′CBB′, B′BAA, the edges AA′, BB′, CC′, DD′ intersect in four points, say AA′, DD′ in α; BB′, CC′ in β; CC′, DD′ in γ; AA′, BB′ in δ: that is, starting with the duad of lines $\alpha\beta$, $\gamma\delta$, the four edges AA′, BB′, CC′, DD′ are the lines $\alpha\delta$, $\beta\delta$, $\beta\gamma$, $\alpha\gamma$ which join the extremities of these duads. Similarly, the four edges AB, CD, A′B′, C′D′ are the lines joining the extremities of a duad; and the four edges AD, BC, A′D′, B′C′ are the lines joining the extremities of a duad. The question arises, "Given two duads, is it possible to place them in space so that the two tetrads of joining lines may be eight of the twelve edges of a hexahedron?" [The duad $\alpha\beta$, $\gamma\delta$ is considered to be given when there is given the tetrahedron $\alpha\beta\gamma\delta$ which determines the relative position of the two finite lines $\alpha\beta$ and $\gamma\delta$.]

—717. (Professor HAUGHTON, F.R.S.) — After the explosion of Krakatoa, in August, 1883, the atmosphere in many places contained numerous vitreous, microscopic plates of felspar, bounded by parallel faces, or by faces making an angle of 2° to 3°. Investigate what solar or lunar halos could be produced by such plates, and state whether they would be white or coloured, and, if so, the order of colours.

—718. (Professor ASAPH HALL, M.A.) — Given $x=a\cos A\pm r_1$, $y=a\sin A\pm r_2$, where r_1, r_2 are the probable errors of x, y; find the probable errors of a, A.

—719. (Professor HUDSON, M.A.)—Supposing that the prosperity of a country varies as the excess of the average individual wealth over a given sum, and that by defeat and civil war one-mth of the wealth and one-nth of the population are destroyed, and the nation has to pay a property tax of $100r$ per cent. to the victor: find what proportion of the population the ruling Government must now put to death in order that the prosperity may be the same as before.

—720. (Professor ORCHARD.)—A small negatively electrified proof-plane is introduced through a small aperture in a spherical shell; the surface-area of the shell is 16π, and it has a positive charge of 200. If, when the proof-plane is 1 foot from the centre of the sphere, the potential there is zero, find the charge on the proof-plane.

—721. (Professor LAMPE, LL.D.)—Solve, for $n=9$, and generally, the equation $2^{\frac{1}{2}(n-1)}\cos x\cos 2x\cos 3x\ldots\cos\frac{1}{2}(n-1)x=1$.

—722. (Professor GOB.)—Sur la bissectrice de l'angle BAC on prend les longueurs $AF_a=AF'_a=(AB\,.\,AC)^{\frac{1}{2}}$; sur celle de l'angle CBA, on prend $BF_b=BF'_b=(BA\,.\,BC)^{\frac{1}{2}}$; sur celle de l'angle ACB, on prend $CF_c=CF'_c=(CA\,.\,CB)^{\frac{1}{2}}$. Démontrer que, si f_b, f'_b, f_c, f'_c sont les inverses des points F_b, F'_b, F_c, F'_c par rapport à une circonférence décrite de F_a comme centre, la figure $f_bf_cf'_bf'_c$ est un carré.

—723. (Professor SCHOUTE.)—In a plane four directly similar figures are given under the condition that any set of homologous lines l_1, l_2, l_3, l_4, taken in a determinate order, form a quadrilateral inscribed in a circle. To show that the centre of this circle describes a limaçon of PASCAL, when l_1, l_2, l_3, l_4 envelope homologous circles of the similar figures.

—724. (Professor ANDERSON, M.A.)—Perpendiculars are drawn to the symmedians of a triangle, at its angular points, forming another triangle. Show that the circumcentre of the former is the centroid of the latter.

—725. (Professor CATALAN.)—Soit, suivant la notation de M. HERMITE,

$$P_n=\int_{-1}^{+1}\frac{Z_n-X_n}{z-x}dz,\ \text{on a:}\ P_n=X_n\left[2\int\frac{dx}{(x^2-1)X_n^2}+L\frac{x+1}{x-1}\right].$$

—726. (Professor DE LONGCHAMPS.)—On donne deux droites rectangulaires Δ, Δ' se coupant en O, et un point fixe P. Par ce point P, on trace une droite mobile coupant Δ, Δ' aux points A, A′. Soit Γ la circonférence circonscrite au triangle OAA′. La droite qui joint le milieu de OA au point qui, sur Γ, est diamétralement opposé au point O, coupe Γ en I. Trouver le lieu géométrique de ce point I. Ce lieu est une circonférence.

10727. (Professor WOLSTENHOLME, M.A., Sc.D.)—If the equation of a conic be $u\equiv(a,b,c,f,g,h\between x,y,1)^2=0$,

the equation $4\lambda u=\left(\frac{\partial u}{\partial x}\right)^2+\left(\frac{\partial u}{\partial y}\right)^2$, where $(\lambda-a)(\lambda-b)=h^2$

is the equation of its directrices. (One value of λ gives the real, the other the impossible, directrices.) Or it may be written:—The equation of a pair of directrices of any conic $u=0$, is $2\lambda u=\left(\frac{\partial u}{\partial x}\right)^2+\left(\frac{\partial u}{\partial y}\right)^2$, where λ is given by the equation $\left(\lambda-\frac{\partial^2 v}{\partial x^2}\right)\left(\lambda-\frac{\partial^2 u}{\partial y^2}\right)=\left(\frac{\partial^2 u}{\partial x\partial y}\right)^2$.

[The greater root to be taken when Δ is negative.]

—728. (Professor MORLEY.)—Three points are inverted with regard to their centroid. Show that the centroid becomes a focus of the maximum ellipse inscribed the triangle formed by the inverse points. Which focus?

—729. (Professor KEELHOFF.)—Étant donné un cercle O, on abaisse d'un point M de sa circonférence une perpendiculaire MP sur un rayon fixe OA, puis on prolonge PM de MN $=n\,.$ OP. (1) Démontrer que le lieu de N est une ellipse; (2) trouver les axes de cette courbe; et (3) construire la tangente en N.

—730. (Professor DÉPREZ.)—Trouver l'enveloppe des axes des coniques touchant les côtés AB, AC d'un triangle, et ayant pour asymptote le troisième côté BC.

—731. (The EDITOR.)—Show that (1) through a given point in the bisector of a given angle there can be drawn, by elementary geometry, two straight lines each equal to a given line, but (2), if the point be out of the bisector, the given or minimum line through it cannot be drawn by *elementary* geometry; and (3) from (1) construct a triangle, having given the base, the vertical angle, and the line bisecting that angle and terminated by the base.

—732. (J. D. H. DICKSON, M.A. Arising out of 10690.)—Find integral values of x, y, z to satisfy the equations

$$x+y+z=0,\quad x^2+y^2+z^2=2\square.$$

—733. (R. TUCKER, M.A.)—A′B′C′, A″B″C″, are circum-triangles of ABC, so drawn that A′B′, A″C″ pass through A and are perpendicular respectively to ΩA, Ω'A, &c.; prove that, if Ω_1 (A′B′C′), Ω'_1, (A″B″C″) are the other Brocard-points of the circum-triangles, then the four Brocard-points form a rectangle of which the circum-circle is (5) of Quest. 10139 (see *Reprint*, Vol. LI., p. 119) and the Brocard-points (above) are the Brocard-points of the diametral triangle of ABC. [For general properties of the above triangles, see SIMMONS's *Recent Geometry*, p. 178.]

—734. (G. F. HOWSE, M.A.)—If three circles be drawn touching one another two and two, prove that the two circles touching all three and their common orthogonal circle, are coaxal.

—735. (R. CHARTRES, M.A.)—A particle projected from one extremity of the horizontal base of a triangle falls at the other extremity, having passed through the orthocentre and the centre of the in-circle of the triangle: prove that the sides of the triangle are in arithmetical progression.

—736. (R. H. W. WHAPHAM, B.A.)—ABC is a triangle inscribed in a circle; DE is a diameter bisecting the base BC at G; from E is drawn a perpendicular EK to one of the sides; and the perpendicular from the vertex on DE meets DE in H. Show that EK touches the circle GHK.

—737. (R. F. DAVIS, M.A.)—Give a *geometrical* proof of the formula

$$\cot\omega=\cot A+\cot B+\cot C.$$

—738. (E. LANGLEY, M.A.) — If O, A, B, C, D be five concyclic points, prove that the projections of O on the SIMSON-lines (or Pedal-lines) of the four triangles BCD, CDA, DAB, ABC with respect to O lie in a straight line. [This straight line may be called the Pedal-line of the quadrilateral ABCD with respect to O.]

—739. (MORGAN BRIERLEY.)—The two triangles formed by joining and producing the points of contact (of each pair of sides produced), and by joining the centres of, the escribed circles of a triangle ABC, intersect in six points, and form a hexagon, the lines joining the opposite angles of which bisect the perpendiculars from A, B, and C, upon the opposites BC, AC, and AB. Required a demonstration.

—740. (D. BIDDLE.)—A spherical shell, of radius r, but of infinitesimal thickness, is filled with equal volumes of two liquids which are of different densities and non-miscible. The sphere is placed on an inclined plane of gradient α. Find (1) the greatest ratio which can subsist between the densities of the liquids, in order that the sphere may roll without skidding, (2) the ultimate relation, as to position, of the two liquids.

—741. (WALTER STOTT.)—Prove that the solution of

$$\frac{d^2y}{dx^2}-ax\frac{dy}{dx}+\mu ay=0$$

is

$$y=x^\mu-\frac{\mu(\mu-1)}{2a}x^{\mu-2}+\frac{\mu(\mu-1)(\mu-2)(\mu-3)}{2a\,.\,4a}-\ldots.$$

10742. (J. Griffiths, M.A.)—If

$$\Omega = a_0 \frac{d}{da_1} + 2a_1 \frac{d}{da_2} + 3a_2 \frac{d}{da_3} + \ldots, \quad \Omega\lambda = -1,$$

and S be a covariant or semi-covariant, prove that $\left(\frac{d}{dy} + \lambda \frac{d}{dx}\right) S$ is a semi-covariant. [*Note.*—In this case the operators $\frac{d}{dx}$, $\frac{d}{dy}$ are supposed to be applied to the coefficients a_n, a_{n-1}, ... as well as to the variables x, y in S.]

—743. (W. J. Greenstreet, M.A.)—Prove that

$$\int_{-1}^{+1} A_n B^{-3} dy = \frac{2x^n}{1-x^2}, \quad \int_{-1}^{+1} A_n B^{-5} dy = \frac{4}{3} \frac{x^n}{(1-x^2)^2} \left(\frac{2n+3}{2} + \frac{2x^2}{1-x^2}\right),$$

where $\sum_0^\infty (A_n x^n) = (1-2xy+x^2)^{-\frac{1}{2}} = B$, $\int_{-1}^{+1} A_n B^{-1} y = \frac{2x^n}{2n+1}$.

—744. (J. J. Barniville.)—O is the centre of a circle, P a fixed point within it, AB an arc of constant magnitude; OA, PB intersect within the circle at C. Find the locus of C as AB moves along the circumference.

—745. (S. Tebay, B.A.)—a, b, c are conterminous edges of a tetrahedron; A_1, A_2, A_3 the areas of the faces contained by bc, ca, ab; A the area of the base, and x, y, z the radii of gyration about a, b, c; show that

$$(ax)^2 + (by)^2 + (cz)^2 = A_1^2 + A_2^2 + A_3^2 - \tfrac{1}{5}A^2.$$

—746. (R. Knowles, B.A.)—A hexagon is inscribed in a conic; prove that the points of intersection of the diagonals of the two quadrilaterals, formed by the sides of the hexagon and one of its diagonals, and the point of intersection of the diagonals of the corresponding circumscribed hexagon are collinear.

—747. (Rev. T. C. Simmons, M.A.)—A triangle is formed by three straight lines chosen at random. Show that the chance of its being acute-angled is $\frac{1}{2}(4-\pi)$ or ·4292 nearly.

—748. (Colonel Clarke, C.B., F.R.S.)—If two intersecting circles of given radii are crossed by a straight line, find the chance that the line crosses the space common to both circles.

—749. (Sir R. S. Ball.)—Show that the tension of the string of a prismatic bow is $\frac{\pi^2 EI}{L^2}\left(1 + \frac{\pi^2 D^2}{8L^2}\right)$, where E is the coefficient of elasticity, I the moment of inertia of the section of the bow, L the length of the bow, and D the distance between the centre of the string and the centre of the bow. Also, explain why the tension does not vanish when D = 0.

—750. (H. McColl, B.A.)—If m points be taken at random in a given magnitude, and the magnitude be then divided into n random parts, and one of these parts be taken at random; find the chance that this part will contain at least one of the m points.

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Vol. XLIII.] New Series, No. 355. NOVEMBER 1, 1890. { Registered for Transmission Abroad } *Price to Non-Members, 6d. By Post, 7d.*

COLLEGE OF PRECEPTORS.—
EXAMINATIONS FOR 1890.

1. DIPLOMAS.—The Christmas Examination of Teachers for the Diplomas of the College will commence on the 30th of December.

2. CERTIFICATE EXAMINATIONS.—The Christmas Examination for Certificates will commence on the 9th of December.

N.B.—The Higher Certificates of the College are recognised by Her Majesty's Judges, and by the General Medical Council, as guarantees of good general education; and consequently the holders of them, who may be intended for the Legal and Medical Professions, are exempted from the necessity of submitting to the Preliminary Literary Examinations held by the Incorporated Law Society, and by the various Medical Corporations of the United Kingdom. The Lords of the Committee of Council on Education admit the holders of the same Certificates, without further examination, to the Competition for allowances granted to Students of the Junior Training Class of the National Art Training School. All the College Certificates above the Third Class, the holders of which have passed an Examination in Latin, are also recognised by the Pharmaceutical Society and the Royal Veterinary College.

3. EXAMINATIONS FOR CERTIFICATES OF PROFICIENCY IN MERCANTILE SUBJECTS.—The next Examination will take place on the 8th of December.

4. PROFESSIONAL PRELIMINARY EXAMINATIONS.—These Examinations are held in March and September. The next Examination will commence on the 10th of March, 1891.

5. INSPECTION OF SCHOOLS.—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

PRIZES.

Diploma Examination.—In addition to the Doreck Scholarship of £20, the following Prizes will be competed for: Theory and Practice of Education, £10; Classics (Greek and Latin), £5; Mathematics, £5; Physical Science, £5.

Certificate Examination.—The "Isbister Prize" will be awarded to the Candidate who stands First, and the "Pinches Memorial Prize" to the Candidate who stands Second in General Proficiency. Prizes of Books will also be awarded to the Third and Fourth in General Proficiency, and to the First and Second in the following subjects:—Classics, Mathematics, Modern Languages, Natural Science, English Subjects. The "Taylor Jones Memorial Prize" will be awarded to the best Candidate in Scripture History.

The Regulations of the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

PRELIMINARY EXAMINATION of MEDICAL STUDENTS.—The COLLEGE of PRECEPTORS will hold an Examination for Certificates recognised by the General Medical Council as qualifying for Registration as a Medical Student, on the 10th, 11th, and 12th of March, 1891.

The Examination will take place in London, and at the following Local Centres:—Birmingham, Bristol, Leeds, Liverpool.

Examination Fee, 25s.

Regulations and Entry Forms may be obtained on application to the Secretary of the College of Preceptors, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—
MEMBERS' EVENING MEETING.

The next Monthly Evening Meeting of the Members will take place on Wednesday, the 12th of November, when Dr. JAMES SULLY, M.A., will read a Paper on "How the Child becomes a Learner."

The Chair will be taken at 7.30 p.m., and a discussion will follow the reading of the Paper.

Members have the privilege of introducing their friends C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—
SCHOLARSHIPS FOR INTENDING TEACHERS.

With the view of encouraging the systematic training of teachers for their profession, the Council have established four Scholarships (two for male and two for female candidates), which will be offered for competition at the Certificate Examination in June, 1891.

The value of each of these Scholarships is £45 for a single year, or £30 a year for two years, if the candidate should determine to extend the period of training over more than one year.

The Scholarships are tenable

(*a*) At any Training College for Teachers in Secondary Schools, either at home or abroad, that may be approved by the Council; or

(*b*) At any school of established reputation, approved by the Council, which is prepared to offer such facilities for training as may be satisfactory to the Council; it being open to the Council to require the attendance of the scholar at such lectures on the Theory and Practice of Education, and to require him or her to pass such examinations in the Science and Art of Teaching, as the Council may determine.

Candidates (who must not be under 17 or over 21 years of age at the date of the Examination) are required to declare their intention of competing for these Scholarships prior to the Examination, and to submit such testimonials of character as may be considered satisfactory by the Council.

The Scholarships will be awarded to those candidates who, having fulfilled the above conditions, obtain the highest places in the Honours Division of the First Class. C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—
LECTURES FOR TEACHERS.

Two Lectures on "ELEMENTARY LANGUAGE TEACHING," by ARTHUR SIDGWICK, Esq., M.A., will be delivered in the College Lecture Hall, on Friday evenings, the 14th and 21st November, at 7 o'clock.

Members may obtain cards of admission for their friends on application to the Secretary.

C. R. HODGSON, B.A., *Secretary.*

UNIVERSITY DIPLOMA FOR WOMEN.

THE UNIVERSITY OF ST. ANDREWS grants Diploma and Title of L.L.A. to WOMEN. *Subjects of Examination and Examination Papers* include those for the M.A. Degree. For Prospectuses, apply to the SECRETARY, L.L.A. Scheme, The University, St. Andrews, N.B.

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Candidates for Degrees are required not only to pass the necessary Examinations, but also to attend prescribed Courses and Classes in a College of the University.

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Communications regarding Examinations, Attendance, and University business generally, should be addressed, The REGISTRAR, Victoria University, Manchester.

The Calendar (price 1s.), containing the Regulations, Copies of Examination Papers, Lists of Graduates, &c., is published by Mr. J. E. CORNISH, Manchester, and by Messrs. MACMILLAN & Co., London.

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This Examination will qualify Candidates for registration as Medical Students.

A Syllabus of the Subjects, which, according to the Regulations of the General Medical Council, may be passed at one or more Examinations, can be had on application.

An Examination in Arts will again be held on the 6th and 7th of March, 1891.

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NATIONAL FROEBEL UNION.—LOWER AND HIGHER PRELIMINARY EXAMINATIONS, Tuesday, January 20th, 1891.

For particulars, apply to Miss A.M. CLIVE BAYLEY, 12 Buckingham Street, Adelphi, W.C.

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English	The Principal.
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Welsh	Lecturer—J. Morris Jones, B.A., late Scholar of Jesus Coll., Oxford.

II. *Science.*

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Chemistry	J. J. Dobbie, M.A., D.Sc., late Clark Fellow of Glasgow University.
Biology	R. W. Phillips, M.A. (Camb.), B.Sc. (Lond.), late Scholar of St. John's College, Cambridge.
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LONDON B.A.

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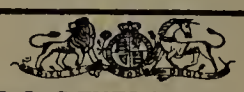
Gold Medals,  Paris, 1878: 1889.

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COLLEGE OF PRECEPTORS.

Evening Meeting, October 15th, 1890.

The Chair having been taken by W. J. Reynolds, Esq., M.A., the following paper by Mrs. S. Bryant, D.Sc., was read by Miss S. A. Burstall, B.A., in the absence of the author, who was unfortunately prevented by illness from being present at the meeting.

SOME CHARACTERISTICS OF A SOUND INTELLECT.

When it is desired to ascertain the size and shape of a room the problem is easily solved by the application of a foot rule, and the use of certain well-known geometrical and arithmetical principles. With this example in mind it is possible to conceive of an enterprising pedagogue who might seek to gauge the kind and magnitude of the human minds committed to his care in terms of the various faculties which, to use the popular phrase, they possess. The estimates of such a one would be stated somewhat as follows:—Perception, 60°; Conception, 50°; Imagination, 10°; Reasoning, 5°, and so on. For the estimate of moral qualities he might, in his imaginings, use a similar process and thus, having applied his tape measure all round the intellectual and moral man, he would assign to each subject of measurement his proper place in a list of candidates competing for places.

Now I am not going to assert that this notion of applying the tape measure to the qualities of the inner man is so wholly fallacious as to be quite useless for the practical purpose of selecting candidates for particular offices in certain cases. That *physical* qualities can be so measured has been shown by several, Mr. Francis Galton being probably the best known experimenter, and in a sense, faculty, as well as knowledge, is measured in all examinations. Indeed, I have no doubt that we could measure in ways similar to those employed in physical measurements, though less accurately, some of a man's intellectual powers. The difficulty, however, even in a partial way, is very great, so great that only those who have tried can easily appreciate how great it is, and the notion that the whole character of the man or child could be apprehended by measurements ever so distantly approximate, as one apprehends the size and magnitude of a physical object, is one which can only be characterized as an inconsiderate dream.

One reason why we cannot measure the more fundamental features of character is that they are all mutually involved, and another is that we cannot possibly select a unit of measurement in the ordinary physical sense. Now, reflection on this source of difficulty suggests the thought that, after all, though we cannot measure A's faculties as we measure his height and weight, we could estimate A's *humanity as a whole* by comparing his manifested character as a whole with the typical character proper to a fully and normally developed humanity. We may estimate him by his divergence from the type. This normally developed type is, in fact, the only unit possible to us. It is not a unit proper, but a maximum or limit. Average human nature will not answer instead, partly because we cannot determine, except when statistics are applicable, what average human nature is, and, moreover, the average changes from age to age. On the other hand, we can determine the characteristics of the type, first, because we all have a knowledge, more or less, of the type as that which, at our very best, we tend to become; and secondly, because, looking outside ourselves, we know the type by the fruits it brings forth, moral use and intellectual truth.

In the intellectual sphere doubt and difficulty as to the nature of the type are least when we look to the objective test of a good intellect, namely, its habit of thinking and finding the truth. When we do not digress into metaphysical subtleties, we know quite well what we mean by truth. It is therefore not so hopeless—I will not say it is not hard—to determine generally the character of the truth-producing mind, and the truth-producing mind is the mind of sound intellect.

Ability to find truth is the general mark of a sound intellect, sound in sense, sound in judgment, and sound in reasoning. Such an intellect is subject to no illusions of sense, does not see things where they are not and as they are not, does not hear statements that were never made, nor report events as they never occurred, but hears, sees, and therefore reports accurately, in accordance, that is to say, with the actual facts of the case. The sound mind, for instance, sees a shadow on the wall, or a moonbeam through the window, when another sees a hooded ghost. Such a mind, moreover, rightly interprets the impressions received, bringing to bear on them the full light of its previous experience: it judges soundly; it sees things whole; it does not muddle new impressions and old together, but understands in orderly, consistent sequence those relations of the new to the old which make the new intelligible. It appreciates the fact that a noise in the street is *not* the sound of a gunpowder explosion, and that the baby's cry upstairs is *not* that of an infant in dire distress. Just as in sound perception we say that is not so and so, meaning that the fact is different from the idea as which we were about to perceive it, so in sound judgment we say precisely the same thing, meaning to condemn the inference which too hastily springs into being, because we keep our heads and note that the facts are not consistent with our theory. The sound intellect observes accurately, judges soundly; it also reasons correctly, and the correctness of its reasoning is a simple consequence of the soundness of its judgment. It rejects pairs of inconsistent judgments unrelentingly, just as it condemns the moonlight ghosts and the slovenly single judgments—the false interpretations of fact by thought, through lack of steadiness in perceiving that facts and ideas are inconsistent with each other. Reasoning differs from judgment only in this, that in reasoning we compare ideas only with ideas for the time, and reason correctly if we leave no inconsistencies behind. A sound reasoner may not indeed see his way to escape inconsistencies which press on him from the facts of the case, but the mark of his soundness is his sense of the inconsistency, and his ever-present desire to get rid of it.

A mind, therefore, is sound—sound in perception, sound in judgment, sound in reasoning—when, and when only, it is active in the rejection of inconsistencies between thought and things, and wideawake, therefore, also, to receive every scrap of information that comes to it, shedding new light of consistency or inconsistency on its old contents. It must be, at one and the same time, an open, docile, receptive mind and a strictly accurate, logical mind, insistent upon seeing truth for itself solid and transparent through and through.

In all intellectual work, two constant sources of error accompany us. There are two ways in which we can err, and only two in general. We may fail to see *all* the facts of the case, or we may fail to see clearly *all* our own ideas of the case. We may fail in either Sight or Insight—in clearness, steadiness, and completeness of either the outer or the inner vision. There is no such thing as a person who takes black for white: he only seems to do so who fails to see either clearly when he makes an assertion, and such people are quite common—people who use words occasionally without plainly seeing in their mind's eye the thought for which the word stands—people who handle

things occasionally without in the least adequately perceiving the qualities of the things, and who yet dare to make assertions about them afterwards, founded on their ignorance of the qualities they never saw.

Sight and Insight sufficient for the subject under consideration, these are the requisites of an intellect easily and instinctively sound, in observation, in judgment, in reasoning. That persons differ greatly, in respect of the degree in which they are endowed with these qualities, is matter of common remark. Especially we notice the people who never can turn up the contents of their own minds and get a good look at them—a good look at a considerable portion of them all at once. We have none of us too much of this power—this gift of rapid and wide-grasping insight, and so we do not see our thought whole, solid, and transparent as we would. Some can only just put two and two together, getting hold of a few ideas laboriously in slow succession, while others in the same time sweep through the length and breadth of memory, and turn out relevant ideas by the score. No wonder that the two extremes should seem so different—cleverness with its rapid and searching insight sweeping out all the corners in an instant, and stupidity, heavy and slow, blinking her eyes over the few links in the argument which she chances to stumble upon. Blind of soul she seems to be, but in truth it is just this heavy slowness of hers which is the chief trouble. If she were impelled to faster motion by stimulus and encouragement, surely she would see more of her ideas, and get to be a good deal less blind. Lack of insight is perhaps no more than lack of mental activity—lack of the impulse to search out thought. What, then, is the cure? The cure is practice in this search—this looking through our ideas, which we generally undertake with a view to find the clue to understanding some fact present to our senses.

Suppose a child had been shown a certain variety of flower in a group of others belonging to the same order, and afterwards saw the flower by itself. Now, it is a fact of insight that his mind turns up the memory of the whole group complete, and this memory makes the single flower intelligible—enables him to perceive it for what it is—to recognise it—to know it again in its proper relation to others. A child with many opportunities for such perceptions, and using them, is *practising* insight—the power of calling ideas to mind as they are needed. We cannot see what is not in our minds, but we do very well if we do see at the right instant all that is there, and is appropriate.

Suppose, again, that a man has to decide on a course to be pursued under given circumstances. Say, to take a most complex case, it is a question in politics, a problem in government, perhaps. How is his decision based, if based on pure intellect at all? He sees, on the one hand, the requirements of the situation, and he must see them all—all that are essential; he must look about and make sure that he has seen them. There are the special facts—what he has to *see*, as the boy has to *see* his solitary flower blooming in the common garden. Then, on the other hand, he has to look to his ideas—his notions of national experience derived from history—(if he has none, then he ought, if possible, to acquire them)—he has to look to his principles, his general notions of right and wrong, his traditions which he supposes probably to be inferences from history, and to all else in his permanent current of thought that affects the question. Thus, with the facts and his ideas before him, he devises a solution of the problem that shall harmonise them all—shall satisfy the requirements as understood in the light of historical experience, and shall be consistent with his notions of what ought to be done. Evidently the degree of Sight and Insight required in such cases is very great, and for some of the social problems that are pressing towards solution we may well wonder whence the necessary degree will come. Nor is it matter of surprise that differences of opinion should be so great, and even embittered as they are. More sight, more insight, and then, if we were all honest and had similar ideals, we should all be agreed.

Without the appropriate ideas, the right judgment is not possible; the statesman must have principles, and a knowledge of human history. But with them it may still be missed; the facts and the ideas are not all clearly grasped at once, so that the ideas may interpret the facts. Thus it is also essential to see the facts, and it is quite common not to see them. Power of insight is, indeed, a great source of intellectual inequality; but so no less is power of sight.

There are persons whom nothing escapes. Notice, by the way, the carefully-trained observant excellence of the doctor—his power of seeing differences where others detect similarities only. Others go through the world with their eyes shut; we call them *dull*, or, if they are bright in other ways and not dull when roused, simply unobservant. Like lack of insight, lack of sight shows itself alike in simple perceptions, and in the most complex acts of judgment. Open eyes and open ears, searching eyes and searching ears are essential elements of intellectual success, and the cultivation of observant habits is, though much neglected, universally admitted to be of great importance.

Rapid sight and insight naturally issue in quick decision, thoroughness of sight and insight in sound decision. But when facts and thoughts are imperfectly grasped, decision is unsound, and, though ever so slow, must still be called hasty. Those who do not grasp rapidly ought not to act quickly; but if they are active-willed and energetic they probably do. Hence arises that state of things one example of which is suggested in the maxim, "Marry in haste and repent at leisure." The haste is haste, because the whole matter was not fully turned over in mind and comprehended before action. Repentance comes because neglected considerations turn up too late. It is not quickness of decision that hurts, but decision before full account has been taken. When that is done there can be no repentance.

The caution against haste in action should really be directed against incompleteness in the deliberations that precede action. The true maxim is not to judge till you know, and not to decide till you make up your mind. In default of knowledge, the only true attitude is suspense of judgment, although sometimes we must act towards an end of which we are not sure, because we think an experiment better than inactivity.

Soundness of intellect is clearness of vision. The exhortation, therefore, to be sound, correct, accurate, is an exhortation to see clearly and vividly the objects of your thought, to acquire the gifts of sight and insight. To be accurate is to see clearly; and it is our duty to be accurate, as it is our duty to be just.

It comes to this, then, that in so far as we are dull enough and stupid enough to make mistakes, it is our duty to acquire, laboriously and patiently, those gifts which have been conferred abundantly upon the most brilliant of the race. This is as absolutely a duty, though it may not be always so pressing a duty, as justice and charity, as courage and self-denial.

The duty can be fulfilled. The gifts which the gods give to some can be earned by others. Just as men learn to be courageous by acts of courage, and self-denying by deeds of self-denial, and just by living justly, so they learn to be observant by observing carefully whatever they observe, and logical by steadily attending to their thoughts when they have thought them. They learn to see by looking—to see facts as they are by forming a habit of careful attention to the facts. They learn to see the inner world of their own thought with something of the wise man's insight, by forming a similar habit of inward attention—a habit of search and scrutiny in the world of thought, as careful and complete as the search and scrutiny it is so much easier to apply to the outer world of things. A habit of looking begets, in due course, a power of seeing. A habit of searching begets in its time a power of finding.

And so, by a careful process of training, the dull perceptions may be sharpened, and the slow, stupid wits considerably quickened. Sleepy senses may be awakened and blinking intellect trained to be open-eyed. The soul comes into the enjoyment of its visual powers; it sees the world and can find its way about its own mind—can draw out of its treasure-house the things new and old that it needs for thought.

The service to this end which can be rendered by parent to child is of inestimable value. Set a child to observe and to tell you what he sees. When he comes to you empty-handed or with imperfect information, do not supply it, but send him back to his facts to find more. Then, as he mixes up inferences with his observations, note the false ones and send him either to his facts or his thoughts to correct them. And if his information be unintelligent—if, his intelligence being slow, he fails to interpret his impressions and see what they mean, then send him steadily to his thoughts; ask him to think whether he can remember having seen anything like the object in question before: don't tell, don't hint; get him to reflect—to search his ideas; this is cultivation of insight.

For example, suppose it has been a wet morning. You send your little boy to the window or door to find out for you what the weather is like. "It is raining," he says. You know that it is not raining at that particular moment. You ask if he is sure—how did he know? "The flags are all wet," he says. But is the rain falling now? you ask—did he notice? He is not sure that he did—in fact, he jumped to his conclusion—and away he runs

to see whether there are drops coming down. This means putting out a hand or a head, or looking at the pools to see the drops fall, and he comes back to say that there are no drops. "It is going to be fine," another jump and another chance for a lesson. "Why fine?" "The rain has stopped." "Have the clouds gone? do you think the sun is going to come out? Are you sure it will not begin again?" Or better far, you may suggest all this to him, if he has the previous knowledge, by your simple and jovial scepticism about the coming fineness. Again he goes to look at the clouds. The proverbial strip of blue sky is remembered, and he scans the heavens to find it, this time probably very carefully. None, he reports; clouds all over still; no sign of the sun. Then, if you are a good parent or teacher, you will look out too and verify that observation, and, if there are any signs of improvement visible which he does not know, show them to him. Those he does know, he should find in his mind for himself. I doubt if there is any better object-lesson than the signs of the weather. In my childhood I remember much informal training of this kind, such as parents instinctively give to their children when they take much notice of them, and I believe it left its mark more or less on every member of the family.

Mental blindness is not quite the same thing as carelessness or as inattention, but it is curable by careful habits of attention. "I saw—I thought—I heard him say"—when these are misstatements, as they often are, it is because the person making them was guilty of mental slovenliness. Inaccuracy is slovenliness in this strict sense: that it is curable in any person who will recognise it as slovenliness in himself, and treat it as such. Of course this doctrine must not be pushed too far: a feeble mind may be over-weighted and made feebler by the sense of this burden of intellectual duty laid upon it. But exactly the same remark applies to all moral claims. There are persons so feeble—it is in part a question of physique at the bottom—that it is cruel and absurd to expect more than a very moderate goodness from them. But a great many dull and stupid people are not feeble—have not their intellectual possibilities limited practically by physique—and they may labour safely at improving themselves.

The parent who notices the child's defects of observation and intelligence, and who sends him back to his facts and thoughts for more, is exercising in the best sense, and for its true purpose, the faculty of criticism. Moreover, he is training the child to exercise that faculty on himself. The little boy of the weather-report is not only learning to look round more carefully for his signs in an instinctive way. He is learning to say to himself "Am I quite sure? *Have I looked at everything? Have I thought of everything?*" and the person who so treats himself is a sound critic, and is setting himself steadily in the way to find truth.

A sound critic—that is not a person who has an infinite capacity for finding holes in other people's work, without either capacity or desire for patching them up or darning them over. Such a person may serve a useful purpose in society, but only because other people darn the holes which he finds. As a human being, whole and sound, one must be a critic of the complete kind, and not simply the finder of holes. And if we cultivate our critical faculty by criticism of ourselves in the main, this is the surest way to success. Criticism should be based on a dread of error rather than on a satisfaction in finding it—on an anxiety to find the truth, an earnest care to be consistent in thought and with fact.

Once a man or a child has fairly started as a self-critic, his growth in sight and insight is sure. He will inevitably improve his sensibilities, his habits of attention, his grasp of thought, his power of observation. Moreover, if a man be deficient as a critic, he will, no matter how great his gifts, be sure to commit himself to many errors. No man has gifts so great as to make occasional slips of thought and defects of observation impossible. No man is clever enough to dispense with himself as critic of all his thought, honestly vigilant against his own inevitable lapses of attention.

Honestly vigilant in the interests of truth! The more closely we look at this excellence of the critical impulse the more clearly do we discern in it the features of the old-fashioned virtue of honesty. We are *liable to error* because our faculties are not infinitely powerful; and we *fall under the dominion of error* because, from laziness, from prejudice, from personal spite, from party spirit, from self-conceit, obstinacy, and for a thousand other reasons, we allow ourselves the liberty of accepting lies for truth. All men are liable, though not indeed equally, to slips of thought. It should, perhaps, be a comfort to the weaker brethren to know that great thinkers—the greatest—are subject to their own poor weaknesses, only less so. And, for great and small alike, there is but one rule of rectification, persistent vigilance, namely, with a view to banish all intrusion of error into the sacred field of belief—the serious workshop of the mind. Honest self-criticism—the constant question "Am I right, is this true?"—this is the one and only cure, a faithful discharge of the police function of thought whose business it is to drag before the logical tribunal all those false products of the actively-working mind which, lurking in dark holes and corners, are believed till discovery leads to condemnation. If we take care of the police, the judge will take care of himself, and just as an active police force of the right sort is in itself a preventive to the existence of thieves and vagabonds, so does an active critical faculty ultimately prevent the formation of erroneous ideas, by its tendency to produce a settled habit of sound instinctive judgment killing off false ideas before they are born into consciousness.

And the spring of a steady habit of self-criticism is the fixed purpose of intellectual honesty. The honest man abhors deception; he is all for the truth at any cost. He is ready to sacrifice pleasure, to suffer pain no less, for the sake of his consciousness that he is acting and thinking as all men might see him, without any shame of his. He takes, as it were, mankind to witness with him that no doubleness of mind may be found in him at all—that all his thoughts and purposes are of one consistent piece with which his words and actions harmonise. He is transparently sincere to others, he is no less upright and single-minded to himself, ever reaching forward to closer harmony with truth. If he be a religious man he is marked by that keen sense of his life being ever in God's sight, under the eye of the Almighty and Holy One, which is so vividly portrayed in many passages of Scripture. As a religious man his character is recognisable under the name "holy," but simply as a moral man we call him "honest."

In the works of intellect he insists on seeing the thing through and through, on knowing all the facts, and on having perfectly clear and consistent views about them. Now, this is troublesome, because it is generally very difficult, and, in all subjects not yet cleared up to the mind of man, it is impossible to have knowledge which is at once complete and consistent. Many people find consistency easily by refusing to acknowledge any more facts after they have "interviewed" enough to make up their minds to a "view." These are of the narrow-minded logical type, which forms one class in the great company of the intellectually dishonest—the largest class, I think, because it is easier for the educated mind to shut its eyes than to be inconsistent. Others, again, are open-eyed enough, but hold self-contradictory opinions—believe mutually contradictory assertions—with the greatest equanimity. Now, since contradictions sometimes turn out to be apparent rather than real, we must not condemn inconsistency too hastily. It is the *equanimity* that should be condemned, the contented stopping still in a position that must involve partial error. The honest thinker should be open-eyed, always ready to receive new facts, to sift new opinions; but he must strive for unity none the less, and hold judgment in suspense where he cannot attain it. Nevertheless, the more common way of failing from intellectual honesty lies in the shutting of the eyes to disturbing facts. Men are like "the deaf adder that stoppeth her ears." "The voice of the charmer," uttering wisdom as an assertion of facts, is unwelcome, when it upsets those comfortable little worlds of theory in which we too often envelop—ay, and encrust ourselves.

Now, intellectual honesty, like any other virtue, may be either instinctive or deliberately acquired. With those very honest people whom we sometimes meet, it is probably instinctive. Practically they were born honest, and are therefore throughout life persons of conspicuously sound mind, fair in argument, just towards opponents; ready to accept new ideas, showing constantly a disinterested and immovable preference for truth. They need not be *enthusiastic* lovers of truth; they are sometimes cold enough; but, whether enthusiastic or not, they can neither fashion nor believe falsehood, nor can they satisfy their own soul with lies. Their friends sometimes think them "horrid," and even uncharitable, because they frown at cosy little bits of gossip and refuse to believe in the sacred authority of the *on dit;* and another objection to them is their rooted inability to act when they don't see their way.

Perhaps these are the reasons why one has never read of a fairy godmother who bestowed the gift of intellectual honesty

on the young prince at his christening. Yet there is no gift so far-reaching in the value of its mental consequences. An honest regard for truth is not only good in itself, but it makes a man industrious, docile, accurate, thorough, and, in the long run, wise. Happy he who is born with a predisposition to such a character!

He is not met with every day. Perfect intellectual honesty, unflinching regard for truth, is one of the rarest of mental excellencies. Some have never consciously sinned, but only because they have never been tempted enough: to the student honesty is easier than to the man of action. Others, again, have sinned so often and so constantly that they have not the least idea how dishonest they are. Yet they may be truthful people enough, in that ordinary sense in which truthfulness, so called, falls as far short of real truthfulness as a cook's habit of taking only your tea and sugar falls short of your ideas of strict honesty. It is well known that people who would not tell lies readily believe them on manifestly insufficient evidence, and even go the length of resisting evidence to the contrary. Yet the honesty I speak of is a higher thing than even the regard for truth that is proof against these snares. It is a zealous honesty that tracks out lies and holds them up to the light, that stops the false cheque and detains the bearer.

The ways of dishonesty are many and diverse. The man who slanders his neighbour is a malicious liar, but he who easily believes and propagates the slander is maliciously deficient in the perfect spirit of honesty. The honest man is a dead wall to all reports of evil till he has proved them true, except, indeed, when it is his duty to act on suspicion, and to that end take into his confidence, not the whole world, but the few trusty persons who should act with him. Propagation of slander to no end is as wrong as slander, and only a little less wicked.

The man who, in support of an argument, invents facts is a liar under the not only discreditable motive of affection for his theory. He may be a fanatic or a hot-headed politician, or he may, alas! be an interested partisan proving black white for his own advantage. That liar is, however, tinged with folly who invents many facts. The cleverer way is to *hint* your fictions—not to tell them to the audience, but suggest them only. Much, too, may be done by simple suppression of the truth—statement of the facts that tell for you, and resolute suppression of all the others. This is a method so plausible that in a moderate degree men are slow to condemn it. Yet it has clearly the very root of dishonesty in it, and must sap the intellectual *morale* of any man who adopts it. Suppression of the truth is dishonest, but there are subtler forms much than this, and more plausible. To know a fact, and suppress it, is bad; but to carefully avoid knowing it is not much better—the shutting of the eyes to unwelcome facts. Of all dishonesties, this is the most common. Children don't hear what they are asked to do when they don't want to do it; authors with pet theories don't find the facts which tell against them, or satisfy themselves that, however relevant, they are quite irrelevant.

The active politicians are a much-tempted race in this respect. Condemn them, by all means, when they, by invention, suggestion, suppression, or culpable ignorance, pervert the truth, either for themselves or others; but condemn them humbly, if you are not an active politician yourself, remembering that the temptations of men enthusiastic for the attainment of ends in which they believe, committed to wordy warfare for ever with a vigilant foe, heated by the many passions of party strife and the nobler passions of enthusiastic purpose—the temptations of these are great and subtle, and appeal not all to the baser elements of our humanity.

Much less tempted is the man who makes theories, and writes them, not in a newspaper, but in a book. Yet how often he also stuffs his ears with wax, and when he, nevertheless, hears unwelcome voices, assures himself that they are of no consequence. The essential facts are so and so—they all tell for his theory; for the others he pooh-poohs them, and leaves them out of his book. And so he misleads the public till the critic comes along—and that may take time—and charges him, if he be a rude critic, with gross and culpable ignorance.

The thinker who writes books errs for love of his pet theory. So does the mere student in silent fashion for love of prejudices and preconceived ideas. New facts and new arguments threaten his little world of thought. It is so easy to despise them. A frank, though not honest, person says, "I don't want to believe this," but the more cultivated and subtle way is to pick frivolous holes in the argument, or to declare it unintelligible, or simply to say that you did not think the writer proved his point. A student needs great honesty if his mind be of that type which shrinks from the change of the old to the new.

Nineteenth-century dishonesty, like nineteenth-century greed, is subtle and refined. It has an Eton manner. It attains its ends by the indirect method of ignorance. All ignorance, however, is itself the effect of that lack of the honesty which rests not till truth is searched out whole. In these days we do not boldly "cut" our acquaintances in the streets, we simply do not "see" them: that is the more genteel way. And so it is that we serve the spirit of lies, not openly, but by self-deception shutting out the truth. Refined persons prefer to deceive themselves with the others: they could not tell a *straightforward* falsehood. I doubt whether they are not more difficult to cure than the hardened liars of old-fashioned times.

Perfect honesty is not easy. Few can dispense with the necessity of cultivating and cherishing it. And the nature of the cultivation is sufficiently evident. It is twofold.

Cultivate, above all things, a real and constant love of truth, and to do this it is best to become a searcher for the truth in some one department. Herein lies the moral value of scientific studies: their object is truth, and in them lies therefore an important means of moral culture, if that object of truth be kept before the student's mind. For this reason, even if for no other, a branch of mathematical, physical or natural science, taught in the right spirit even more than by the right methods, ought to form part of every one's education. Moral science is not the best to begin upon, simply because our human prejudices and traditions are so involved that it is difficult to form our habits on it. It is the best to end with. But in the main the object should be this—to make ourselves in some form or other searchers after truth. It is not simply that we thus acquire right intellectual habits. Far more important is it that thus we acquire an intelligent and discriminative love of truth. In sound education *the mind must be trained to love the truth by knowing it and working for it just as the mind must be trained to love humanity by knowing and serving it.*

The love of truth is the prime safeguard of honesty, but it is not enough by itself. We know that scientific persons, who do understand truth and love her in their way, often show inaptitude for honest, unprejudiced argument outside, and even within, their own department. It is necessary to have, besides this interest in truth as an object, the constant presence in our minds of the ideal of truthfulness—the constant presence of the desire to be personally truthful, penetrating all our thoughts, regulating all our dealings with ourselves and others. Towards others it should be our constant purpose to be perfectly sincere, to seem what we are, to be what we seem, scorning to do deeds behind backs that we would not do in the sight of our fellows. Every one will think of the unkind words that are said in the absence of those criticised, but a much commoner case comes uppermost in my mind. English men, women, boys, and girls find, I am told, in grumbling, a balm for many woes. But why don't they grumble *to* as well as *at* the various authors of their woes? A perfectly sincere race would so grumble, or be silent.

The ideal of truthfulness enjoins alike perfect sincerity to others, and perfect honesty in dealings with one's own mind, an honesty that searches all the corners, recognising sins of ignorance as sins to be classed with those of commission and omission. There is a story told of a servant-girl who, in response to the minister's greeting when he came to call upon her mistress, said, "I'm very well, sir, thank you, and I think that I have now at last got the fear of God in my heart." "I am very glad to hear it, Mary," said he; "and how do you know that it is so?" "Well, sir," she replied, "I take up the mats now, and move the chairs when I sweep the hall."

And so it is with the honest man. The fear of God is in his heart, as a fear that he may not only seem to others to be what he is not, but as the more subtle fear that truth may seem to him *through his carelessness* to be other than it is.

So he searches the corners and proclaims what he finds, and neither enmity, nor prejudice, nor the love of a good story, nor enthusiastic partiality, nor partisanship, nor self-interest, nor any other interest, suffices to make him swerve, by deeds of commission, omission, or culpable ignorance, from the steep, strait road that makes for truth.

The Chairman, in inviting discussion on the lecture, expressed his great regret for the cause of Mrs. Bryant's inability to read the paper she had prepared, but at the same time he must congratulate Miss Burstall on the way in which she had so completely grasped the author's meaning and purpose, and on the clearness with which she had expressed them. The

lecturer had brought out in particular two points—the necessity of learning to observe accurately and quickly, and to apply with candour and sincerity the intellectual powers of reflection and deduction. Some impressive passages of the lecture had brought to his mind a view which Voltaire had somewhere expressed in regard to certain characteristics which he found in the English habit of thought, and which he attributed to lack of sincerity in the intellectual consideration of some subjects—the conclusions having perforce to tally with certain preconceptions.

Mr. Heppel was sure that all present must feel that they had heard a most valuable and interesting paper. At the same time he ventured to notice two points that had been left out of consideration, or at any rate had been insufficiently dealt with. Truth, which was the great object of search, was not attainable by any one seeker. Each individual man or woman saw but a portion, and each did not see the same portion; so that there was need of the modesty to recognise that one's knowledge was but imperfect, and that another might grasp what we had failed to grasp. It was only by the collation and comparison of what many had severally attained to, that any one man could reach the amount of truth that he had the capacity for assimilating. The second point was that the lecturer spoke of decision in political matters, of judgment in social questions, and the like; and, in the case of these, three elements came into play—the past, the present, and the future. With regard to the future, truth was evidently unattainable, yet we could not leave the future out of consideration, and hence we must depend upon a more or less probable forecast. We therefore required not merely two elements, sight and insight, but three—sight, insight, and foresight. In other subjects than politics or sociology this consideration had its place. The estimate we should form of any historical character or popular movement was largely dependent upon what might then be considered probable results in the future.

Mr. Smurthwaite said that the chief point that teachers had to consider in the lecture was its bearing on their work as teachers, and how far it afforded them instruction as to the best methods of training children to observe carefully and accurately, whether by the study of natural science—*e.g.*, Botany—or otherwise. He referred to the unscientific methods of teaching adopted in a great many schools, even in regard to the commonest subjects of instruction, such as arithmetic, algebra, and, in particular, the study of Euclid, which latter subject, he contended, might be made, by proper treatment, most fascinating to learners, and lending itself especially to the training of the observing powers of children. First in order should come correct observation, and then the reasoning on the results of observation. While all might be taught to become searchers after truth, and be led on to sound methods of investigation, it was not to be supposed that the results of that investigation would be the attainment of absolute truth.

Mr. Wilson observed that the lecturer discussed, under the head of Intellect, much that was commonly considered apart from, or indeed contrasted with, intellect. Psychologists, he thought, restricted the term to our faculty, capacity, or power of knowing, with its three constituents, discrimination, agreement, memory, and excluded from its scope feeling and volition. The lecturer not only included these, but extended the term so as to embrace the moral faculties as well. It was clear from the characteristic given of a sound intellect, viz., "the capability of seeking and finding truth," that the lecturer would not predicate soundness of an intellect which merely showed skill and resource in successfully devising or contriving means to achieve a desired end, unless the means employed and the end attained were in themselves true and good. This might be a legitimate way of regarding the intellect, but that it made it a function of so many variables—feelings, volitions, moral intuitions, and their respective physical conditions—that it would need a superhuman calculus to construct a theory which would enable one to say, given all particulars, whether an individual intellect was sound or morbid. Attempt to employ the characteristic given to detect soundness, and the very old question at once emerges—What is truth? In pure mathematics we had truth in its most absolute form, the ideal type of truth; in the physical and biological sciences we had truth in a form not so absolute but reaching practical certainty; but, outside these, what was to be the standard of truth in politics, in social or industrial life, in morals? Beset, however, with difficulties as was the scientific study of the intellect, it was, of course, an essential study to the teacher. On the knowledge of the capabilities of the mind and character of the child to be taught must depend not only the mode of teaching, but the subjects of teaching. With all that the lecturer said as to the educational values of specific subjects and training for developing certain powers or curing defects, he agreed; but it should be borne in mind, that the over-stimulation of a faculty was done at the expense of another or others, and that the really perfect intellect was that in which a just balance was preserved between all the mental powers.

Mr. Thornton was inclined to think that Mr. Heppel's addition of foresight to the sight and insight of the paper might be of doubtful advantage. The sight of foresight, the anticipation of the future, consisting so entirely of inference, was very different from sight in the lecturer's sense—from the ability to read aright the facts of the outer world, and of the inner consciousness. And so a separate treatment seemed advisable. If the lecture reminded the Chairman of Voltaire, it reminded one also of Bacon's *Eidola* of the cave, the tribe, and the forum, and still more of Locke. Indeed, if one were asked to characterize the lecture in few words, it might be said it was a nineteenth century version of Locke "On the Conduct of the Understanding," in simplest, tersest language.

Professor Edgeworth expressed his admiration for what he termed the Greek character of Mrs. Bryant's address. He alluded to the emphasis laid on the love of speculative truth as distinguished from truthfulness of statement. That the latter virtue had so small a place in Aristotle's system might seem to us moderns surprising. But the Platonic principle, that "the lie within the soul is the worst form of falsehood," was justified by the close connexion between intellect and virtue. The speaker directed attention to Mrs. Bryant's suggestion that the study of mathematics tended to cultivate intellectual honesty, and quoted Gibbon's unfavourable opinion of mathematical study. According to Gibbon, Pascal was not very successful in estimating moral evidence. The power of imparting the love of truth, attributed by Mill to Dugald Stewart as a lecturer, was no doubt the highest art that a teacher could possess. He had no doubt that Mrs. Bryant possessed that art, but he did not think that it was easy to communicate it.

Mr. Nasmith confessed he had come to the lecture without having derived from the title any definite idea as to its purport. Had the lecturer indicated any defects in the mental processes of children or adults, and the way in which they might best be met by education, there would have been a proper field for discussion; but in the want of accurate definitions there was next to nothing on which issue might be joined. For himself, he considered that children became very much what their teachers and surroundings made them, and that the development in them of the marks of a sound intellect, or the reverse, was dependent on the effect of their contact with the realities of the world in which they were brought up.

The Rev. R. O. T. Thorpe differed *in toto* from the last speaker. The subject of the lecture was to him very intelligible, and he certainly had no doubt as to the meaning of the terms to which objection had been taken. The lecture reminded him in many respects of Solomon's Book of Proverbs, and he was much struck by the earnest and healthy tone that pervaded it. The characteristics of a sound intellect were to be developed and brought out by the aid of the sympathetic teacher. By looking, and learning how to look, the child learned to see; by listening with attention, he learned to hear. Most important of all was the examining of one's own thoughts and views: the "Know thyself!" of the old philosopher. He was strongly of opinion that honesty in thinking and acting had not really to do with the intellect.

Miss Burstall, on behalf of Mrs. Bryant, having replied briefly to some of the remarks that had been made on the paper, a vote of thanks to the lecturer conclude the proceedings.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A meeting of the Council was held on Saturday, the 18th ult. Present—Dr. Wormell, Vice-President, in the Chair; Miss Bailey, Mr. Baumann, Rev. J. O. Bevan, Mr. Bidlake, Mr. Brown, Miss Buss, Mr. Charles, Rev. Dr. Conder, Dr. Dillon, Mr. Eve, Miss Hughes, Mr. Mr. Maxwell, Mr. Pinches, Mr. Reynolds, Rev. Dr. Robson, Mr. Stièvenard, and Mr. Storr. [In the list of members who attended the last meeting the name of Dr. Buchheim was accidentally omitted.]

The minutes of the last meeting were read and confirmed.

The Diploma of Associate was granted to Mr. J. Edwal Williams, who had passed the required examination.

The Treasurer submitted the report of the Finance Committee, which was adopted.

The following persons were elected Members of the College:—
Mr. W. J. Mugford, A.C.P., Chester Place, Mutley, Plymouth.
Mr. C. Richards, 24 Eresby Road, Kilburn.
Mr. F. R. Squire, Danescombe, Creffield Road, Ealing, W.
Miss F. M. Whicker, Sele House, Castle Hill, Rochester.

The following books had been presented to the Library since the last meeting of the Council:—

Cassell.—Moss's Handbook of the New Code.
Clive & Co.—University Corr. Coll. Tutorial Series:—Intermediate Arts Directory, July, 1890; Inter. Science and Prelim. Sci. Directory, July, 1890; Vocabulary and Test Papers to Virgil IX. and X.; Allcroft and Mason's Virgil IX.; Barlet and Mason's French Prose Reader and Advanced French Reader; Fearenside's and Low's History of England, 1485-1580; Fearenside's Synopsis of History of England; Moses' and Fearenside's Cicero de Finibus I.; Stewart's Heat and Light Problems.
Longmans.—Gardiner's Student's History of England, Vol. I.; Morris's Practical Plane and Solid Geometry; Potts and Sargant's Elementary Algebra; Robinson's First History of Rome.
Macmillan.—Heard's Second Greek Exercise Book.
Calendars of University College, London; University College, Bristol; and Royal College of Surgeons.

UNIVERSITY INTELLIGENCE.

Cambridge.

Dr. Smith's prizes have been awarded to Mr. R. A. Sampson, of St. John's, for his essay on "Stokes's Current Function," and to Mr. W. E. Brunyate, of Trinity, for his essay on "The Associated Concomitants of Ternary Forms." Mr. J. G. Adami has been elected to the studentship

of Pathology on the John Lucas Walker Foundation. Mr. E. W. Hobson, of Christ's College, has been appointed deputy for the Lowndean Professor of Astronomy and Mathematics for the Michaelmas and Lent Terms. We regret to hear that the necessity for this appointment has arisen from the ill-health of Prof. Adams, who has occupied the chair for thirty-two years.

Prof. Stuart has resigned the chair of Mechanical Engineering.

Miss Jane Harrison will give a course of four lectures this term upon "Greek Art, especially Vase-painting, in relation to Greek Mythology." The lectures will be delivered in the Museum of Classical Archæology. This is, we believe, the first occasion on which a lady has received such a recognition.

The Rev. Henry Barclay Swete, D.D., Regius Professor of Divinity, has been elected to a Fellowship at Caius.

OXFORD.

Prof. Sayce has resigned the deputy-professorship of Comparative Philology.

Mr. A. S. Peake, tutor in Hebrew at Mansfield College, has been elected to a Theological Fellowship at Merton.

The most notable features of the election for the Hebdomadal Council have been the substitution of Prof. Case and Canon Paget for Prof. Pelham and Prof. Freeman (both of whom retired), and the rejection of Prof. Nettleship.

Prof. Thorold Rogers died on October 12th, age 67.

The new rooms in the University galleries at the Taylor buildings have been opened. To these new galleries there have been now conveyed the various collections of art treasures which the University possesses, the most important amongst which are the Arundel Marbles. There has also been added a very carefully chosen collection of casts from the antique, which form a tolerably complete educational series. Prof. Gardiner, Lincoln Professor of Archæology and Art, has been mainly responsible for the superintendence of the arrangements. The beautiful collections of Turner's paintings, and of the studies of the Old Masters presented by Mr. Ruskin, have at the same time been made more accessible.

OTHER UNIVERSITY COLLEGES AND SCHOOLS.

The Senate of Calcutta University will proceed in the month of March, 1891, to the election of a Tagore Professor of Law for the term of one year, to commence on the 1st of November, 1891. The salary of the Professorship is Rs. 10,000 per annum.

The value of the bequest to the University of North Wales, under the will of Dr. Evan Thomas, of Manchester, is announced to be £39,500.

A letter has been addressed to the Lord President of the Privy Council by Dr. Ericsen, President of University of University College, and the Rev. Dr. Wace, Principal of King's College, defining the position of those bodies with regard to the project for establishing a Teaching University for London. They state that, as the result of negociation with the Senate of London University, an agreement has been arrived at for a separate system of graduation for their students in the faculties of Arts and Science; but they add that they do not see their way to meet the objections that have been urged by the provincial colleges to any change in the present system of examination.

Mr. R. J. W. Davison, B.A., assistant-master in Macclesfield Grammar School, has been appointed to the headmastership of Ilminster Grammar School.

The Earl of Powis has been elected President of the University College of North Wales, the Duke of Westminster having declined to be again nominated.

Professor Sellar, of Edinburgh, died on October 12th, aged sixty-five.

The Rev. M. G. Glazebrook, high-master of Manchester Grammar School, has been offered and has accepted the headmastership of Clifton.

The Gresham Professorship of Geometry will soon be vacant by the resignation of the Dean of Exeter, who has held it since 1854. The appointment is in the gift of the City side of the Gresham Committee.

EDUCATIONAL NOTES AND SUMMARY.

THE Working Men's College, Great Ormond Street, Bloomsbury, founded by the late F. D. Maurice, re-opened for its thirty-seventh session on October 6th. The classes announced include, as usual, all the subjects which may be regarded as necessary for a liberal education; and at a price which places them within the reach of the poorest working man. Any one who desires to learn—no matter what the deficiencies of his early education—has here the opportunity of remedying those deficiencies. The subjects included in the programme range from the three R's, which are treated in what is here known as the preparatory division, up to those which would be required by a student striving to obtain a University degree, the major part of the teachers being members of the old Universities. At the opening meeting of the new session, Sir J. Lubbock, M.P., principal of the college, presided. He said that the entries were higher this year than had ever been reached before in the history of the college. The fact was the more satisfactory and encouraging when they bore in mind that there had sprung up of late years a certain number, he would not say of rival or competing institutions, but of other institutions endeavouring to carry on with various modifications the same good work. Last year had been one of considerable activity in educational matters. There was one step taken of very great importance to the metropolis. Towards the end of last session the Government passed a Bill under which they allotted a considerable sum to County Councils throughout the country, with a suggestion that the money might be devoted to technical education. They would see it was a question of very great importance when he mentioned that the amount for London would be £140,000. The London County Council would at their meeting next week consider this question, and it had been suggested that a committee should be appointed to look into the matter and advise the Council on the course they should pursue. There was nobody more persuaded than he was of the very great importance of technical education in such a country as ours. It was a branch of education which had been overlooked and neglected. At the same time he was not quite sure that it was wise to confine the money allocated to the County Councils exclusively for the promotion of technical education, which, although a most important branch, did not cover the whole ground. He should have been glad if the sum had been allocated to higher education. No doubt their direction of studies was not primarily technical. Still, they did give a certain amount of such instruction, and if there was to be an allocation of funds in London in the direction of education, he ventured to suggest that they should put in a claim to the funds which were so to be distributed.

ABOUT a year ago Isaac Williamson, of Philadelphia, left quite a large sum of money for the purpose of establishing an industrial school, but during the past few months there has been a heated controversy concerning what kind of a school should be established; but it has been finally determined that it is to give boys thorough instruction in such "basic trades" as will fit them to take up any special work they may choose. It is not clear (says the *New York School Journal*) what is meant by the expression "basic." The school must be either a manual training school or a trade school. It cannot combine both ideas and succeed. A trade school gives special skill in doing certain things that have a commercial value attached to them. Manual training makes education the end and aim of all work. Commercial colleges, sewing schools, shorthand institutes, and trade schools are all in the same class, because they have, as an end, the giving of skill in doing certain things. All other schools aim at the education of the whole nature for the purpose of complete living. The difference between giving a child the ability of doing a certain thing well—as writing, the running of a sewing-machine, or skill in shorthand, &c.—is one thing; but another, and an entirely different thing, is so to train the body, mind, and heart as to render the being able to grapple the problem of successful living, and solve it.

A "travelling school" appears to be one of the latest American inventions. At any rate, a St. Petersburg paper states that that city and Moscow have just been visited by a whole school, consisting of sixteen pupils with a master and tutors, who passed several days at each place, after having visited nearly all the principal towns of Western Europe. The school hails from Chicago. The master is a Mr. Salf, who, with the consent of the parents of his sixteen pupils, of from fifteen to seventeen years of age, has been taking the young people on a great pedagogic tour through Europe. The youthful tourists receive instruction as they go along in the main points of the geography and history of the country through which they pass, coupled with the immense advantage of a personal acquaintance with everything worthy of being seen and known. From Russia the travelling school goes into Scandinavia, and thence to Southern Europe, where the winter will be spent.

A LETTER has been addressed by Lord Knutsford to Mr. Sidebotham, M.P., on the subject of the issue of musical degrees in this country by Trinity College, Toronto. After referring to Baron de Worms's answer to a question in the House of Commons on 12th August, it goes on to state that the law officers have now suggested that a formal petition should be presented to the Privy Council by some one or more of the Universities

granting musical degrees in the United Kingdom, complaining of the action of the University of Trinity College, Toronto, and that this petition should be submitted to the University of Toronto for an answer, and formal cases prepared in the usual way, and the matter heard before the Judicial Committee. The law officers are said to have stated their opinion that this procedure can be carried out under sec. 4 of the Act 3 and 4 Will. IV., cap. 41.

Teaching (says the *New York School Journal*) is sure to become scientific—that is, to be recognised as a profession. But not all teachers will be professional—a large number will "try it on," and give it up. Out of 1000 young men who are graduated as physicians, fully one-third do not practise medicine. Why? They have not the make-up of physicians in them. So there are thousands of young men and women who will want to try teaching. They find they are invited to read of Froebel and Pestalozzi, and they are determined not to go to that trouble; they drop out. It is well for the children, and it is well for the profession, that they do so. How shall a teacher know that he is progressing toward professional teaching? He will have a professional spirit—he will be studying the children and watching the ways they learn, and having found out these ways will govern himself accordingly. The unprofessional teacher simply follows the way he was taught—a reading lesson or two, a spelling lesson or two. Then "boys may go out," and so he goes on—calling it keeping school. Let him call it this—it is not teaching. He will collect a library of books on education and read them; yes, study them. Now this library may be small at some part of the career of the professional teacher, but as the physician has his library and the lawyer his, so the teacher will have his. The real teacher will study the art of teaching; will feel impelled to commune with other minds, and to gain more information. He will find some solid ground for his daily work—that is, he will gain some principles. For example:—1. That an educational principle is in every mind, and we can only set it to work. 2. That there should be all-aroundness in the teacher's aim. 3. That the child's horizon must be widened daily. 4. That all teaching must be self-teaching. 5. That primary instruction must be concrete. 6. That the teacher must proceed from the known to the unknown, and not be dogmatic. 7. That facts must go before causes—the concrete before the abstract. This little summary is given simply to show the teacher some of the principles he must apply in every lesson, and every day. Yet there are thousands who do not know of a principle—only of a method. That is, they know that pupils are to learn lessons, and they to hear them.

Lloyd's News last week contained a tale by Miss Louise de la Ramée, better known as "Ouida," entitled "The Law Breakers." That journal itself characterises it as a remarkable School Board story, and one extract which we append (says *The Schoolmaster*) amply justifies this description:—"Yes: the School Board, being an intelligent and scientific body, fulfils its objects in utterly blighting and extinguishing in the souls of the poor such small faith in the ultimate justice of their rulers, human and divine, as may have existed in them despite all their woes." We cannot forbear quoting another sentence from this exceedingly remarkable tale. Says Miss Louise de la Ramée:—"The publican liked the School Board; it sent out so many lads spoiled for work, feverish with vague, insatiable desires, too grand for any bodily labour, who crowded to find in gin and whisky the sudden dreams which were their form of Paradise." The respectable journal in which this tale appears informs us that the authoress has for many years past been a resident in Florence. We can quite believe it; only a professional story-teller who has resided for many years away from England could have composed this remarkable tale—a tale as false to life as any that Ouida has ever written.

A memorandum has been prepared and circulated, signed by Mr. A. H. D. Acland, M.P., and Mr. T. E. Ellis, M.P., on the subject of Free Education in Wales. It states that the declaration of Lord Salisbury last autumn on the subject of Free or Assisted Education for England and Wales, together with later announcements on the same subject, render it practically certain that the Queen's Speech in November will promise free education as one of the measures for next Session. It may turn out that Irish land purchase and tithes will not occupy so much time as had been expected; but in any case, so the memorandum proceeds, every Welshman who is interested in the cause of national education should be thoroughly on the alert with the view of watching the effect on Wales of any proposals of the Government on the subject of Free Education. The total cost of the maintenance of 195,000 children in average attendance in Wales is estimated at £350,000 for the year 1888–9.

It is reported (says *The New York School Journal*) that Edison is hard at work upon a machine that will hear recitations. If he succeeds, it will be a boon to those schools that still stick to machine methods, since the rent of a machine for an entire year will not be more than 400 dollars. A machine teacher can be hired for 700 dollars, then there would be a clear gain of 300 dollars each year. Quite a saving.

The inauguration of the winter session of Toynbee Hall, the Whitechapel Centre of the University Extension Society, took place at the beginning of last month, when the students' friends assembled in great force after the summer vacation. With a view to making the occasion as auspicious as possible, the committee had arranged an extremely attractive programme of entertainments. The report of the twelfth session, which was issed on Saturday, was of a highly satisfactory character. The dining-room was appropriated on Saturday evening by the Toynbee Hall Natural History Society, who exhibited a large number of botanical, geological, and other collections, which proved exceedingly attractive. The East London Antiquarian Society also displayed some fruits of their researches, as did the members of the Toynbee Travellers' Club. In St. Jude's Church, which is contiguous to the Hall, Mr. A. H. Peppin gave an organ recital, comprising selections from Mendelssohn, Handel, Chopin, Bach, and Liszt, whilst Draghi's String Band performed a series of melodious airs in the quadrangle. Short addresses were given by Mr. A. H. Fison, D.Sc., on "Some Uses of Electricity," and by Mr. A. W. Claydon, M.A., on "Weather Forecasts." In the Lecture Hall, Mr. P. H. Wicksteed, M.A., gave a short causerie on "The Relation of Literature to Life." The Rev. S. A. Barnett, M.A., who is the prime mover in the Extension movement, delivered a short address. The Saturday popular lectures commenced on October 4th, when Dr. Abbott spoke on the subject of "Illusions."

The following advice on examinations in essay-writing and literature was given by the Examiner of a large school at the last Midsummer Examinations:—Consider the convenience of the examiner; for instance, answer the questions in any order you like, but send in your answers arranged in the same order as the questions appear in the examination paper. Don't answer questions in bits. Consider what proportion of the whole time can be given to each question, and map out the time accordingly. Avoid trivial matters. Make up your mind as to what are the important points, then state them alone. Say nothing which is not asked for. Remember that an essay is literature. Do not write it as you would a speech, nor in rhetorical language. Avoid tall writing. Avoid slang. Don't say "a lot of other things," or "a patriot is a man who sticks up for his country." Don't use contractions, such as *e.g.*, *i.e.*, &c. Don't put forward your own private opinions. Individual views are out of place in an essay; so are politics. Avoid the use of the word "I" altogether. Never joke in an examination paper.

The correspondent of the *Times* points out that the severity with which the restrictive laws against the Jews in Russia are now being enforced is shown by a paragraph in the *Novoe Vremya*, reporting a circular of the Minister of Education on the subject of foreign Hebrew scholars and students illegally accepted in schools and Universities, whereby their parents obtain permission to live in the country in violation of the law. Only those foreign Jews are allowed to reside in Russia who become guild merchants and pay their annual subscriptions like native tradespeople. It has been discovered that foreign Jews, in order to obtain leave to reside in Russia without taking out a guild licence, send their sons to the Universities and other higher educational institutions, and then claim permission to remain in the country until their children have completed their education. Jews of foreign nationality, it must be explained, are received in Russian Universities, like all foreigners, on their production of the necessary documents, certificates, and diplomas emanating from educational authorities abroad, provided, however, that the 3 per cent. of

Hebrew students in any such Russian University or college has not yet been reached. The circular above mentioned permits those Jewish youths of foreign nationality who have already entered Russian universities and colleges in the way mentioned, in spite of the illegal *status* of their parents, to remain where they are until the completion of their educational term, but no more are to be received in the future unless their parents first show that they have a legal right to reside permanently within the Empire.

Last month we called special attention to the centenary anniversary of the birthday of the distinguished educationist Adolf Diesterweg, and to the ovations expected to be paid to his memory by the educational world of Germany. Diesterweg earned the gratitude of his colleagues by his indefatigable endeavours to raise the status of the teacher in Germany, to elevate him morally and intellectually, and to improve his material welfare. His efforts towards the last of these objects brought him, in the gloomy days of 1847, into collision with the Prussian authorities. He was actually accused of "social democratic tendencies," and was, in consequence, obliged to leave the Prussian State-service. In 1858 he was elected representative of Berlin in the Prussian House of Commons, and in this capacity he continued to be energetic in the cause of education. The town of Siegen, in Prussia, where Diesterweg was born, October 29th, 1790, has erected to his memory a monument, which was unveiled last Wednesday; and we greet with still greater satisfaction the reissue of his works, which, in their new form, are sure to be welcome to teachers both in and out of Germany.

On Friday evening, the 17th ult., the pupils of the Misses Crombie, of the Stockwell High School and Kindergarten Training College, held their Annual Harvest Festival. This little fête is unique of its kind, being at once a picturesque and pleasant gathering, a means of helping a number of sick and poor people, and an occasion for illustrating the teaching of the kindergarten. On this occasion the festival was held at the Institute, Priory Road, and the little performers brought ringing cheers from a crowded house.

On the 2nd of October, at the Freemasons' Tavern, the City of London School held their thirtieth Old Boys' Re-union Dinner. The special feature of the evening was the presentation to the Rev. E. A. Abbott, the late headmaster, of a portrait of himself, painted by Professor Herkomer, which had been subscribed for by his old pupils at the school. From two to three hundred Old Boys were present. Dr. Abbott, in returning thanks, said that in retiring from the headmastership he had attempted "to do homage to no authority except the authority of truth," and that he "had endeavoured to practise in his retirement some of the precepts which he had endeavoured to inculcate in his past pupils." In making allusion to his work in the future he said, "I have ceased to work in the class-room, but not ceased to work in the study," and that he hoped "to live a life of quiet study and research."

Mr. H. Courthope Bowen will deliver a lecture for the Froebel Society on "Transition Classes," at the Clergy Orphan School, St. John's Wood, N.W. (by kind permission of Miss Baylee), on Tuesday, November 11th, at 8 p.m. We are requested to state that members of the College of Preceptors interested in the subject will receive cards of admission by applying to Miss Clive Baylee, Froebel Society, 12 Buckingham Street, Adelphi, W.

Announcement is made by the War Office that an examination for cadetships at the Royal Military College, Sandhurst, will commence on November 26th, the medical examination of candidates being held on the two previous days, at No. 119 Victoria Street, S.W. There are 147 cadetships to be awarded, of which 125 will be for infantry, fifteen for cavalry, and seven for the West India Regiment. Intending competitors must inform the Military Secretary before the date fixed for examination whether they elect to be considered candidates for cavalry or for infantry. If within the prescribed limits of age, they may return their names (1) for both infantry and cavalry, expressing a preference for one or the other; (1) for infantry only; or (3) for cavalry only. Cadetships will be given to successful candidates, subject to the limitation of numbers, in order of merit, in accordance with the election they have made. Twelve cadetships, in addition to the above, will be offered for competition by University candidates, as provided for in the regulations. A limited number of commissions in the Royal Marine Light Infantry will also be competed for, and candidates for these should notify their wishes to the Secretary of the Admiralty, Whitehall, as well as to the Military Secretary. The successful competitors for the Royal Military College will be required to join the college, as gentlemen cadets, on February 10th next. October 15th is the latest date on which applications can be received.

GIFT BOOKS OF THE SEASON.

Blackie & Son.

With the exception of two, by Mr. Henty, the books we have received from this firm up to the present are small, and suited to the tastes of children of tender years. Floral decoration adorns the covers, and beautiful illustrations abound. More attention might have been bestowed upon binding, but even in this respect there is little cause for complaint. We have again to commend the style and generalt one of the stories, points in which this firm always excels.

By England's Aid; or, The Freeing of the Netherlands (*by G. A. Henty*) immediately follows in point of historic interest *By Pike and Dyke*, the author's success of last season, and in this sense is a sequel to it, although the plots are entirely distinct. The present volume gives the second phase of the War of Independence in Holland, when England threw herself openly into the struggle, and by her aid mainly contributed to the successful issue of the war. The story around which Mr. Henty has woven the threads of fact gathered from Mr. Clement Markham's *The Fighting Veres* and Mr. Motley's work, is that of two English boys, Geoffrey and Lionel, who go to Holland as pages in the service of Sir Francis Vere, one of the greatest commanders of the age. The lads meet with many adventures both by land and sea, but at length are parted, Geoffrey being picked up by one of the ships of the Armada and carried off to Spain. He escapes, however, and, after some adventures and wanderings, sails for Italy in the service of an Irish gentleman. Their vessel is attacked by Corsairs, and our hero is imprisoned. His pluck remains, and after a few years he succeeds in effecting his escape, and in getting back to Spain. On the capture of Cadiz by the English, and the consequent destruction of the power of Spain in Europe, he sails home to England, and meets his brother Lionel after a separation of seven years. We predict that *By England's Aid* will be a greater favourite even than *By Pike and Dyke*, and on its merits it deserves to be so.

Mr. Henty's other volume is also a historical romance, but deals with a phase of history seldom, if ever, touched on by our writers of adventures for boys. *Maori and Settler: a Story of the New Zealand War*, gives an admirable picture of colonial life in the troublous times when the brave tribes of New Zealand were fighting the forces of England and the Colony. The Renshaws, having lost their property by a bank failure, emigrate to New Zealand. Wilfred Renshaw, the brave son of a weak father, is the mainstay of the home, and the hero of the story. Shortly after the arrival of the family the Maori War breaks out, and innumerable and appalling dangers are encountered, but overcome by the courage of Wilfred and his older friend Mr. Atherton, a botanist and naturalist of enormous strength, unfailing nerve, and humour. Ultimately, all return to England, and live comfortably in Mr. Atherton's country manor house and under his protection, except our hero, who does well in New Zealand and pays regular visits to the friends at home. *Maori and Settler* is, like all Mr. Henty's books, graphically written, instructive, and amusing. A word of praise is due to Mr. Alfred Pearce for the beautiful full-page illustrations.

Hal Hungerford; or, The Strange Adventures of a Boy Emigrant (*by J. R. Hutchinson, B.A.*) teems with exciting incidents. A smuggler's cave guarded by a skeleton, a pirate's treasure, moose hunts, and the like, are materials amply sufficient to rouse the dullest boy. Hal is one of Dr. Barnardo's boys, who is sent out to a farmer in Canada. Here he is suspected of throwing the stone which caused a man's death. Though innocent, he sees he cannot prove his case, and consequently flees with a boy companion. After falling into the hands of smugglers, and escaping, the youthful pair take up their abode in an old block-house reputed to be haunted. The mystery of the block-house they unravel, but rouse the indignation of the smugglers, who attack and burn their homes, causing the death of Hal's companion and attempting to kill Hal himself. The proof of Hal's innocence being forthcoming, he returns to his original employment, and meets with much success in life.

Nutbrown Roger and I: a Romance of the Highway (*by J. H. Yoxall*) is a splendid book for boys. It reviews five adventurous days in the life of a boy who has been defrauded of his property, and driven to flee from his home, by the cruelty of his uncle. Nutbrown Roger is a nobleman who, for various romantic reasons, has taken to hiding, and, to serve his own ends, has adopted the practices of a merciful highwayman. These two join company, and pass through many exciting adventures, which culminate on the fifth day in the rescue of the nobleman's betrothed from the hands of cruel guardians, and in the restoration of the boy's

property. The story is well constructed and cleverly told. Spell-bound interest will be maintained to the very last page.

Unlucky: a Fragment of a Girl's Life (*by Caroline Austin*) is quite up to the standard of the series. It recounts the trials and misfortunes of the young daughter of an Indian officer who misunderstands her step-mother, although, possibly, the step-mother is as much at fault as she in this respect. She fights hard against these feelings, and, in the end, overcomes them, even sacrificing her own life for her step-mother. We heartily recommend schoolmistresses to include *Unlucky* in their lists of prizes, for the sound teaching it contains.

The Secret of the Old House is a story for children by *Evelyn Everett Green*. The "secret" is discovered by a boy Tim and his sister Dinah, who are on a visit to their rich grandmother in the country. The "old house" is reputed to be haunted, but the two children prove the ghost to be an unhappy youth who has been allowed to seclude himself in one wing of the mansion.

Patty's Ideas, by E. L. Tiddeman. The Kitchen Cat, by Amy Walton. Two Little Mice, by Mrs. A. H. Garlick. Cross Purposes, and The Shadows, by George Mac Donald. Tom in a Tangle, by T. Sparrow. Lily and Rose in One, by C. S. Lowndes. Daphne, by E. O'Byrne. The Royal Eagle, by L. Thompson.—These little volumes will be sure to please children. Their language is clear and simple, and their subjects are interesting. Each book occupies about ninety pages, and contains a coloured frontispiece.

A Rash Promise; or, Meg's Secret (*by C. S. Lowndes*) will be read with equal pleasure by both girls and boys. Frank Mitchell, a boy from South America and an expert in the use of the lasso, and Noel Ridgway are pupils of Meg's father, the rector. Frank is suspected of strangling a favourite dog. Meg learns the truth, and is tortured by the sight of an injustice which she could remedy but for a foolish promise of secrecy.

Mutual help and self-sacrifice are the lessons conveyed in *The Seed She Sowed: a Tale of the Great Dock Strike. By Emma Leslie.* The heroine, Winnie Chaplin, is a helpless invalid, who, in spite of her physical infirmities and her poverty, finds many an opportunity of doing good and alleviating the distress around her. It is a pretty story which girls will not fail to appreciate.

Philip Danford (*by Julia Goddard*) is a tale of school-life and school-boy honour. The hero is a model youth who prefers to suffer disgrace rather than to "peach" on his companions.

The Youngest Princess; or, Little Means to Big Ends (*by Jennie Chappell*) will excite the interest of the very young, although the common items, theft, false accusation, estrangement, explanation, and reconciliation, serve to make up the tale.

Arthur's Temptation; or, a Bad Beginning, is well written by *Emma Leslie*, and shows how Arthur came under the control of bad companions, got into debt, robbed his employer, and passed a night in the police station. He repents, retrieves his character, and, by his subsequent good conduct, proves that his penitence is sincere.

Freda's Folly; or, The Guest at Dysart Manor. By M. S. Haycraft.—The heroine writes short tales for children's magazines, and her "folly" consisted in making a wealthy aunt believe that a contribution to a leading journal was her work, in order to gain an entrance to Dysart Manor. A grave piece of "folly," deserving of a worse name perhaps. For the remorse she endured, and the way in which her "folly" was discovered, we refer our young readers to the book itself, which will amply repay a reading.

Our Two Starlings; or, The History of Dick and Patty. By Christian Redford.—The feeding and treatment of the two pet birds and their little eccentricities will be both instructive and amusing to little folks.

A Change for the Worse; or, The Lessons of a Day. By Harriet M. Capes.—Florizel, a young prince, growing tired of the pomp of court and palace life, wishes to become a common boy. The experience he is in want of comes during a dream, and has a lasting and good effect on him when he reaches the throne. A romantic tale without a "dry" page.

National Society's Depository.

The series of gift books presented this year have an unusually bright and attractive appearance. The bindings are such as to delight the æsthetic, with their subdued art-coloured covers. The designs upon the outside are generally well executed, and the inspection of them is calculated to lure youthful readers to a closer acquaintance with their hidden charms. In these days of cheap editions, small print, and consequent weak eyesight, it is a satisfaction to see that the National Society, far from furthering this growing evil, prints its books in such bold clear type that it is almost irresistible to even a moderate reader. The books are well illustrated and excellently bound.

A Little Candle. By Mary H. Debenham.—The "naughty world" over which the "little candle" sheds its gentle, warming beams is Scotland in the days of Claverhouse. The heroine, Bride Galbraith, the only daughter of Parson Murray, though but a slight fragile little creature, is nevertheless the comfort and mainstay of her father, when turned from his ruined home, and forced to flee to St. Germains. The old-fashioned phraseology and touches of Scotch dialect give a flavour to the whole book, which does much to enhance its interest.

The Green Girls of Greythorpe. By Christabel R. Coleridge.—The Green Girls of Greythorpe, the likeness of three of whom appears upon the cover, are inmates of a Cumberland semi-charity school. The plot of the story, if plot it can be called, is of the slightest character. The bulk of the volume contains descriptions of the adventures of the girls while on a holiday in the mountains near Screeside. Miss Coleridge tells us that the dialect has been indicated in the slightest manner. It would perhaps have been better to have omitted it altogether, rather than to have indicated it erroneously. Miss Coleridge has perhaps gained her ideas of Cumberland dialects from Carlisle only, and it is proverbial that large towns are the last places in which to study village or country dialect. "Lile" is used in Carlisle for *little*, but round Penrith, the scene of the story, "laal" is the expression more generally employed.

Peckover's Mill.—The author of "Harwood Hall" has provided a stirring Jacobite story. The hero, Silas Peckover, comes back from abroad to take possession of his home under exciting circumstances which form the plot of the story. Virtue is victorious and vice vanquished in the good old manner. The villain perishes in the great Frost Fair of 1739.

The Family Coach. By M. and C. Lee.—The joint authoresses of this nondescript work acknowledge their indebtedness to F. C. L., so that *three* have had part in its production, but have nevertheless failed to provide a plot for the volume. It is not a guide book, although the interest of the work centres round a journey from London to the South of France *viâ* Folkestone, Boulogne, Paris, and Lyons. The book is full of the most trifling incidents told in a would-be humorous style, which is so spun out that it becomes wearisome in the extreme. For instance, a whole chapter is devoted to an account of a chase after a cat, which is as unlikely as it is vapid and uninteresting, and moreover the unfortunate pet animal haunts the pages throughout. The other source of amusement is a somewhat silly girl, who is always getting lost like luggage, and turning up again when least expected. If our authoresses have drawn this character from life, we hope for their sakes that they will not have to travel with her. Incidentally a railway accident takes place, but we would remark that even continental guards would take steps to prevent a collision, when they had time to forewarn the approaching train. Nor would they merely ask the passengers to alight from the burning train, and get as far off as possible, without any further precaution. Possibly, however, *these* guards wished to give the passengers the pleasure of viewing, in safety, so novel a sight. The moral of the tale is doubtless supplied by the aversion with which every one must regard the priggish Henrietta, whose selfishness, false independence, ignorance, disregard of the feelings of her elders, and assumption of superiority over her juniors, render her an object of disgust to all right-minded young readers.

The Locked Desk. By Frances M. Peard.—The "locked desk" which gives its name to this work does not contain money, jewels, or a false will, but only a cutting from a newspaper, in which there is an account of a robbery for which the brother of an honest Cornish fisherman's wife was convicted. This is a constant source of worry to poor Mrs. Barton. She is always in alarm that her brother will return from his ten years' sentence and claim her protection. She is still more afraid that her children and neighbours will know of the disgraceful connexion. The paper is stolen, and a good-tempered lazy friend of David Barton, the fisherman's delicate son, is suspected. His susceptibilities are so wounded by this that he goes to sea, while Barton the fisherman is drowned in a gale, and his widowed wife opens a shop to support herself and children. (Incidentally the loss of the paper is explained by Mrs. Barton's somnambulistic tendencies.) Her convict brother finds her out, however, and robs her of what he considers must be valuable—the worthless papers in the locked desk. Her kindness to him in distress heaps coals of fire on the malefactor's head, and he repents. David's lazy friend is brought back, forgiven, and provided with remunerative work, and the curtain descends upon a pretty family picture, in which the reformed convict uncle plays his part. The characters throughout are drawn with no small skill, and show some insight into child nature.

Dangerous Jewels. By M. Bramston.—That Eldorado of novelists, "The French Revolution," gives the keynote to this story. Baron Kergoët, though remaining in France to combat the enemies of his king, sends his children to England in order to benefit by the kindness of their grandfather, who has offered them an asylum. With them he sends the family jewels. This fact becomes known to a gipsy sailor on the boat in which they think to secure their safety, and consequently the children are kidnapped by the gipsies for the sake of the jewels they wear. After many adventures they are rescued by Mahala, the very person who first instigated their robbery, and Phil, the informing sailor lad. Phil restores to them the family jewels, which have been hidden all this while in a wood, and finally they gain their grandfather's house, where they remain until the close of the revolution ensures their return in safety to France.

The Vicar's Trio. By Esmé Stuart. It is not an easy matter to interest young readers in Church matters, but nevertheless the author has met with no small measure of success. The vicar's trio are his two daughters and his son. The scene of the story lies in the pleasant vicarage at Fernleigh, and its motive is the extraordinary exertions made by the vicar and his family to raise a fund for the restoration of the church, and the influence of his family on the parishioners. Although the children who form the trio occasionally speak and think in a manner apparently in advance of their years, this is not so great a blemish as might at first sight appear. The petted, motherless children of a man of

mild and scholarly tastes, ruled only by a housekeeper who defers to them in all, and thoroughly believes in their infallibility and talents, are likely, not only to unconsciously adopt many of their father's expressions and thoughts, but to speak of them with freedom and decision.

JOHN HOGG.

The series prepared by this firm, although lacking in the finish which is so pleasant a characteristic of the books of the other firms noticed in these columns, yet presents a tolerably attractive exterior. In these days of process reproduction of photographs and drawings, however, we might reasonably have expected a better series of illustrations than those which appear in the various volumes. In many cases the pictures are mere woodcuts of the roughest and most primitive description, and look as if they had been reproduced from newspapers of twenty years ago, before the illustration of cheap periodicals had become a fine art. In illustration and general get-up, Messrs. Hogg may well profit by the example of several other firms.

Little King I. By Louisa E. Dobrée.—This slight children's story enforces the advantages of being one of a large family. The "Little King I" of the story is a masterful passionate boy, of excellent tendencies, named Rex. The story recounts how his reformation, in this respect, is worked by some neighbours who providentially arrive in Jersey, and settle next door. The son of this new household is a most exemplary youth, who, being an only brother of several sisters, naturally has lost much of his ill-temper. There are several amusing episodes in which Jim and his sisters figure, and the story finishes to the tune of wedding bells. By dint of large print and much leading, a small story has been magnified into a book of not insignificant size.

Famous London Merchants. By H. R. Fox Bourne.—The merchants whose short biographies find a place in this volume are such as have lived and worked chiefly in London, and whose lives form pages of London history. Mr. Fox Bourne acknowledges his indebtedness to several writers on the same subject. The thirteen merchants whose names appear together represent mercantile life from 1353 to the present time: Sir Richard Whittington, Sir Thomas Gresham, Sir E. Osborne, Sir W. Herrick, Sir Thomas Smythe, Sir H. Garway, Sir Dudley North, Thomas Guy, William Beckford, Henry Thornton, Nathan Meyer Rothschild, Samuel Gurney, and George Peabody. The book is profusely illustrated, but the designs are neither very new nor very well done.

Watchers for the Dawn. By Mrs. W. R. Lloyd.—Mrs. Lloyd has given us a series of "Studies of Christian Character" as exemplified by some of the greatest leaders of Church reform. Among others are sketches of Bede, John Huss, John of Wesel, and Albert Dürer. The style of the work is a trifle heavy for young readers, but gives a good insight into the characters of men whose staunch faith has given them immortal fame.

The Fortunes of Ruby, Pearl, and Diamond. By Frances Armstrong.—Three little kittens of most engaging appearance lend their names as the title of this story. From a bazaar where they are sold to their respective owners, they pass through many adventures, and frequently change their homes, but arrive at a comfortable haven at last. The book is worded in simple style, and is likely to interest young children.

Arctic Exploration, Discovery, and Adventure. By John Tillotson.—The author of this book gives, in readable and accessible form, reliable information concerning Arctic exploration from 1497 to the present day. He also embodies in his work the experiences of Captain Penny, the veteran whaler, now produced for the first time. The narrative is compiled from Captain Penny's logs. The ice-bound regions round the poles have been the scenes of so much endurance, courage, and manhood, and withal of so much tenderness and goodness, that any account of their exploration is likely to convey lessons of no small value to youthful readers. And the exciting adventures and hairbreadth escapes which are here chronicled will prove of thrilling interest to all who peruse this volume.

METHUEN & CO.

A Girl of the People. By L. T. Meade.—The author of this story is evidently well acquainted with the manners and customs of the lower classes in Liverpool. The heroine of the story is Bet Granger, a paper-seller in the streets of that town. The troubles of the poor girl arise partly from having to tend and guard her motherless brothers, and keep them from her drunken father, and partly from the schemes of her lover's rival. Another charmingly drawn character is Bet's friend Hester, who, by the power of her magnificent voice, rules among the girls of Liverpool, and on one occasion stays an infuriated crowd from wrecking a minor theatre. How Bet's drunken father sells her "walk" and promises her in marriage to Isaac Dent, while he assists in getting Will Scarlett (her sailor lover) arrested; and how the Irish women imprison Isaac, and force him by muscular strength to release Will and forego his claim on Bet's hand, we must leave our readers to discover. The book is likely to further the interests of the poorest of our girls, whose lot is so much to be pitied in all large towns, but especially in Liverpool. At the same time it still further enforces the praise due to the many noble ladies whose work among the poorest is only known to those they benefit; and as an example of how the poor aid each other, it is a bright spot in what is too apt to be regarded as absolute darkness. The work is well illustrated, although, perhaps, the pictures of the "paper girls" are apt to err on the side of respectability.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending October 31st, 1890.

Abdy's (J. T.) Feudalism, its Rise, Progress, and Consequences, cr. 8vo, 7s. 6d. cl.
Acting Charades and Proverbs, arranged by A. Bowman and others, cr. 8vo, 2s. 6d. swd.
Allen's (W. B.) Red Mountain of Alaska, cr. 8vo, 2s. 6d. cl.
Allsop's (F. C.) Electric Bell Construction, cr. 8vo, 3s. 6d. cl.
Bacon's (F.) Essays on Counsels, Civil and Moral, edited by S. H. Reynolds 8vo, 12s. 6d. half bd.
Barton's (E. A.) Medical Handbook for Colonists, 2s. 6d. cl.
Basset's (A. B.) An Elementary Treatise on Hydrodynamics and Sound, 8vo, 7s. 6d. cl.
Baker's (Sir S. W.) Wild Beasts and their Ways, Reminiscences of Europe, Africa, and America, 2 vols., 32s.
Beckett's (W. H.) English Reformation of Sixteenth Century, cr. 8vo, 3s. 6d. cl.
Block (M.): Annuaire de l'Economie Politique et de la Statistique, 9fr.
Block (M.): Les Progrès Economiques depuis Adam Smith, 2 vols. 16fr.
Bohn's Library of Sports and Games, by Dr. W. Pole, &c.: Vol. 1, Table Games, cr. 8vo, 3s. 6d. cl.
Bourazan's (F.) A Sacred Dictionary, an Explanation of Scripture Names, &c., 8vo, 17s. 6d. cl.
Burke's Reflections on the Revolution in France, edited, with Introduction and Notes, by F. G. Selby, 12mo, 5s.
Cæsar de Bello Civili, Book 1, trans. by J. Perkins, 2s. swd.
Campbell's (L.) Æschylus, the Seven Plays in English Verse, cr. 8vo, 7s. 6d. cl.
Carlyle (Thomas), a History of his Life in London, 1834–1881, by J. A. Froude 2 vols. cr. 8vo, 7s. cl.
Darwin's (C.) Coral Reefs, Volcanic Islands, &c., with Introduction by Prof. J. W. Judd, cr. 8vo, 2s.
English Fairy Tales, collected by J. Jacobs, 8vo, 6s. cl.
Exell's (Rev. J. A.) Philippians and Colossians, 8vo, 7s. 6d. cl. (Biblical Illustrator.)
Gaudeamus, One Hundred Songs for Schools and Colleges, edited by J. Farmer, cr. 8vo, 5s. cl.
Gladstone's (Right Hon. W. E.) Landmarks of Homeric Study, cr. 8vo, 2s. 6d. cl.
Graphic History of British Empire from Celtic Times to the Present Day, cr. 8vo, 6s. 6d. cl.
Hardman's (Dr. J. W.) Our Prayer Book in History, Literature, and Church Lore, cr. 8vo, 3s. 6d. cl.
Iliad and Odyssey of Homer, trans. by A. Pope, edited by Rev. H. F. Cary, cr. 8vo, 3s. 6d. cl.
Johnson's (E.) The Rise of Christendom, 8vo, 14s. cl.
Kaiserurkunden in Abbildungen, hrsg. von H. v. Sybel u. Th. v. Sickel, Part 10, 30m.
Lecky's (W. E. H.) A History of England in the Eighteenth Century, Vols. 7 and 8, 8vo, 36s. cl.
Livy, Book 5, edited by L. Whibley, 12mo, 2s. 6d. cl.
Mackenzie's (J. S.) An Introduction to Social Philosophy, demy 8vo, 10s. 6d. cl.
Macklin's (Rev. H. W.) Monumental Brasses, cr. 8vo, 3s. 6d. cl.
Mahaffy's (J. P.) Greek Pictures drawn with Pen and Pencil, imperial 8vo, 8s. cl.
Marin (P.): Jeanne Darc Tacticien et Stratègiste, 4 vols. 14fr.
Mason, Josiah, a Biography, by J. T. Bunce, cr. 8vo, 3s. 6d. cl.
McMillan's (W. G.) A Treatise on Electro-Metallurgy, 10s. 6d.
Morris's (L. T.) Famous Musical Composers, being Biographies of Eminent Musicians, cr. 8vo, 6s. cl.
Munro's (J.) Pioneers of Electricity, or Short Lives of the Great Electricians, cr. 8vo, 3s. 6d. cl.
Napier (Sir Charles), by Col. Sir W. F. Butler, cr. 8vo, 2s. 6d. cl. (English Men of Action).
Nasmith's (J.) Modern Cotton-Spinning Machinery, its Principles and Construction, illustrated, 4to, 15s. cl.
Odes from the Greek Dramatists, translated by English Poets and Scholars, cr. 8vo, 7s. 6d. parchment.
Otto (Dr. E.) and Corkran's (S. F.) French Dialogues, 2s. 6d. cl.
Palgrave's (F. T.) Treasury of Sacred Song, cr. 8vo, 4s. 6d. cl.
Paulin's (R.) The Wild West Coast of New Zealand, a Summer Cruise in the Rosa, cr. 8vo, 2s. 6d. cl.
Pictorial History of British Empire, Social, Descriptive, and Biographical, illustrated, cr. 4to, 5s. cl.
Poetical Works of Milton, ed. by D. Masson, 3 vols. 8vo, 42s.
Reinach (T.): Mithridate Eupator, 10fr.
Ross's (Rev. C. B.) Our Father's Kingdom, Lectures on the Lord's Prayer, cr. 8vo, 2s. 6d. cl.
Russell's (W. C.) Horatio Nelson and the Naval Supremacy of England, 8vo, 14s. cl.
Sainte-Beuve's (C. A.) Essays on Men and Women, 2s. 6d. cl.
Sauer (C. M.) and Corkran's (S. F.) Spanish Dialogues, 2s. 6d. cl.
Say (L.) et Chailley (J.): Le Nouveau Dictionnaire d'Économie Politique, Vol. 1, 25fr.
Select Epigrams from the Greek Anthology, edited, with Text, &c., by J. W. Mackail, 8vo, 16s. cl.
Selenka's (Dr. E.) Zoological Pocket-Book, translated by J. R. A. Davis, 12mo, 4s. cl.
Stedman's (A. M. M.) Easy French Exercises in Elementary Syntax, with Vocabulary, cr. 8vo, 2s. 6d. cl.
Steel's (R. E.) The World of Science, cr. 8vo, 2s. 6d. cl.
Stirling's (J. H.) Philosophy and Theology, 8vo, 9s. cl.
Underhill's (A.) Simple Navigation for Home Waters, 3s. 6d. cl.
Walker's (B.) My Musical Experiences, 8vo, 14s. cl.
Warnecke (F.): Die Deutschen Bücherzeichen, 30m.
Williams's (W. M.) Chemistry of Iron and Steel Making, and of their Practical Uses, cr 8vo, 9s. cl.
Woodward's (C. M.) Manual Training in Education, 3s. 6d. cl.
Young's Christ of History, cr. 8vo, 3s. 6d. cl.

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THE EDUCATIONAL TIMES.

LONDON, NOVEMBER 1, 1890.

THE purpose and the place in education of manual training have recently received attention in every part of the world, and considerable differences manifest themselves as regards the estimate placed on this training in different countries. It is not surprising to find that the subject has been much discussed in the United States, and that our own Colonies, after having examined other systems, should conclude that that of the States is best suited to their wants. Colonists especially need to learn how to turn their hands to many things, and no doubt this special need influences them in their educational arrangements.

A report which has just been published in Melbourne, Victoria, presents, in a very condensed form, the view taken by an Australian of what he regarded as the difference between recent developments in America and Europe in the matters of technical instruction and manual training. The reporter is Mr. Steinfeld, President of the Melbourne Chamber of Manufacturers. He is a native of Germany, and for many years lived in London. He may therefore, be expected to bring to the inquiry a cosmopolitan and unbiassed mind. He points out that the fundamental principle on which the system of manual training in the United States is based, and also that on which the system in England, as far as it has yet been developed, is based, is a full recognition of the importance to all classes of the training of the eye and the hand, both in drawing and in the use of tools. The shop instruction which is essential to a mechanical engineer is deemed to have in it elements of value in general education, and specially so for an enterprising people living under the social conditions which prevail in the United States. Hence, tuition in the universal language of drawing has become widespread and efficient, and this tuition has been largely combined with highly systematised class instruction in the use of what are designated the universal tools. This instruction is primarily given as a useful qualification to a man in any position of life and without reference to his future calling. The manual training in the use of the pencil and of tools has made simultaneous progress in the States on three distinct lines:—

"1. It has been adopted in existing Universities, Colleges, and High Schools; nearly every polytechnic, agricultural, and mechanical school in the country has tuitional shopwork included in its technical courses.

"2. There have been erected several manual-training schools of a lower grade and far more general character than the institutions referred to in the preceding paragraph.

"3. In a large range of public and private elementary schools, manual exercises have been introduced, and even

systematic tool and drawing instruction, which is being given with what are regarded as most satisfactory results."

Mr. Steinfeld further remarks that the American conception of the relation between the schools seems also to be that of England, where in the Board Schools, particularly in London, both drawing and manual training are finding a place.

Above the Board Schools are some Polytechnics and Technical Institutes which may be called manual-training schools. The schools in Class No. 1 are represented in England, according to Professor Woodward, organiser of the St. Louis Manual Training School, by three London schools, namely, King's College, University College, and the central school of the City and Guilds Institute. Mr. Woodward says:—"These schools are all high-grade polytechnic schools, for which the manual-training school is strictly preparatory. It should be borne in mind that the graduate of a manual-training school enters a polytechnic school as a freshman." Hence, Mr. Steinfeld concludes that in both countries there are, to take the ascending scale, the public schools, into which manual training of some kind is being introduced; next, the manual-training schools proper, in which very systematised tuition in the use of tools is given; and then high schools, which are improving their workshops and toolwork instruction for the benefit of higher students who may or may not have passed through manual-training schools proper.

Mr. Steinfeld reports further that the technical schools of Germany are very good, and even grand of their kind, but they are definite trade schools, which would be of no use to our colonists. There are three grades of day schools and evening schools, but it is assumed by all that their pupils are destined for a particular trade. Again, in the lower and middle grades the tuition is too much confined to drawing, and scarcely extends to manual training. In France he was struck with the artistic taste and skill in designing which have been developed by special attention to drawing. In France, as in Germany, technical schools are special trade schools, but, in addition, tool instruction is given in Paris to all pupils of ten and upwards in the free public schools. Mr. Steinfeld adds to his report the following conclusions:—"On the whole, I concluded that the systems of Germany and France did not meet our conditions and requirements as much as that of America. For the reasons stated and indicated, I venture to recommend that we should endeavour to suffuse our own education with the American idea of manual training for all, associated with drawing as the universal language of industry."

The last remark is most important, and has a bearing on other systems of manual training, such, for instance, as the Swedish system which emanates from Nääs, and which the Sloyd Association, and the Sloyd Institute at Sydenham, under Miss Chapman and Miss Nystrom, are endeavouring to adapt to the wants of this country. Undoubtedly there is a basis of truth and wisdom underlying this system, and if it settles into such a place as the experience of the mass of teachers find it suitable for, only good can come of it. Unfortunately, it appears amongst us as a divinely-appointed subject, having only one prophet, and it is not permitted to mortal men to criticise it or to suggest additions to it. Only with bated breath, therefore, dare we venture to make a few suggestions arising from the reports we are considering. Let none conclude from them that we lack reverence for the respected and enthusiastic founder of the system, or that we fail to appreciate the value of Sloyd, for such conclusions would not be true. What we should like to see is, that Sloyd should take its natural place in the system of manual training.

Sloyd, as it is introduced, is evidently designed for a country where more time can be given to manual instruction than is possible, at least at present, in England. Three terms' work in it produces but little apparent result compared with what most people will expect.

As at present developed, the system seems suitable to boys and girls of, say, nine to ten years of age, and its place in an English education would be the next stage following on intelligent teaching by the Kindergarten method. The pupils in the Sloyd Institute at Sydenham are much older than this; but, of course, in working out an experiment, the principals have been compelled to make use of the material provided by adjacent schools. The present pupils have, undoubtedly, been trained to work with great accuracy, but it must again be remarked that the models are of very simple objects, and the majority of English and Colonial boys would require more advanced and progressive work to stimulate them to push onward at such a pace that the limited time at their disposal may be profitably spent.

A great defect in the system under review is the want of drawing as a means of preparation for each exercise. When we remember the great outcry among mechanics generally in this country about this defect in the educational system of the last decade, we feel very strongly that any system of manual training must be based upon the drawing of plans and elevations of the models by the children themselves.

If it were associated with drawing, and if due economy of time were secured, Sloyd might supply the Kindergarten of the manual training system.

We have of late been calling the attention of our readers to some of the chief reasons for studying the history of education; and we have also pointed out what seem to us to be the relations which should exist between the theory and the practice of teaching. So it is only fitting that we should now add a few remarks on the art of teaching—that art which theory indicates and practice approves as most effective.

The various aims of teaching group themselves readily under the heads of acquirement of knowledge, development of mental power, and rendering skill efficient. The mental processes connected with these are found to be, briefly stated, taking in, assimilating (including working up of material into new forms), and giving out. It is with regard to the last-named, with regard to *giving out* or expressing, that our present school methods are chiefly defective, being both incomplete and ill-constructed; while it is constantly forgotten that information and knowledge are not the same thing—that information only becomes knowledge by being assimilated, and only in proportion to the degree of assimilation; that making use of information is one of the most potent means to produce assimilation; and that effectiveness in work is the only true test that the assimilation is being or has been accomplished.

The learner, we find, is to gain knowledge for himself at first hand, by the exercise of his own native powers and through personal experience. The teacher is to be a stimulator, director, superintendent. Indeed, teaching may be described as "co-operative learning"—by which we mean to indicate not only that learner and teacher are to be fellow-workers, *both* of them *active*, but also that there should be a co-operation amongst the learners themselves. The educative influence of the young on one another is recognised clearly enough as existing *outside the class-room*, and especially in the playground; but we need to recognise it far more than we do as an educative influence *inside the class-room*, as a valuable factor in the process of learning, especially during the earlier and more imitative period of school-life.

The learner must begin with concrete objects and visible actions—with what to him are facts—and from these he is to get ideas, ideas of his own. He cannot teach himself by abstractions, rules, and definitions packed into words for him by others; for these seldom or never give him ideas of his own—his own, that is, in the truest sense. Under the direction, then, of the teacher and in companionship with other learners he teaches himself, beginning with facts and things—because these are what he *apprehends* best, and will find easiest to begin *comprehending*. He sees, handles, experiments; observes what things are, what they do, what they are like; exercises his powers of observation, memory, imagination, judgment; prepares himself, *fits himself* for understanding at the proper time *general* propositions founded on what he has acquired. He analyses, notes likenesses and unlikenesses, combines, constructs, expresses himself, all in a way well within his power. He is a discoverer, and is, therefore, interested; and remembers, because he gets the new information *when he wants it*, and therefore when it is most interesting; and he understands it, because he gets it in its right connections; while by so getting it he likewise renders what he already knows both more intelligible and more interesting. This acquiring of information in its right connections—together with the maintaining of the interconnections between facts, and the constant extension of these interconnections on every side—is another point of critical importance in the art of teaching, and especially in that part of it which has to do with the acquirement and skilled use of knowledge.

Again, by teaching himself, in the sense we have explained, the pupil proceeds in proportion to his strength, and must, perforce, advance from the known to the unknown, from particulars to generals, from compound to simple. He passes at the right rate from the indefinite to the definite. He also learns to *reason* on the relation of facts to each other, and of ideas to each other; while the logic of experiment will gradually lead him to the logic of thought—an order of progress which is of the greatest importance. He has, in fact, started a fund of knowledge and mental conceptions, to which, by the natural associations of ideas, other knowledge and other conceptions will attach themselves in due connection and succession. And further, there is another consideration which is only too often lost sight of—the knowledge gained personally by the action of the pupil's own mind will be as clear, as definite, and as accurate *as is possible in his case at the time*. The pedantic and tiresome insistence on minute accuracy in the early education of the young is one of the greatest stumbling-blocks in the way of their learning. It is part of the old ignorance of mind-growth and knowledge-growth, and is due to the now discredited attempt to treat children as miniature men and women. Because accuracy is of immense importance to men and women, it does not follow that it is of the *same* importance to little children—at any rate intellectually; and we shall not produce it by a process which is rather like bullying than teaching. It is only in an *historical* and *evolutionary* sense that the child is father to the man—antecedent, that is, in intellectual progress and development. Of course, the pupil's first observations and notions and conclusions will be imperfect—dim, indefinite, inaccurate—but by the exercises indicated his mind will have become more capable of *seeing their imperfections*, and of modifying and correcting them. By teaching himself, and relying on his own power in each special case, he is on the way to acquire the power of teaching himself generally, and is gaining for himself the habit of self-direction and self-support and vigorous endeavour—and this, as Joseph Payne long ago pointed out, is the end and consummation of the teacher's art.

The Headmaster of Harrow School has continued in the September number of the *Contemporary* the criticism which he opened in the May number of that Review on the Educational System in Public Schools. His aim in this second article is constructive. He desires to set before his readers, at least in outline, the kind of system which in his judgment would, for all purposes, be an advance on the existing one. The compromise known as the Modern Side, and which has been adopted in a large number of schools, he does not regard with favour, nor does he admit that it is the only or best method of meeting the intellectual demands of modern life. It is in his view, open to several objections; amongst others, it destroys or tends to destroy the visible unity of the school by breaking it up into unequal parts with different relations to its head. It is apt to impair the sense of equality which ought to exist among all the recognised lines of study and culture, and the chief defect of all is "that it does not meet and satisfy the large variety of intellectual demands, it allows an education which is bipartite, and cannot be amplified except by the process of specialisation which, if it be uniformly employed, will do away with the necessity of dividing the school into two co-ordinate sides."

It is to specialisation under suitable conditions that Mr. Welldon looks for the restoration of that organic unity which the public schools have lost through the inroads made upon the old exclusively classical training. He conceives that the multiplicity of subjects claiming admission to the school curriculum will lead to the postponement of certain subjects until a somewhat later age than has been usual; that it will restrict the range within which certain subjects are studied, except by the boys who study them as specialists, and it will encourage "a liberal elasticity in the studies offered to a boy from the time when his special aptitude or capacity has been determined."

Postulating, then, that studies which may afterwards be abandoned as useless ought not, if possible, to occupy the early educational years, the Headmaster of Harrow proceeds to unfold his own scheme. He divides school subjects into two great groups—the Primary, in which he includes

Divinity, Latin, French, Mathematics, certain branches of Natural Science and English Literature; and the Secondary or Optional, in which he includes Greek and German. The primary subjects should be taught to all pupils in the school between the years of ten and fourteen — not, of course, simultaneously, but successively; for Mr. Welldon holds it a mistake to teach too many subjects, especially too many cognate subjects, at the same time.

The second period of school life, from fourteen to sixteen, Mr. Welldon seems to consider a transition period which will disclose the direction in which the boy's aptitudes point; his primary studies will be still pursued; indeed, at no time in his school course will he be permitted to abandon the study of the primary subjects. At the age of sixteen the boy's intellectuality is expected to develop along one of four different lines, viz., the classical, mathematical, modern, or scientific, and the proposed new system would provide the means for enabling him to pursue the studies for which he had the greatest aptitude. He will, from the age of sixteen to the end of his school life, be allowed to devote half his school time to special subjects, devoting the other half to those subjects which he must learn in common with other boys. Such is a summary of Mr. Welldon's scheme, for which he claims the following merits:—

"Firstly, it ensures a certain community of intellectual property among all educated or cultivated people; secondly, it provides an education worthy of an age which is rich in literary and scientific works and interests; thirdly, it allows every boy a chance of developing whatever may be his individual ability; fourthly, it opens up a large field for the intellectual abilities of the masters, giving every master the power of teaching his favourite subjects; and, lastly, it supplies a means of preparing boys for the numerous purposes and conditions of life, and of passing them through their requisite examinations without a sacrifice of the scholastic system."

It is very gratifying to find that a Headmaster of one of the great schools is prepared to make such very considerable changes in the time-honoured public-school curriculum, and has such an open mind in reference to Latin and Greek versification and other matters, but we are by no means sure that his system will work as well in school as it looks on paper. The half-time which boys between sixteen and nineteen are to give to general subjects will be considered as interfering too much with special studies. There are other objections which occur to us, but we are now concerned only to set Mr. Welldon's views fairly before our readers without any adverse comment.

REVIEWS, NOTICES, &c.

Essays on Educational Reformers. A New Edition. By R. H. Quick. (Longmans & Co.)

We mentioned last month the near advent of a new edition of Mr. Quick's well-known "Essays on Educational Reformers." The book now lies before us. It is neatly bound in half-cloth. The type and printing are excellent. The amount of matter has been nearly doubled, partly by the addition of new essays, and partly by the recasting of old ones. The new essays are on *The Renascence, Sturmius, Rabelais, Mulcaster, The Port-Royalists, English writers before Locke*, a *Conclusion* (mainly the recast of a lecture delivered at Leeds in 1877), and a delightfully chatty *Appendix*, giving, amongst other things, a genially-sarcastic "history of this book." The most notable examples of the recasting of the older essays are *Comenius, Pestalozzi*, and *Froebel;* the two former are more than doubled in length, and all three are practically re-written. The Pestalozzi and Froebel essays used to be the weak points of the book; they are now among the strongest. The essays on the Jesuits, Ascham, Montaigne, and Ratichius have also been much enlarged. The list of contents and the index are excellent, and the head-lines to the pages are as valuable as ever. Notwithstanding all that has been done to it, the book is now published at the extremely moderate price of three shillings and sixpence. It is therefore within the reach of every teacher, and every teacher should get it. When he has read it through he will have only one thing to regret—that he can never read it again *for the first time*, though he can, and will, read it again for a second and third.

It is twenty-two years—nearly a quarter of a century—since "Educational Reformers" first appeared, and some of us, when we heard that the book was being recast, were afraid lest something might be lost in the process. To such a constant student as Mr. Quick, the years were certain to bring the philosophic mind; but would they have taken away the charm of style and the freshness of the early enthusiasm? Our fears were vain—the new passages are even brighter and fresher, and more individual than the older ones. Mr. Quick is just as genially sarcastic and humorous, just as keen-sighted and in earnest as ever; and his language just as clear, smooth-flowing, and lively.

"Educational Reformers" is not a history of education, but a collection of essays on the leading personages and topics of that history. We must not, therefore, expect to find a leading theme running through its pages other than that which the chronological arrangement and the constant cross-references supply. We neither praise nor blame the book for this; but we may add that we are quite certain that such a book as the one before us is infinitely better for a young student at the beginning of his or her training than any grave and scientific history ever could be. In training, as in all other educative work, we have ceaselessly to bear in mind that what is proper for the advanced and well-developed student is *not* proper for the immature beginner. Knowledge always begins informally and with what is informal. The informality of the plan of the book therefore does not trouble us in the least. In motive and aim there is no lack of definiteness and connectedness. All through, Mr. Quick desires and strives (very successfully) to set before us clearly and interestingly what the Reformers thought, and what they did. Our only regret is that he should not have considered it necessary to call in more than he has done the aid of pyschology in interpreting and criticising these thoughts and doings, these principles and methods of the Reformers; for, by adding the psychological to the historical exposition, he would have helped the advanced even more than he has helped the younger student, though he has already helped both to an extent which has won our sincerest gratitude.

We have so lately expressed our opinion of the value, to a teacher and a reformer, of the study of education in its historical aspect that we need not touch upon the matter again here. We shall therefore devote the remainder of our space to suggesting a few changes and additions which might perhaps some day be made with advantage in this stimulating book. First, then, we should have liked to have had Charles Hoole treated with much greater length and fulness. He was a very enlightened man, a practical schoolmaster of long experience, and no one knew better than he the plans and the possibilities of English schools in the early seventeenth century. He was moreover a voluminous and original writer. Something, too, might have been told us about Père Girard. The reference (p. 350) to him and his relations with Pestalozzi bears rather hardly on the kind-hearted and self-sacrificing teacher, and seems to be an echo from Michelet's *Nos Fils*. So much did Girard feel his having to report unfavourably on some of Pestalozzi's work in 1809, that it brought on a severe attack of illness; while Pestalozzi, it is plain, bore him no lasting ill-feeling, for, when visiting Girard's school at Fribourg in 1817, his criticism was: "Girard works miracles; he transmutes mud into pure gold." In the essay on "Fröbel," we think that more should have been made of his doctrine of *creativeness* (as a moral as well as an intellectual force in education), and of the other fundamental doctrine of *connectedness;* while his view that *all* work may be made religious by regarding it and employing it in all states and stages of life *as a divinely appointed means for human education*, should have been more distinctly referred to. The educational difference between "gifts" and "occupations" should also have been marked. In the essay on "Rabelais," his views on religious

education (p. 65) are dismissed too briefly. To mention one point only—the contemplation of the heavens the last thing at night and the first thing in the morning, is meant to have a decided religious effect, viz., to raise Gargantua's mind and and heart "vers le grand plasmateur de l'univers"—the objectiveness of the method being quite in keeping with the rest of the plan. It would be interesting, too, if Mr. Quick would some day work out in an appendix the conscious or unconscious indebtedess of Locke to Comenius. During his five years' residence in Holland (1683–88) Locke must have constantly associated with men who knew and admired the principles and the methods of the great Moravian, and, to our mind, his influence is constantly noticeable in the "Thoughts." It is strange that Locke should not have mentioned him—especially as the *Orbis Pictus* and the *Janua* were well known in England at the time.

But we are running to too great length, and are keeping the feast waiting while we stand staring at a stool—a mere detail of no importance. Once more we thank Mr. Quick for his gift to us teachers, and we prophesy for this new edition a great and well-deserved success.

A Students' History of England, from the Earliest Times to 1885. *By Prof. S. R. Gardiner. Vol. I.*, B.C. 55—A.D. 1509. (*Longmans.*)

Prof. Gardiner is too well-known as one who writes with authority on matters of history for it to be necessary for us to assure our readers that a history-book of his is well-informed, well-considered, and accurate. Here and there some small details might, no doubt, be called in question—and we may mention, with due deference, one or two of these points later on—but the main thing which a teacher will want to know is, What has Prof. Gardiner selected as his subject-matter, and how has he treated it? Is the book really a *school* book, or is it a handbook for specialists, or a note-book for examinees? No one, however, who knows and has used that excellent little "Outline of English History" which Prof. Gardiner gave us a few years ago, will be in any great doubt as to what to expect. He will feel fairly certain beforehand that both selection and treatment are likely to be highly satisfactory. He will not be disappointed. The book is distinctly a *school* book, and it is excellent. It is not meant for beginners, but for "such students as have already an elementary knowledge of the main facts of English History"—in other words, for the highest classes in our schools—and "it aims at meeting their needs by the use of plain language, on the one hand, and by the avoidance, on the other hand, of that multiplicity of details which is apt to overburden the memory." Let us add, also, that a prominent feature of the book is the number of its well-executed illustrations, which are not only pleasing to the eye, but are also of very decided value as vehicles of instruction, especially in matters of architecture and social manners and habits. This department is under the direction of Mr. St. John Hope, secretary to the Society of Antiquaries.

The "Students' History" seems to us to lie midway between Mr. Green's history and Mr. Bright's. It is not so picturesque and vivid as the former, nor so overburdened with facts as the latter; while, as we have said, the pictures are a very decided gain. There are to be three volumes, published at four shillings each—which makes the book somewhat dear for school use—and the amount of letterpress will be somewhat less than that of Green's book. The index is full and good, the genealogical tables are sufficient, and there is to be a separate volume of maps. Prof. Gardiner may therefore claim for his book the merit of *completeness*, especially as he does not omit, as some do, to treat of matters social, artistic, and literary.

The language is, in general, simple and plain, but here and there the wording shows signs of haste. Thus (p. 239), "In 1339 Edward crossed the French frontier, but, as Philip avoided battle, his German allies deserted him." The "his" and "him" are meant to refer to Edward. On p. 269 the wording would imply that Sir Robert Knowles fell upon Wat Tyler's men at Smithfield itself, though we do not think this can be the meaning intended, as it is not in accordance with fact. Indeed, the whole treatment of the Peasant Revolt is somewhat unsatisfactory. The old story of the tiler of Dartford and his daughter is brought in, and the man seems to be identified with Wat Tyler, of Maidstone, who led the Kentish men. We suppose King Richard's speech must be retained, but, though picturesque, it seems to us very unreal. Is it even certain that Richard could speak English? There is still less likelihood that his grandfather could do so, and yet (p. 258) the fact that the parliament of 1362 was opened with an English speech is referred to in a way that implies that King Edward spoke the language. We are not prepared to accept altogether the account given of the Black Prince's views and actions in connexion with the "Good Parliament"—except with the warning that they were mainly or wholly inspired by Wykeham—nor is the character assigned to John of Gaunt quite to our mind. Does Prof. Gardiner forget, by the way, that in the very same year, and just before his death, the Prince appointed by will John of Gaunt and Wykeham as joint executors of all his effects? The account given by the anti-Wycliffite monk of St. Albans—and in particular his imaginary conversations—should not be accepted without at least *some* caution.

However, we have no intention of fighting over a few details, for, as a matter of fact, we are sincerely grateful to Prof. Gardiner for giving us such a book. Would it were cheaper! It may interest our readers, in conclusion, to know that Vol. I. of the "Students' History" begins with "Palæolithic Man of the River-Drift." One can't get much further back than that.

Map Studies of the Mercantile World, auxiliary to Our Foreign and Colonial Trade, and illustrative of part of the Science of Commerce. By John Yeats, LL.D., &c. (*G. Philip & Son.*)—It is easy to give a lesson in geography when the teacher is only required to supply a few names of places and point them out on a map. It is easy to give out mnemonics whereby a class may say off the rivers of England or the towns of Germany. It is easy to listen to the sing-song repetition of the mnemonics, and it does not seem unpleasant to a class to learn and say them. Such easy lessons as these would not satisfy Dr. Yeats. He rather says, "Look at your maps." (By the way, he presupposes most beautifully exact and large-scale maps.) "You see the different countries, rivers, towns, mountains, seas, lakes, &c., marked on them. Well, read the maps." By processes of induction, he would require pupils to draw practical inferences from the physical data which the maps supply, as to the resources and capabilities of different countries. "The student searches for the ports and centres of distribution, distinguishing also emporiums, entrepôts, and industrial sites. In fine, he learns how the trade of the world is carried on, not haphazard, but in *conformity with principle*." Dr. Yeats' plan will be seen more clearly if we give the eight questions to which he would ask the student, with a map before him, to suggest answers: 1. How is the capital of this country best reached from England? 2. Give the industrial characteristics of the people. 3. What does the country yield commercially? and what special wants prevail? 4. Explain its principal inlets and outlets—whether seaport, waterway, or railway—and sketch the river-basins. 5. Name the chief sites of its various industries, and also of its distributing centres. 6. Show its internal communications by stream, canal, rail, or track. 7. What effects have physical features upon the commerce of a country? 8. How has man assisted or overcome physical features, and what has been the effect upon commerce? Dr. Yeats shows that the answers to these questions will put a student into the possession of the geographical knowledge which will be most important from a commercial point of view. He shows how the student may be encouraged to suggest questions, the answers to which will reveal, eventually, the laws which underlie what we may now begin to call the science of commercial geography. But perhaps the most interesting feature of Dr. Yeats' work is what we will call his humanitarian treatment of commercial geography. He finds, after all, that he has to tell his student to leave the map for a while to get complete answers to some questions. The physical features of a country will explain a great deal of commerce, and as these now are very clearly represented in maps, a study of maps is essential in the explanation. A study of maps, however, would show us that some countries, *e.g.*, Holland, have physical features which would lead us to expect that they were very poor, whereas the opposite is the case. On the other hand, we might expect other countries, from their natural advantages, to be far more flourishing than they are. Accordingly we have to turn to the characteristics of the men and women forming a particular nation. Close maps; open histories and descriptive geographies. From these combined sources of knowledge we may inductively work out the very important principle enunciated thus by Dr. Yeats: "Extremes of climate or sterility of soil must limit the returns of labour, *yet, not so much as mental indigence lessens the reward*." Dr. Yeats takes the various

mercantile countries of the world, one by one, and asks his questions, and opens his map to answer them. It is from no ingratitude for the wealth of detail he supplies that we are bound to point out that the keenest powers of intellect vouchsafed even to an experienced student would not evolve from maps alone this complete equipment of geographical facts and principles. The methods employed, however, the inferences, and, above all, the spontaneous suggestiveness which the writer makes facts assume, are admirable, and an excellent study in geographical discipline. We note that Dr. Yeats lays down the law to the student that he is to use the "*latest* statistics." In reading his section on Switzerland he gives the population as about $2\frac{7}{8}$ millions in 1880. Why not give the "*latest*" statistics? Later statistics are obtainable, for Mr. Chisholm, in his excellent Smaller Commercial Geography, gives them for 1888.

The Golden Gates of Trade, with our Home Industries; introductory to a Study of Mercantile Economy and of the Science of Commerce. By John Yeats, LL.D., &c. (G. Philip & Son.)—Dr. Yeats quotes the words of Dr. W. B. Hodgson: "This knowledge is not dead lumber, but living seed; it gives reality and place and purpose to the coming life, makes plain the connection between individual and social welfare, between physical and moral well-being." The book before us in its aim, scope, and execution, appears to justify both Dr. Hodgson and Dr. Yeats. It attempts a great deal. There is a detailed account of what might be termed the content of the term Commerce. The standards, the conditions, and the methods of successful commerce are exhaustively illustrated. Then follows a fuller description of the site of the United Kingdom, its communications, and a general account of its trade. Then its fellow-traders are described; and its rivals in business. After commercial movements have been dealt with according to national divisions of territory, the national trade-divisions of the Continent are described. Thus, materials have been provided for judging of commerce as a whole. But, comprehensive as the matter of the book is, the methods employed are even more noticeable. Such a book as this will serve to remove from the minds of readers the impression that commerce as a study is not a means of mental discipline. For the teacher or student who wishes to get an adequate idea of commercial science this book will be really valuable.

Geology. By C. Bird, B.A., F.G.S. (Longmans.)—The convenient and valuable book which we have before us will be welcomed with gratitude by every teacher of geology, and will be of great service to all who wish to begin the study of that science. The excellent series of Elementary Text-Books of Science contains, we think, no better or more compact piece of work than the volume furnished by Mr. Bird. The hints on the adjuncts of geological lectures thrown out in the preface are valuable, and prove that the author is a thoroughly practical master of his subject. From experience he speaks of the advantage to be derived from a case of geological specimens—the nucleus of a school museum, from a plaster relief-map of the district from which his pupils are drawn, from photographs, lantern-slides, country walks, and excursions. The absence of technical detail in the book itself is very noticeable, only enough being given to ensure a clear understanding as to how conclusions are arrived at. The author's aim has evidently been to present, in a simple and practical manner, a subject usually considered very technical, and in this respect his success is marked. The arrangement of the chapters is excellent. The first twelve deal with the three following topics: First, the rocks of which the earth is made, their appearance, composition, and properties; second, the various agencies which are at work on the earth, altering, destroying, and reconstructing these rocks; and third, the fossils, and the light they throw on the past history of the earth. The remaining twelve contain a lucid and complete account of the various systems of rocks. At the end of each chapter there is a short summary of the preceding subject-matter, and a few questions for examination. One word about the illustrations. While replicas of well-known cuts are often to be found in elementary science-books, Mr. Bird has selected some unusually well executed engravings, and, where occasion offered, has made plans of his own district do duty. Let the teacher of geology set out and make similar plans of his own district, and he will be sure to excite the curiosity and interest of his pupils. The book is sure to be well used, and we heartily recommend it. The study of geology will give pupils one opportunity to get information at first hand, while they are compelled to get so much at second hand; one opportunity to walk by sight, while they are walking so much by faith.

Chronological Outlines of English Literature. By F. Ryland, M.A. (Macmillans.)—Of the plan of this book (which, by the way, is published at 6*s*.) we can speak highly; but not by any means so highly of its execution, though we frankly admit at once that the difficulties in making a satisfactory book of the kind are very great. The "outlines" consist of two parts; and Part I. is again subdivided. In Part I. down to the year 1500 the headings are: *Year, English, Latin and French, Foreign Literature, Historical Events*—with here and there a note at the foot of the page. From 1500 to 1889 the headings are: *Year, Works Published, Biographical Dates, Foreign Literature, History, Annotations.* Part II. consists of an alphabetical list of authors' names, with dates of birth and death, and under each name a dated list of principal works. All this is as it should be; but we cannot understand why names which are given in Part I. should not appear in Part II. The reverse plan would be intelligible; this is not. But, even if we accept the plan, why are Mr. Gosse and Mr. R. L. Stevenson given in Part II., while Prof. Dowden, Mr. Aubrey De Vere, Mr. Besant, Mr. Thomas Hardy, Mr. James Payne, Miss Braddon, &c., are not? And if Mr. R. L. Stevenson must be mentioned, why is his "Inland Voyage" omitted? If Mr. Ryland finds it hard to settle the rival claims of living authors, it would be better to stop at 1850. This would eliminate a good many, and the claims of the others would be easily settled; while the lists of the works of *these* might be completed down to 1889 in Part II. But after all the task was a hard one, and Mr. Ryland has not, on the whole, done it badly. We have not noticed any mistakes in dates; and to get them right must have been very difficult indeed.

Macmillan's Geographical Series.—An Elementary Geography of India, Burma, and Ceylon. By Henry F. Blanford, F.R.S. (Macmillans.)—This book is on the same plan as Dr. Archibald Geikie's *Elementary Geography of the British Isles—i.e.*, it aims more at description of the countries, the towns, and the peoples who inhabit them, than at giving statistics. To carry out this idea, we are given many excellent pictures of places, buildings, natives, and scenery which add considerably to the usefulness of the little book, inasmuch as for the most part they are taken from photographs. To enable our readers to judge for themselves, we will quote the description of the general features of Ceylon:

"The island, which has somewhat the form of a pear, consists of a central mass of mountains comparable with some of the outlying hill groups of the Carnatic, and an encircling plain which occupies all the northern half of the island, and is narrower and more hilly on the east, west, and south. As in the Carnatic, the hills and plains consist of hard crystalline rocks, sometimes covered with laterite [explained in a note], with a small fringe of recent marine formation, chiefly at the northern extremity. The south-west of the island has a very damp and uniformly warm climate; at Point de Galle there is a difference of only 19° between the warmest day and the coldest night in the year. This dampness, arising from the frequency and heaviness of the rainfall, is caused by the hills which obstruct the currents of both the summer and winter monsoons from the opposite coasts. But the north-west and south-east coasts are very dry, and like the drier parts of the Carnatic. The vegetation shows corresponding differences. It is very dense and luxuriant on the hills and in the South-West Province from Galle to Colombo; less so to the east of the hills and over the northern plain; but the greater part of this plain is, or was not many years ago, covered with magnificent forests, in which lay hidden the ruins of great cities and tanks constructed by the native dynasties that ruled Ceylon from the fourth century B.C., and in the first twelve centuries of our era, before the country had been overrun and devasted by Indian invaders from the Madras coast."

After this we are given some three-and-a-half pages on "position and area," "mountains and rivers," "administrative divisions," "towns," "population," "productions," and "railways." Altogether we think that teachers will find the book useful and interesting. It has one great drawback, however: there is no Index.

Lippincott's Monthly Magazine. (Ward, Lock, & Co.)—The October number of this Magazine contains an interesting and vigorous article on "University Extension," particularly with reference to America, by Sydney T. Skidmore. It is a plea for the formation of colleges with hours of instruction and study which are not demanded for business. The author's views are contained in the following extracts:—

"There is no good reason why the ministrations of school should be cut off from any at the age of fifteen or twenty years; no good reason why they should not be continued as long as the mind continues to feed. If we were as sensitive to the mind's needs as to the body's, this point would need no argument. The stomach enforces its natural demands by

sanctions which no one cares to dispute. As long as it lives, it demands the ministrations of a cook, and will have them; but because the mind does not gnaw, and ache, and twist itself up with pain when stuffed or starved, it is school-stuffed for ten years more or less, and school-starved for the remainder of life. When the stuffing is on, it is absolute; and when it is cut off, the starvation is equally so; and thus, before mental life has fairly begun in earnest, the last examination has been passed, and all systematic feeding is suddenly cut off; thereafter the aspirant may browse along the highways, like an ownerless animal. In all grades of childhood there should be an equitable division of opportunities for school and play, while for youth, and reaching as far into maturity as may be desired, systematic study, with the aid of instructors, should be made coexistent and move abreast with industrial pursuit, rather than tandem as at present."

The author then describes the means which are growing in America for this kind of instruction to men and women who are daily engaged in business. Social clubs for home study are organized yearly, and "chartered Universities show signs of a tendency to grow downward into the soil of humanity, as well as continually upward into the cloud-mists of reputation and empyreal glory." They have issued prescribed courses of study, making the students who take them at home in a special sense members of the University, and have appointed a kind of examination itinerary to gather up the results and establish promotions. This summer a Society for the "Extension of University Teaching" has been organized in Philadelphia, and a council of fifty appointed to promote it on the English plan. The complete story in the October number is "A Marriage at Sea," a story of an elopement; that in the November number is "A Laggard in Love."

The Newbery House Magazine. (*Griffith, Farran, & Co.*)—The numbers of this magazine for the months of August, September, and October contain a series of interesting articles under the title "Some Notes on the History of Books for Children," by Mr. Charles Welsh, of the firm of Griffith, Farran, & Co. Mr. Welsh has made a close and continuous study of the history of children's books, and is in this department not only antiquarian and historian, but philosopher also. We remember Mr. Welsh's introduction of the subject a few years ago to that famous literary society which meets once a month to dine and talk literature under the presidency of "His Oddship," when Mr. Welsh placed before the Society wonderful collections—first of printed and illustrated books of many centuries, and, secondly, of coloured books for children almost entirely of the last century. Mr. Welsh then said he could not imagine any of the "Sette of Odd Volumes" being such high-and-dry old fogies that they could not take a keen interest in the books that are now being provided for the amusement and edification of the inmates of the nursery, and, indeed, each O.V. present took the most affectionate interest in the books which had charmed and delighted him in his own childhood. It is true, as Mr. Welsh said, that in turning over the pages of those old prim formal books with quaint dresses and quainter illustrations, "we seem to breathe the spirit of a quieter age, when no railway trains were rushing about the country, no telegraphic wires were flashing messages to and fro, and when there was really time to live and move and enjoy existence." In the articles of the last three numbers of the *Newbery House Magazine*, Mr. Welsh has gone as far to reproduce this feeling in his readers as it is possible to go without the actual production of his unique collection. As he goes through the history century by century, he supplies a vast amount of interesting information which, to teachers of the young, is far more entertaining, for it conveys here and there enunciations of principles which are now generally recognised as fundamental in early education. It may be noted that the guiding hand and directing brain which first developed this special branch of publishing, were those of John Newbery, and Mr. Welsh found some of his specimens in "the archives of the house of the successors to Newbery and Harris." There is evidently a double appropriateness in the title of the magazine before us, and in the subject of these articles in it.

The "Falcon" Edition of Shakespeare's Plays. King John. Edited by Oliver Elton. (*Longman & Co.*)—Probably most of our readers know the editions of *Julius Cæsar* and *The Merchant of Venice* by Mr. H. C. Beeching. Take them for all in all, they are the best school editions of the plays which have yet been published. Mr. Elton's *King John* belongs to the same series, and is edited on much the same lines; but, to our mind, not quite so successfully. It has the same marks of literary and artistic appreciation, the same moderation in notes and illustrations, and very nearly the same simplicity and clearness of explanation; but the introduction is somewhat unclarified and not very helpful. An introduction should attract and stimulate the pupil's interest in what he is going to read; tell him just so much as will make what follows fully intelligible to him; and strike the key-note of the play as a whole, and of the most prominent characters in it. Mr. Elton probably knows this, but he does not quite succeed in doing it. On the other hand, the notes are written with great care and good judgment, and with a pleasant consciousness that they should help the pupil to understand and appreciate the play and the characters, besides explaining the hard words and obsolete phrases. By the way, Mr. Elton is wrong in imagining that any one expects a school edition of a play to say anything *new* about Shakespeare. The best and most suitable of what has been already said is all that any teacher asks for.

Wanted—a King. By Maggie Browne. With Illustrations by Harry Furniss. (*Cassells. 3s. 6d.*)—This is a contribution of real value to the library of little folks. It is a dream, of course—children are now too learned to believe in real wonders—but a delightfully natural, nay probable, dream in which the nursery rhymes of our children appear *in propriâ personâ*, and, under the leadership of a little girl, successfully resist the tyranny of the oppressor. This is not the first time that Miss Maggie Browne has shown that she understands the difficult art of writing for children. She knows that the first quality they insist on is earnestness: they have not yet learned to cram their history for examinations, and, consequently, they insist on having it *true*, and in proper fulness of detail. Many children's stories are spoiled by a flippant manner: the author clearly does not believe in his tale. This is not the case with Miss Maggie Browne. She believes in her story, and, though it bubbles over with fun, yet it is never allowed to become farcical. It is an interesting tale, told with a gravity that must delight the child critic, while it very much amuses the critic of an older growth. It is a great pleasure to meet with a tale for children that appeals to no morbid sentiment, and flatters no vulgar taste. The book is illustrated by a number of pictures by Mr. Harry Furniss, who is so well known to most of us by his wonderful sketches in *Punch*.

OUR LIBRARY TABLE.

Selections from Cicero. By M. J. F. Brackenbury. (*Percival.*)—In each of these two small volumes we have fifty extracts from Cicero, on which short and sensible notes are added, together with half that number of English pieces more or less closely parallel to be rendered into Latin. The first series consists of miscellaneous passages with some progressive increase of difficulty, the second entirely of extracts from the orations, in which the chronological order is preserved. The selection is a good and interesting one, and the parallel passages are well adapted in respect of difficulty to stimulate without overtasking an intelligent pupil.

Sabrinae Corolla. (*Bell & Sons.*)—This fourth edition, though it appears after the death of the great scholar who was associated with its predecessors, has not lacked his editorial care. As is feelingly recorded by his coadjutors, "quae erat illa mirifica industria et prope incredibilis Musarum amor, huic libello augendo et emendando paene ad extremum aetatis iam nigravescentis diem diligentissime incubuit." A number of new pieces have been added, including well-known versions of Lord Tennyson's epitaphs on Sir John Franklin and General Gordon, and an extract in Greek iambics from the "Revenge."

Parallel Grammar Series.—English Examples and Exercises. Part I., Outline Lessons and Exercises in English Accidence. By M. A. Woods. (*Sonnenschein.*)—We have spoken with, on the whole, decided approval of the English Grammar to which this little book is to supply examples and exercises. But we are not prepared to extend anything but a very qualified approval to this little book itself. Its plan is to define and explain, and then to give examples. Our idea is that examples should be given first; that these should be discussed; that gradually the natures of the parts of speech should be arrived at; and that definitions should come last of all. We wholly disapprove of the definition, "a pronoun is a word used instead of a noun." The first example given in the book itself at once shows the fallacy; for, if in the first or second person you change the pronoun to a noun, you have also to change the person of the verb, since nouns are only of the third person. Pronouns do not *name*, they merely *indicate* what is spoken of (or, in the case of personal pronouns, the person speaking or spoken to). On the other hand, it is very refreshing to find that nothing is said about the *gender* of nouns—there being really nothing to say; and the examples are undoubtedly well chosen in all the exercises. The explanations, moreover, are, on the whole, sound and sensible. In short, we like the book in many respects; and disapprove of it in a few.

A History of England. 1485–1580. By C. S. Fearenside, M.A. (*Clive & Co.*)—This is one of the volumes of the University Correspondence College Tutorial Series, and is meant to be used by candidates preparing for the examinations of the University of London. It, no doubt, is fitted to be used in this way. The only noticeable features in the book, how-

ever, seem to be chapters on "Tudor England," and on the "Literature" of the period,—the latter being by Mr. W. H. Low, M.A. Both are very brief; but the former seems to have been written with special care.

(1) *The New Educational Code.* 1890–91. *Edited by John Russell.* (*Collins, Sons, & Co.*) (2) *Handbook of the New Code,* 1890. *By John F. Moss.* (*Cassells.*)—These are both very serviceable editions, and it would be so hard to say which is the better that we shall not try. Every teacher knows Mr. John Russell, of *The Schoolmaster*, as an experienced editor and a master of his subject. And Mr. John F. Moss is the energetic clerk of the Sheffield School Board. Both books give every kind of information which any one can need, and both give it in a handy workmanlike way.

Shakspere's King John. With Introduction and Notes. By Thomas Paige. (*Moffatt & Paige.*)—This is one of Moffatt's series of plays of Shakspere, which we have more than once noticed as serviceable and sensible in its plan; and this example is as good as the rest. The introduction, or rather the introductions, contain all that can possibly be needed by any one in the way of information; and some pages of literary criticism are quoted from Dowden, Gervinus, Hudson, and others. There are also lists of "notable passages," and of lines and phrases which have become familiar and even proverbial. The "Notes" will probably satisfy most people; but we very much object to "examples of analysis of sentences," and "typical questions collected from various examination papers." These things degrade the study of literature, and are especially out of place in an edition of a play of Shakspere's.

(1) *The Advanced Historical Reader.* (*Collins, Sons, & Co.*) (2) *Chambers's Expressive Primer. Parts I. and II.* (*Chambers.*)—We need only mention that the first of these costs eighteenpence, and covers the period from the Roman Conquest to the Present Time in 280 small pages. Of the *Expressive Primer* we may say that Part I. costs threepence, and Part II. fourpence.

Geometrical Drawing for Art Students. By J. H. Morris. (*Longmans.*)—The work necessary for the Second and Third Grade Art Certificates is fully covered in this excellent book, which contains more than six hundred figures, arranged in convenient form, with suitable explanatory remarks. There is also a very complete and exhaustive collection of exercises, many of which are taken from the papers of the Science and Art Department. The chapter on Solid Geometry takes up about forty pages, and is unusually, yet not too, full.

The Century Arithmetics. Standards VI. and VII. (*Blackies*).—A cheap little book, containing an immense number of suitable exercises, with an occasional sum or two worked out. Mental Tests occupy a prominent position.

Examination Papers in Trigonometry. By George H. Ward, M.A. (*Bell & Sons; Methuen & Co.*)—One hundred and twenty papers, each of seven questions, embracing the whole range of Trigonometry, and about ninety questions on book-work, are the contents of this latest addition to the *School Examination Series.* The papers are invariably good, and are carefully graduated.

Notes on Trigonometry and Logarithms. By the Rev. J. M. Eustace, M.A. (*Longmans.*)—This is a very satisfactory treatment of the elements of Trigonometry, and is eminently the book for those who have not the assistance of a tutor. The book-work is always intelligible, and numerous questions bearing on it in each chapter are solved. The chapter on "Geometrical Proofs of some Trigonometrical Formulæ" is very complete and good, and the same remark applies to the treatment of the Ambiguous Case. The general appearance of the book and the typography deserve a word of praise.

Elementary Algebra. By W. A. Potts, B.A., and W. L. Sargant, B.A. (*Longmans.*)—This little work is intended mainly for the use of those who are preparing for the public schools, and includes those portions of the subject on which questions are set at the various Public School Entrance Examinations. Specimen papers set at Rugby, Clifton, and Fettes are included. The paper is excellent, but the typography is far too small for young eyes.

The Dramatic Works of Jean Racine: a Metrical English Version. By Robert Bruce Boswell, M.A. Vol. II. (*Bell & Sons.*) — The second volume of this metrical English version of Racine's works contains the following:—Bajazet, Mithridates, Iphigenia, Phædra, Esther, Athaliah. The excellence of translation and metre have been well maintained throughout. A short introduction precedes each play.

Second Greek Exercise Book. By Rev. W. A. Heard. (*Macmillans.*)—This Exercise Book, of about one hundred and fifty pages, is supplementary to the First Exercise Book of Macmillan's "Greek Course," and deals mainly with the verb. It is based on Dr. Rutherford's "First Greek Grammar," and should be used in connexion with it. It contains over two hundred well-graded exercises, each of ten sentences, numerous grammatical notes, and vocabularies. We recommend it to the careful attention of schoolmasters.

Classical Latin Vocabularies. By E. Dawes, M.A. (*David Nutt.*)—The fact that the author's Greek Vocabularies have been adopted in some of our public schools is sufficient justification for the appearance of Latin Vocabularies on the same plan as the Greek ones. They are arranged in subjects, the words being placed in each section in English alphabetical order. The vocabularies are intended to be learnt by heart, and all will agree that a knowledge of so many words will assist greatly in the translation of "unseens," and the writing of prose.

A Practical French Grammar. Part I. By Mortimer de Larmoyer. (*Kegan Paul, Trench, Trübner, & Co.*)—The author of this neatly printed and well-bound volume appears to be confident that those who use his book will be able to speak and write the French language in a comparatively short time. We cannot hold out any hope that such will be the case. The plan of the book is this: Each lesson begins with some grammatical rules and a short vocabulary; then follow dialogues in French; and, lastly, two exercises for translation from English into French. In almost every one of these exercises some strange English appears. The following are a few sentences taken quite haphazard:—"The town was taken without striking a blow," "We shall have worn your new coat," "I shall correct that little liar," "I should have joined a letter to the book I sent you."

A First History of Rome. By W. S. Robinson, M.A. (*Longmans.*)—Although this book might well rank in size with any of the Oxford Pocket Classics, yet it contains about three hundred and fifty pages, teeming with useful information, and embracing the history of Rome down to the fall of the Western Empire, A.D. 476. We know of no better book to place in the hands of a young student of Roman history. There are several illustrations and maps.

Tacitus—Annals I. By W. F. Masom, B.A., and C. S. Fearenside, M.A. (*Clive & Co.*)—The three parts of this work may be obtained separately, or together in one volume. Part I. contains Introduction, Text and Notes; Part II., A Vocabulary (interleaved) in order of the Text, with Test Papers; Part III., A Translation. The Introduction throws a clear light on the subject-matter of the book, and on the state of Rome in A.D. 14. The notes are lengthy, but hardly a point is passed over without due attention. They are followed by a historical and geographical index. The test papers are thirty in number, each containing four or five questions. With such a book as this in his hand, the student may study a difficult author without complicated reference to other volumes.

New Five-Shilling Atlas. Edited by Geo. G. Chisholm, M.A., B.Sc. (*Longmans.*)—This Atlas comprises all the political maps in "Longmans' New Atlas," which we favourably noticed some eighteen months ago. The maps are thirty-two in number. A special index has been compiled for this Atlas.

(1) *The London Matriculation Directory, No. VIII.* (2) *Intermediate Arts Directory, No. III.* (*Clive & Co.*)—The regulations of the respective examinations, advice as to the choice of text-books, papers set in the recent examinations with solutions, are the contents of these two Directories.

Heat and Light Problems. By R. Wallace Stewart, B.Sc. (*Clive & Co.*)—This is a graduated course of worked examples and exercises on these subjects, and is issued as a supplement to the author's "Elementary Text-Book of Heat and Light." The several branches of the subjects are arranged in separate chapters. Each chapter begins with an enumeration of the laws or formulæ connected with the branch of the subject; worked examples and exercises follow. It should be in the hands of all candidates for the examinations of the University of London.

The Prelude to Modern History. By J. E. Symes, M.A. (*Rivingtons.*)—This sketch of the world's history, from the third to the ninth century, contains the substance of a course of lectures delivered last year at University College, Nottingham. It deals chiefly with the three great movements that connect "ancient" with "modern" history, viz.:—(1) the decline and fall of the Roman Empire; (2) the rise and spread of Christianity; (3) the gradual formation of the new European nations. The rise and spread of Mohammedanism is treated as an interesting episode. We highly recommend this attempt to students who desire to know something of the forces which contributed to build up modern Europe, and of the way in which the civilized world was converted to Christianity, yet who have not the time to study larger works on the subject.

Book D, or Arithmetical Physics. Part IB.—Acoustics, Light and Heat (Degree and Honour Stages). By C. J. Woodward, B.Sc. (*Simpkin, Marshall, & Co.*)—Though fourth of the series, this book is published some time after its nominal successors have appeared. Naturally, the bulk of the book is taken up with the treatment of Heat, but the lessons on Sound and Light are very complete, and the figures well drawn. The lessons are followed by reference chapters, that on "general phenomena of wave-interference" being extremely good. There are examination papers and plates of figures at the end of the book.

Southey's Life of Nelson. Edited, with Introduction and Notes, by Michael Macmillan, B.A. (*Macmillans.*)—In closing his Introduction, Mr. Macmillan justifies the place of Southey's "Life of Nelson" among the series of English Classics. This, perhaps, is unnecessary. If we remember rightly it found a place in another series some eleven or twelve years ago. Still, the justification is complete. "It is written," he remarks, "in such beautiful and natural language that it is an excellent model for students of English composition, particularly for Oriental students of the English language." We will not follow Mr. Macmillan through his interesting Introduction, but will refer our readers to it for a just analysis of every trait of Nelson's character, and of the circumstances under which Southey wrote the work. A list of the principal dates in Nelson's life precedes the text. There are also four illustrations. The notes occupy about one hundred pages, and, as far as we have examined them, seem to meet every difficulty.

The New Universal Letter-Writer. By J. M'Laughlin. (*Garnier Frères; Hachette & Cie.*)—The letters appear on the one side of the page in English, on the other in French. Many of them are the letters of French and

English masters in the art of letter-writing. Some of the models are too simple, and the great range of subjects, and the consequent condensation which must exist in every book of this type, diminish the usefulness of the book. However, Mr. M'Laughlin has done his work well; his translations are exceptionally good. He shows himself a master of the French language.

NEW EDITIONS.

Class-Book of Geology. By Archibald Geikie, F.R.S. (*Macmillans.*)—A new and cheaper edition of this well-known and deservedly popular text-book will be welcomed by students. The first edition has been thoroughly revised, so as to keep it abreast of the onward progress of Geology. The result is a volume smaller in bulk than its predecessor, but containing rather more matter.

Elementary Text-Book of Trigonometry. By R. H. Pinkerton, M.A. (*Blackies.*)—In the new edition of this text-book two new articles have been introduced, giving a clear account of the method of proportional parts, and of its application to logarithmic and trigonometrical tables. A collection of questions has also been added.

Windsor Songs. For use in schools. (*Curwen & Sons.*)—This book should not be judged by the first few songs, which may create an unfavourable impression. While the songs are by no means of equal merit, a number of really good ones, suitable for all grades of schools, may be found, sufficient to repay the purchaser.

How to Teach Sight Singing: School Songs, Action and Easy Songs. By John Taylor. (*Philip & Sons.*)—We should like to see the class of children capable of grasping this method. Many manuals have been published professing to give a royal road to the mysteries of the Old Notation, but this might justly be entitled "Music Made Difficult." The author has attempted the hopeless task of adapting the principles of Tonic Sol-fa nomenclature to the works of the modern ultra-chromatic school, such as "Lohengrin," "The Golden Legend," "The Rose of Sharon," with results instructive to the theorist, if not to the unfortunate pupil. The school songs are fairly good, and some of the action songs particularly so. Mr. Taylor has also applied the Modulator principle to the Old Notation, and this portion of his work is thoroughly satisfactory.

The English Historical Review. No. 19. (*Longmans.*)—The articles for this number include "The Seven Liberal Arts," by H. Parker; "The Decrees of the Roman Plebs," by J. L. Strachan-Davidson; "St. Patrick's Earlier Life," by B. W. Wells; "Odo of Champagne, Count of Blois," by Miss Kate Norgate; "Sir Richard Church" (concluded), by Stanley Lane-Poole. Amongst the notes and documents is a copy of the remarkable Draft Dispensation for Henry VIII.'s Marriage with Anne Boleyn, edited by Mr. James Gairdner; and "Aske's Examination," edited by Miss Mary Bateson. A large number of books, English and foreign, are reviewed. There is also the usual valuable list of historical books recently published, and an account of the contents of periodical publications.

CORRESPONDENCE.

THE GERMAN TEXT-BOOK AT THE OXFORD LOCALS FOR 1891.

To the Editor of the Educational Times.

SIR,—I quite agree with "The Principal of a College for Ladies" and "A Headmaster" with regard to *Hermann und Dorothea* for junior candidates. But have they not the remedy in their own hands? It is not necessary for candidates to offer a set book at all, and so teachers have the fullest liberty in the choice of books. Recently I found it inconvenient to read the set book in French (as it must always be when members of the same class have to prepare for different examinations); and my candidates took the additional piece of unprepared translation instead, without any untoward result. I daresay other teachers can say the same for the German.

My experience left on my mind the impression that the examiners had no bias on the side of a set book, and that the boy who offered it had no greater chance of passing than he who had carefully prepared a like quantity of work in a book of the teacher's own choosing. J. S. T.

THE SO-CALLED SOCIETY OF SCIENCE, LETTERS, AND ART.

THE following correspondence was printed in consecutive numbers of the "Standard" newspaper from Sept. 17th to Sept. 28th, inclusive:—

To the Editor of the Standard.

SIR,—Could any of your readers give me definite information with regard to the Society of Science, Letters, and Art of London? I find that it has conferred many diplomas, and that there is a hood appertaining to them.—I am, Sir, your obedient servant, VERITAS.

September 16.

To the Editor of the Standard.

SIR,—Seven weeks ago I was offered the Fellowship Diploma (F.S.Sc.) of the above Society, with the hood appertaining to the same, for the sum of five pounds. No examination. The proferred honour was declined.

This may have been a "bogus" offer, but, if the Diplomas mentioned by your correspondent "Veritas" were conferred on terms similar to the above, they are certainly worthless, and the hoods, if worn, misleading to the general public.—I am, Sir, your obedient servant, A. MUS., T.C.L.

September 17.

To the Editor of the Standard.

SIR,—Some few years ago, when this Society was first formed, I received a circular inviting my subscription, and stating that I had been proposed (without any examination, of course) as a fit and proper person for a fellowship. The programme, so far as I remember it, was an ambitious one. The Society was not only to hold meetings for the reading of papers, musical performances, and so on, but was to examine the pupils of private schools, confer diplomas, &c.; and the offer held out to the members and pedagogues of the aforesaid schools was the privilege of wearing a gown and hood, prices of which in stuff and silk were duly quoted. As the names appended to this tempting offer included not only a "Baronet," but an "elocutionist," I knew how to value the document. I suppose members (I beg their pardon, "fellows") did not come in as quickly as desired, for I afterwards received another, and still more flattering invitation, which was also disregarded.—I am, Sir, your obedient servant,

130 St. Paul's Road, Canonbury, Sept. 18th. WILLIAM R. MAY.

To the Editor of the Standard.

SIR,—An interesting account of the Society which rejoices in the above pretentious title may be found in "Crockford's Clerical Directory" for 1889 (Preface, pp. xvii.-xx.).

As it appears from the letter of your Correspondent "A Mus., T.C.L.," that the officials of the Society are still touting for business, perhaps you will give publicity in your widely-circulated columns to the following extract:—

"What is the Society of Science, Letters, and Art, London? No comments are needed. If, after learning the facts, schoolmasters are weak enough to pay ten guineas and five guineas to 'Dr. E. A. Sturman, M.A., &c.' (the Society publishes no balance-sheet), for the privilege of writing F.S.Sc. and M.S.Sc. after their names, and wearing gowns and hoods which 'can be obtained upon application to the Secretary,' and four pounds five shillings or upwards for a gold badge, which 'may be ordered through the Secretary,' and unscrupulous enough to send their pupils up to be examined by unaccredited amateurs, we can only say, *Populus vult decipi, et decipiatur*."—*Journal of Education.*

I am, Sir, your obedient servant,

Cambridge, September 18th. A RESIDENT FELLOW.

To the Editor of the Standard.

SIR,—Replying to "A Resident Fellow," allow me to state that the paragraph quoted from the *Journal of Education* is not a fair statement of "facts," for the Editor at the time of writing his article must have known that his so-called "facts" were falsehoods. Fellowship in the Society cannot be had by purchase, and no one knows that better than the Editor referred to, for he himself applied for Fellowship, and sent his subscription in advance, but on the day of election the Society refused to admit him, and his guineas were returned him, immediately after which the article appeared in his journal.

To this article James Russell, Mus. Doc. Oxon., and other members, replied, but many of their letters were suppressed. Replies, however, were inserted in *School* for August and September, 1887, copies of which can be obtained, post free, on application.—I am, Sir, your obedient servant,

160 Holland Road, Kensington, Sept. 19th. H. V. GOOLD, President.

To the Editor of the Standard.

SIR,—The Society of Science, &c., must be hard driven when its President states as a fact what is a pure invention. I have never applied, directly or indirectly, for a Fellowship of the Society. I will not imitate Sir H. V. Goold, and add that he must have known his "fact" to be a "falsehood." I give him credit for merely signing his name, as usual, to whatever his Secretary dictates.—I am, Sir, your obedient servant,

THE EDITOR OF THE "JOURNAL OF EDUCATION."

86 Fleet Street, E.C., September 20th.

To the Editor of the Standard.

SIR,—In reply to the denial made by the Editor of the *Journal of Education*, permit me to add, in support of my statement, that the whole of the correspondence *re* the Fellowship referred to is at the Society's office, and members can see the same and form their own conclusions.—I am, Sir, your obedient servant,

160 Holland Road, Kensington, September 22nd. HENRY V. GOOLD.

To the Editor of the Standard.

SIR,—Some years ago I received a circular letter from the Secretary of this Society offering me, a perfect stranger, a Fellowship, and urging immediate application on a form enclosed, as the things were being snapped up. The terms were two guineas per annum, or five guineas down for life, with some extras for gown and hood, which articles were held up as an additional attraction to clergymen. I said, in reply, I would come over to Kensington, attend one of their evening social meetings, and afterwards let the Secretary know what I thought of the matter. I went, was disappointed, and declined the offered connection with them, and told the Secretary so in a way perfectly intelligible, though polite.

Yet, notwithstanding this, a few days after a messenger arrived at my home bearing from the Society a magnificent diploma constituting me a Fellow, with instructions to bring back a cheque for five guineas. I indignantly sent back the diploma by the hands which had brought it, and followed this action by a still more indignant letter. Since then I have had no more importunate solicitations from that quarter. The hood offered is as close an imitation to the Oxford M.A. as possible—the uninitiated cannot distinguish between them—and is a source of attraction to literate clergymen, and men singing in surpliced choirs, who thoughtlessly wear it, not regarding the principle involved.—I am, Sir, your obedient servant,

September 22nd. A CLERGYMAN.

To the Editor of the Standard.

SIR,—It would be more satisfactory, and to the point, if Sir H. V. Goold (instead of only treating us to the very limited and negative information, "Fellowship in the Society cannot be had by purchase") were to tell us exactly, through your columns, how it can be had, mentioning, of course, the minimum qualification.

The Fellowship was offered to me some time since. My cheque was the only necessary consideration. I did not respond.

The Fellowship is held by a number of country and surburban schoolmasters and schoolmistresses. When one sees that it is the only qualification held in some cases, and is put forward by advertisement and on prospectuses as a guarantee (?) to parents of the ability of the "Fellow" to educate their child, it is surely desirable that the Society should at once dispel any mystery attaching to the position, and let the public know exactly, in plain English, the nature and value of the qualification.—I am, Sir, your obedient servant,

September 22nd. P. P.

To the Editor of the Standard.

SIR,—You are doing useful service by admitting to the columns of *The Standard* correspondence on this subject. The existence of this "Society of Science" has long been a source of annoyance and regret to many who are associated with reputable Societies, and who are endeavouring by their instrumentality to promote the objects—scientific, literary, artistic, or educational—for which they have been founded.

This Institution has now been in existence for more than ten years. During this time it has often been called on to show any justification for that existence by indicating any useful work that it has done, or any way in which it has promoted, in the slightest degree, the objects it professes. It has never done so. Criticism on its methods and proceedings has frequently called forth indignant, often abusive, letters from its nominal President; but never a single reference to any useful work by it or its members. No research seems to have been promoted by it, no subject investigated, no contribution made to Science, Literature, or Art through its agency. I do not believe that this could be said of any one even of the many provincial Societies which are established in all parts of the kingdom. It has been accused over and over again of selling Degrees and of granting "Fellowships" simply on payment. No satisfactory reply has ever been made.

If such an Institution can be shown to be doing useful work—even if its manner of action be somewhat ridiculous—it may deserve support. If, on the other hand, it can be shown to exist only for the benefit of one or two individuals, and if its ultimate object be the providing illiterate teachers and others with illusory testimonials, the sooner it is put an end to the better. The publicity you are giving this Society will enable its promoters to justify its existence, or will assist in its extinction.—I am, Sir, your obedient servant, H. TRUEMAN WOOD,

John Street, Adelphi, W.C., September 23rd. Secretary of the Society of Arts.

To the Editor of the Standard.

SIR,—If I were a French journalist my course would be plain; but when an English editor is given the lie direct by an Irish Baronet, what can the former do? Sir H. V. Goold alleges that a correspondence is preserved among the archives of the Society substantiating his charge, and he offers to show the same to members. But not one, I take it, in a hundred thousand of your readers is qualified to avail himself of the offer. Fortunately, this matters little, for the fiction that I was ever a candidate for the Society's Fellowship is too obviously a red herring intended to divert attention from the main issue.

In July, 1887, the *Journal of Education* published an *exposé* of the Society, and of its promoter and secretary, Dr. E. A. Sturman, M.A., Ph.D., F.G.S.E., &c., which, if false, was a gross libel, for which any jury would have awarded exemplary damages. I received threatening letters from the Society's solicitors, but neither Sir H. V. Goold nor Dr. Sturman has hitherto ventured to bring an action. This one fact will, I think, suffice for most of your readers. I am, Sir, your obedient servant,

Fleet Street, E.C., THE EDITOR OF THE "JOURNAL OF EDUCATION."
September 23rd.

To the Editor of the Standard.

SIR,—It is amusing for your correspondent, the editor of the *Journal of Education*, to suggest a duel, but I am rather too old for that kind of fun, and I prefer to depart this life peacefully, and without the editor's assistance. If I were to accept his kind offer it would not do away with the letters referred to, which are here as stated. Respecting the remarks he made some years ago, libellous they certainly were; but his name and address being withheld there was no proof that damages would be forthcoming, neither did the Society suffer any loss or sustain any damages from his assertions. On the contrary, the Society gained many new members, as it is doing by the present correspondence. The statements were replied to in *School* for August and September, 1887.

Referring to the letter from the paid Secretary of the Society for the Encouragement of Arts, Manufactures, and Commerce, I quite agree with him that the success of the Society of Science is a source of annoyance to him personally, and also to one or two paid officials of another Institution; but it is really too kind of him to suggest extinguishing a Society acting under an Act of Parliament, and consisting of some two thousand members, and having Fellows of nearly all the learned Societies in the world, including many members of the Society of Arts. I will, however, lay his proposal before the members, and if they express any desire to be extinguished I will write him on the subject; but for the present, I can only thank him for giving the public the keynote to the whole correspondence—jealousy.

The work of the Society will speak for itself, and your readers can have the transactions post free on application, and they can form their own opinions. Perhaps it is my duty to state that I was present at the meeting of the Council and members last evening, and that the Society's accounts to date were passed unanimously by the members present.

In conclusion, I must repeat that Fellowship cannot be had by purchase, but by election; that election takes place at the members' monthly meetings; that members can refuse to elect any person they do not approve of; and that Honorary Fellows do not pay any subscription whatever.—I am, Sir, your obedient servant,

160 Holland Road, Kensington, September 24th. HENRY V. GOOLD.

To the Editor of the Standard.

SIR,—A few of your correspondents have led a mild attack on the Society of Science, Letters, and Art. The "Baronet," an "Elocutionist," and Mr. Sturman have in their turns been noticed in your columns, while the weak-minded schoolmaster who pays to this Society ten or fifteen guineas is much deeper than he is supposed to be.

We all know that there is at this time a mania for examinations. Now, this Society holds what some masters venture to call public examinations; I consider them private adventure examinations. They also grant certificates, which I believe have no standing in any of our Colleges, Medical Schools, Societies, or Universities.

These certificates are made use of by masters in advertisements thus—"One hundred and thirteen Certificates gained in public examinations during the year." Parents are easily taken in by this means. Only last week I inquired of a lady how her son was, and was told, in one breath, he was quite well, and had passed the Kensington Examination. How delighted she was! What a good thing for the schoolmaster!

I should like to know how many of our schools have passed one hundred and thirteen pupils in *bonâ fide* public examinations since Christmas.—I am, Sir, your obedient servant, FRANCIS HEATH.

Tudor Hall, Hawkhurst, September 23rd.

To the Editor of the Standard.

SIR,—I am a victim, and have paid my life subscription. For several years I have ceased to use the title F.S.Sc., and have warned every one I could.

My name appeared in the list of appointments in the *Musical Times*, and I promptly received, like many others, an invitation for Fellowship, signed (?) by the President, though I was an utter stranger outside my own parish. This was followed by other papers, containing slips of paper on which was printed, "We shall be pleased to elect you as a Fellow."

I enclose the wrapper of a circular sent out by a conjuror to clubs, &c., on which is printed "From Professor ———, F.S.Sc.," who is described in the list of members as a "lecturer."

I have other interesting information, which I will, perhaps, send you later on.—I am, Sir, your obedient servant, AN ORGANIST and F.S.Sc.

September 23rd.

To the Editor of the Standard.

SIR,—May I suggest that it would be interesting and serviceable to inquirers if the accomplished Editor of "Crockford" could be induced to reproduce in *The Standard* his account of the above "Society"? And may I, as another clergyman, enter a mild protest against the unwary good-nature which leads one's brethren to allow their choirmen to flaunt in church the fantastic insignia of self-constituted bodies?

It is at least open to question whether, amongst the minor *desiderata* of legislation, a measure for the better regulation of the assumption of badges and titles, quasi-academical and other, does not find a place. The principle of the Heralds' visitations, carried out in a form suitable to the conditions of modern life, might be more effectual than the ridicule of the instructed few. Meantime, I would suggest to the Society the institution of the rank of Associate, the appropriateness of which will be obvious to all admirers of Dr. Pangloss.—I am, Sir, your obedient servant,

Chiddingstone, Edenbridge, September 23rd. J. E. L. NOWERS.

To the Editor of the Standard.

SIR,—In reference to the above subject, may I state that some years ago I received a circular letter setting forth the objects of the Society, and a flattering intimation that upon the payment of a specified fee—I forget what—I might at once become a "Fellow" of the Society?

As this was the first intimation I had received of the Society's existence it will be easily seen that I could not have made any sort of application. Indeed, the title had no attraction for me (how it might have been had a feminine termination been affixed I will not say). As it was, I failed to see how an honour obtained by money alone could increase my efficiency or usefulness. I, therefore, did not reply.—I am, Sir, your obedient servant, ROSA SKARRATT.

S. Katharine's, 40 Ashbourne Road, Derby, September 23rd.

To the Editor of the Standard.

SIR,—I agree with Sir Henry Goold that there would be no fun in a duel if the challenger were to begin by cutting his own throat. This is what Sir Henry has done. Almost in the same breath he asserts—(1) that I applied for a Fellowship of the Society and was rejected; (2) that he did not bring an action for libel against me because (among other reasons) he failed to discover my name and address.—I am, Sir, your obedient servant,

September 25th. THE EDITOR OF THE "JOURNAL OF EDUCATION."

To the Editor of the Standard.

SIR,—My reminiscences of the "Society of Science, Letters, and Art of London," are not particularly pleasant ones. At the time of its inception I accepted, in response to an advertisement, some revision of MS. for the Press from the hands of the Founder. It was my first literary effort at earning a livelihood, and, as the MS. was not only a lengthy one, but as very considerable "revision" appeared necessary, I did not deem two guineas an exorbitant fee. My terms were accepted, and I speedily set about the task I had undertaken, and on its completion I received a cheque for the amount due. With this amount I had promised myself a two-guinea edition of "Shakespeare" in ten miniature volumes; but, alas for my long-cherished desire, the cheque was not duly provided for!

Not willing that my efforts should go unrewarded, the Doctor elected me Secretary of his newly-formed Society, and forthwith proceeded to give his advertisement, printing, and stationary orders in my name. Not relishing this unsought publicity and responsibility, I desired that my name should be removed from all prospectuses, papers, certificates, advertisements, &c., connected with his Society. After considerable delay this was done, but not until some heavy advertisement and printing accounts were run up in my name, some of which were sent to me for settlement. In addition to this, a meddlesome and misinformed Secretary of another Institution printed, and widely circulated, a circular setting out, amongst other fictions, that I was "acting as Hon. Secretary of the Society of Science, Letters, and Art of London, a Society of which the Society of Arts found it desirable expressly and publicly to deny all knowledge."

I would, therefore, take this opportunity of stating "expressly and publicly" that I never for a single day acted either as Secretary or Hon. Secretary of that Society, nor have I, at any time, attended any one of its meetings—scientific, literary, or otherwise. I am, Sir, your obedient servant, THOS. BOWDEN GREEN.

1 Finsbury Circus, E.C., September 25th.

To the Editor of the Standard.

SIR,—Sir Henry V. Goold, President of the above-mentioned Society, states that its Fellowship "cannot be had by purchase." I will not quibble with him about terms. It is quite certain that it "can be had" by sale, for I have before me at this moment a printed circular, addressed to a very intimate friend of mine, by Sir Henry Goold, inviting him to become a Fellow of the Society, and enclosing a form of application, a list of qualifications, and a scale of fees and payments.

This circular was sent to my friend at his correct address, and he was addressed as "Esq.," though he had been a clergyman for several years. Sir H. V. Goold certainly could not have known much about him, and as this is the second circular of the kind sent to the same gentleman within a short time, it is clear that these circulars are sent about to invite—plainly, to tout—members to offer themselves for election as Fellows, with, of course, the implied certainty that they will be admitted, especially as it is quite clear that an immediate payment is expected from them.—I am, Sir, your obedient servant, VINDEX.

September 25th.

To the Editor of the Standard.

SIR,—As I see there is a correspondence going on in your columns anent the Society of Science, Letters, and Art, perhaps my small experience of the Society may be of interest to some of those who are taking part in the discussion. A short time ago a friend of mine, himself an honorary Fellow of the Society, informed me that he had proposed my name as a candidate for a Fellowship of the Society. I must confess that at the time I felt both surprised and flattered at being proposed for a Fellowship of a Society whose status I believed to be similar to that of the Society of Arts, though I was by no means sanguine of eventually obtaining that honour, for I am quite a young man, and only took fourth class in honours at my University; nor can I claim to have distinguished myself in any branch of Science, Literature, or Art. Great, then, was my astonishment at receiving shortly afterwards an elaborate and highly-ornamented document setting forth in elegant Latin inscription (there was an accompanying slip of paper containing an English rendering of the same for the benefit of those Fellows of this learned Society who could not translate the original), that I had been elected a Fellow of the Society.

On looking through the vast pile of accompanying papers I came to the conclusion that I should be required to pay a sum of two guineas, or perhaps more, for the honour that had been conferred upon me, though I had received no intimation to that effect. In answer to my inquiries I was informed (to my great surprise, and, I must confess, no small satisfaction, as regards the latter part of the information) that I had been elected an Honorary Fellow, and would not be required to pay any fees. I do not wish to comment on these facts; I leave them to speak for themselves. But I must say one word on behalf of the Society. One of your correspondents is rather unjust when he says that the Society has done nothing to further the cause of Science, Litera-

ture, or Art. It has a Board of Examiners, under whose auspices a chance of distinguishing themselves is given to those who are not equal to obtaining a place in the third division of the third class in the examinations held by the College of Preceptors. Also, I believe, lectures are frequently given at their headquarters on various subjects by *savants* of greater or less renown.—I am, Sir, your obedient servant, T. S. E.

London, September 27th.

MATHEMATICS.

10621. (Professor Sylvester.)—The points of a system containing $2m$ points H and n points O are to be connected together either by single or double bonds, in such a manner that two bonds shall pass through each O, and one through each H. Find the number of distinct species of graphs that can be formed subject to this condition. *Ex.*—Let a, b, c, d and $\alpha, \beta, \gamma, \delta, \epsilon$ be the points H, O; then, denoting any two points x, y with a single bond between them by xy, and with a double bond by $(xy)^2$, we have the following system of conjunction (11 distinct graphs in all):—

$ab,\ cd,\ \alpha\beta,\ \beta\gamma,\ \gamma\delta,\ \delta\epsilon,\ \epsilon\alpha$	$ab,\ c\alpha,\ d\beta,\ \alpha\gamma,\ \beta\gamma,\ (\delta\epsilon)^2$
$ab,\ cd,\ \alpha\beta,\ \beta\gamma,\ \gamma\alpha,\ (\delta\epsilon)^2$	$a\alpha,\ b\alpha,\ c\beta,\ d\beta,\ \gamma\delta,\ \delta\epsilon,\ \epsilon\gamma$
$ab,\ c\alpha,\ d\alpha,\ \beta\gamma,\ \gamma\delta,\ \delta\epsilon,\ \epsilon\beta$	$a\alpha,\ b\alpha,\ c\beta,\ d\gamma,\ \gamma\delta,\ \delta\epsilon,\ \epsilon\beta$
$ab,\ c\alpha,\ d\alpha,\ (\beta\gamma)^2,\ (\delta\epsilon)^2$	$a\alpha,\ b\alpha,\ c\beta,\ d\gamma,\ \beta\gamma,\ (\delta\epsilon)^2$
$ab,\ c\alpha,\ d\beta,\ \alpha\beta,\ \gamma\delta,\ \delta\epsilon,\ \epsilon\gamma$	$a\alpha,\ b\beta,\ c\gamma,\ d\delta,\ \alpha\beta,\ \gamma\epsilon,\ \epsilon\delta$
$ab,\ c\alpha,\ d\beta,\ \alpha\gamma,\ \gamma\delta,\ \delta\epsilon,\ \epsilon\beta$	

Solution by H. J. Woodall.

Let $[\frac{1}{2}P]$ denote the greatest integer in $\frac{1}{2}P$; and let such a bracket as $(A, B, C, D, \ldots Z;\ \Omega)$ stand for the arrangement of the H points among the O points such that 1st, 2nd, ..., pairs of H points are connected in a chain with A, B, ..., points O; also $A+B+C+\ldots+Z=n-\Omega$; *i.e.*, there are Ω disengaged points O, and the number of A, B, C, ..., Z is m, but any one or more or none at all of A, B, C, ..., Z may be zero.

Then, examining the given example, we find that the number of graphs connected with one such arrangement given above is equal to $[\frac{1}{2}\Omega]$. Hence the total number will be equal to the sum $\Sigma\,[\frac{1}{2}\Omega]$, which we proceed to show how to find. [The rest in Volume.]

10593. (Professor Catalan.)—*Théorème:* Si, à un quadrilatère inscriptible Q, on inscrit une infinité de quadrilatères P dont le périmètre soit minimum, ce minimum commun est une quatrième proportionnelle au rayon et aux diagonales de Q.

Solution by Professors Anderson, Beyens, *and others.*

Let ABCD, Fig. 1, be the quadrilateral inscribed in a circle. Take P any point on the side AD, and let P_1 be its image in AB, P_2 the image of P_1 in BC, and P_3 the image of P_2 in CD. Join PP_3 meeting CD in S,

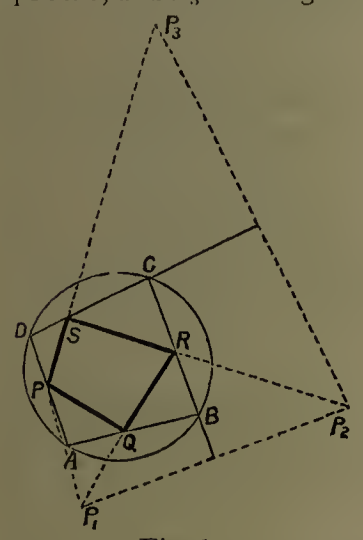


Fig. 1.

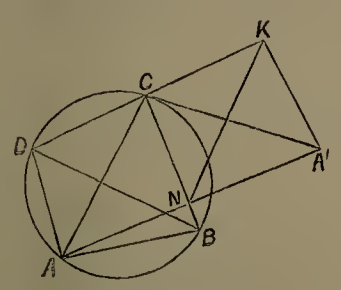


Fig. 2.

SP_2 meeting BC in R, RP_1 meeting AB in Q, and PQ. Then, as is easily proved, PQRS is the inscribed quadrilateral of minimum perimeter which has an angular point at P. Also, $PP_3 = PS+SR+RQ+QP$ the perimeter. [The rest in Volume.]

10682. (Professor Cayley, F.R.S.)—If ω be an imaginary cube root of unity, and

$$y = \frac{(\omega-\omega^2)\,x+\omega^2x^3}{1-\omega^2\,(\omega-\omega^2)\,x^2},$$

prove that

$$\frac{dy}{(1-y^2)^{\frac{1}{2}}\,(1+\omega y^2)^{\frac{1}{2}}} = \frac{(\omega-\omega^2)\,dx}{(1-x^2)^{\frac{1}{2}}\,(1+\omega x^2)^{\frac{1}{2}}}.$$

Solution by J. D. H. Dickson, M.A.; Prof. Sircom, M.A.; *and others.*

For shortness write $\omega-\omega^2=\lambda$, and $\omega^2x^2=\xi$; then we find easily

$$dy/\lambda dx = (1-\xi^2)/(1-\lambda\xi)^2.$$

Now $1-y^2 = \dfrac{(1-\lambda\xi)^2-(\lambda x+\xi x)^2}{(1-\lambda\xi)^2} = \dfrac{(1+\lambda x-\lambda\xi+\xi x)(1-\lambda x-\lambda\xi-\xi x)}{(1-\lambda\xi)^2}$.

Here, $1+\lambda x-\lambda\xi+\xi x = 1+\omega x-\omega^2x-x^2+\omega x^2+\omega^2x^3 = (1+x)(1+\omega x)^2$,

and $\quad 1-\lambda x-\lambda\xi-\xi x = (1-x)(1-\omega x)^2$;

therefore $\quad (1-y^2) = \dfrac{(1-x^2)(1-\xi)^2}{(1-\lambda\xi)^2}$.

[The rest in Volume.]

7099. (The Editor.)—Sum (1) the series

$$\frac{\sin^3\theta}{1^4} - \frac{\sin^3 3\theta}{3^4} + \frac{\sin^3 5\theta}{5^4} - \&c.$$

between the limits $\theta=0$, $\theta=2\pi$, and $\theta=\frac{11}{6}$, $\theta=\frac{13}{6}\pi$; and hence show (2) that $\pi^4 = \dfrac{3\,.\,2^{\frac{17}{2}}}{11}\left(\dfrac{1}{1^4}-\dfrac{1}{3^4}+\dfrac{1}{5^4}-\dfrac{1}{7^4}+\&c.\right)$.

Generalised Solution by Professor Franz Rogel.

By means of Bernoulli's function (ϕ) invented by Raabe (*Crelle J.*, T. 42, p. 48), and accomplished by Schlömilch (*Compendium der höheren Analysis*, II., pp. 207–217), viz.,

$$\phi(\theta, 2n) = \theta^{2n} - n\theta^{2n-1} + \binom{2n}{2}B_1\theta^{2n-2} - \binom{2n}{4}B_2\theta^{2n-4}\ldots$$

$$\ldots + (-1)^n\binom{2n}{2n-2}B_{n-1}\theta^2$$

$$= (-1)^n B_n + (-1)^{n-1}\,2\,\frac{(2n)!}{\pi^{2n}}\sum_{\lambda=1}^{\infty}\frac{\cos 2\lambda\pi\theta}{(2\lambda)^{2n}},\quad 0 \leqq \theta \leqq 1 \ldots\ldots(1),$$

$$\phi(\theta, 2n-1) = \theta^{2n-1} - n\theta^{2n-2} + \binom{2n}{2}B_1\theta^{2n-3} - \binom{2n}{4}B_2\theta^{2n-5}\ldots$$

$$\ldots + (-1)^n\binom{2n}{2n-2}B_{n-1}\theta$$

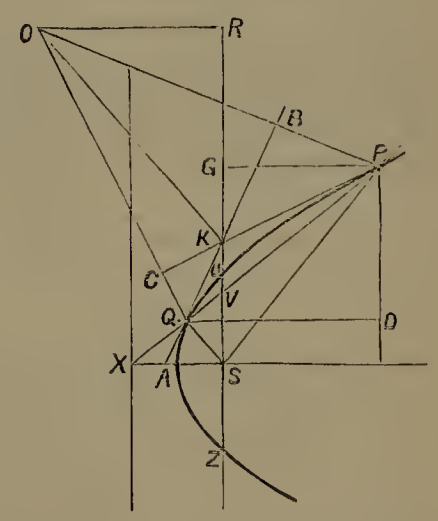
$$= (-1)^n\,2\,\frac{(2n-1)!}{\pi^{2n-1}}\sum_{\lambda=1}^{\infty}\frac{\sin 2\lambda\pi\theta}{(2\lambda)^{2n-1}},\quad n>1,\quad 0 \leqq \theta \leqq 1 \ldots\ldots\ldots(2),$$

each power of π can be expressed by an infinite series of powers with the variations of sign $++--$. [The rest in Volume.]

10646. (R. Tucker, M.A.)—If tangents KP, KQ are drawn to a parabola from any point K on the latus rectum, prove geometrically that the orthocentre of the triangle PKQ lies on a straight line parallel to the directrix.

Solution by Professors Anderson, M.A.; Zerr, M.A.; *and others.*

Draw PO and QO perpendicular to KQ and KP respectively, and from O their point of intersection, which is the orthocentre of the triangle KPQ, draw OR perpendicular to SK. It is clear that PQ passes through X the foot of the directrix, and that [KUVZ] is an harmonic range. Also, K is equidistant from PG and QD, lines drawn through P and Q parallel to the axis of the parabola. We have



$$OK : PQ = KB : BP = SV : QV$$
$$= SG : GP = 2SK : QD;$$

also, $\quad PQ : PD = OK : OR$;

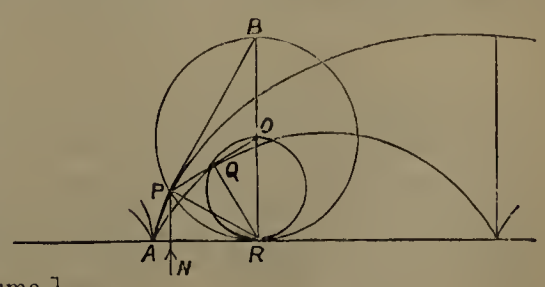
$$\therefore\ OR = 2SK\,.\,PD/QD$$
$$= 2SK\,.\,SV/SX$$
$$= 2SU^2/SX = 2SU = \text{lat. rect. of parabola.}$$

[The rest in Volume.]

10592. (Professor Morley.)—Rays of light parallel to an axis are reflected at a cycloid. Show that the caustic is a cycloid.

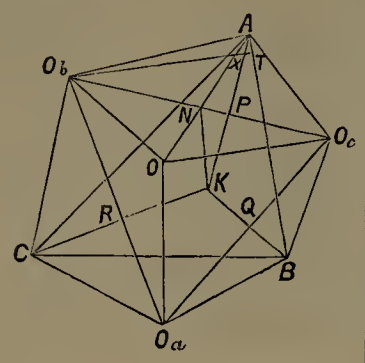
Solution by Professors Anderson, Putnam, *and others.*

Let BPR be the generating circle of the cycloid, and NP an incident ray parallel to the axis; then, since $\angle RPN = \angle RPO$, PO, the reflected ray, always passes through O, the centre of the circle. Draw a circle on OR as diameter meeting PO in Q, and join RQ. [The rest in Volume.]



10622. (Professor Neuberg.)—Soit K le point de Lemoine du triangle ABC, et soient O, O_a, O_b, O_c les centres des cercles circonscrits aux triangles ABC, KBC, KCA, KAB. Démontrer: (1) que O et K sont les foyers de l'ellipse qui touche les côtés du triangle $O_aO_bO_c$ en leurs milieux; (2) que les quadrilatères OBO_aC, OCO_bA, OAO_cB ont même surface.

Solution by Professors ANDERSON, ZERR, *and others.*



1. The points O_a, O_b, O_c are found by drawing lines perpendicular to KA, KB, KC (at their mid-points); and, clearly, OO_b, OO_a, OO_c are perpendicular to the sides of the triangle.

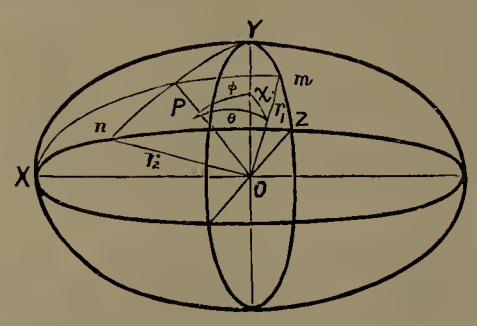
Draw O_bT perpendicular to AB meeting OA in X. Since O_bO is perpendicular to AC, O_bX to AB, and O_bP to AP, the angles OO_bN, NO_bX are equal, respectively, to CAK and KAB. But OA is perpendicular to an antiparallel drawn through P to the side BC. Hence, since this antiparallel is bisected at P, OX must be bisected at N; and therefore, since O_bX is parallel to OC_c, O_bO_c is also bisected at N.

[The rest in Volume.]

10645. (J. O'BYRNE CROKE, M.A.) — The semi-traces of planes through the axes of x and y of an ellipsoid on the planes of yz, xz, respectively, are r_1 and r_2; if $f_1^2 = a^2 - r_1^2$, $f_2^2 = b^2 - r_2^2$, $F_1^2 = a^2 - c^2$, $F_2^2 = b^2 - c^2$; prove that the length of the radius vector, which is half the diameter in which they intersect, is given by

$$\rho^2 = \left\{a^2F_1^2/f_1^2 + b^2F_2^2/f_2^2 - (a^2+b^2-c^2)\right\} / \left\{F_1^2/f_1^2 + F_2^2/f_2^2 - 1\right\}.$$

Solution by the PROPOSER; REV. J. L. KITCHIN; *and others.*



The angle opposite ϕ in the spherical Δ (θ, ϕ, χ) being a right angle, we have

$$\cos\phi = \cos\chi\cos\theta.$$

Also, in the elliptic quadrant OXm we have

$$\rho^2\left(\frac{\sin^2\theta}{a^2} + \frac{\cos^2\theta}{a^2 - f_1^2}\right) = 1;$$

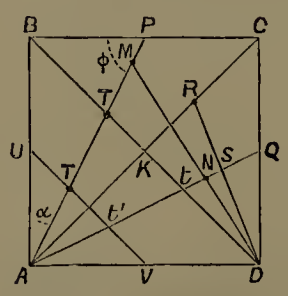
and in OYm we have

$$\rho^2\left(\frac{\cos^2\phi}{b^2} + \frac{\sin^2\phi}{b^2 - f_2^2}\right) = 1.$$

[The rest in Volume.]

10647. (J. J. BARNIVILLE.)—P, Q are the mid-points of the sides BC, CD of a square ABCD; in AP, AM is taken = AB; AQ, MD meet in N: prove that $DN^2 = \frac{5}{9}MN^2$. In AC, AR is taken = AB; DR meets AQ in S: prove that $DS^2 = 2RS^2$. Prove also that, if U, V be the mid-points of AB, AD, then AP and AQ are each mutually trisected by UV and BD; and that consequently (1) UC, BD, PA, and (2) VC, BD, QA, are respectively concurrent.

Solution by R. WHAPHAM, B.A.; H. J. WOODALL; *and others.*



$$\alpha = \tan^{-1}\tfrac{1}{2} = \sin^{-1}\tfrac{1}{5}\sqrt{5} = \cos^{-1}\tfrac{2}{5}\sqrt{5},$$

$$\phi = \tfrac{1}{2}\pi - \alpha;$$

$$\frac{DN}{AD} = \frac{\sin\alpha}{\sin AND}; \quad \frac{MN}{AM} = \frac{\sin(\phi-\alpha)}{\sin ANM};$$

$$\therefore \frac{DN}{MN} = \frac{\sin\alpha}{\sin(\phi-\alpha)} = \frac{\sqrt{5}}{3};$$

$$\therefore DN^2 = \tfrac{5}{9}MN^2,$$

$$\frac{DS}{RS} = \frac{\sin\alpha}{\sin(45^\circ - \alpha)} = \sqrt{2}; \quad \therefore DS^2 = 2RS^2.$$

[The rest in Volume.]

10605. (The EDITOR.)—Through four given points draw (1) a conic such that one of its chords of intersection with a given conic may pass through a fifth given point, and show (2) what the problem becomes when two of the four points are the circular points at infinity.

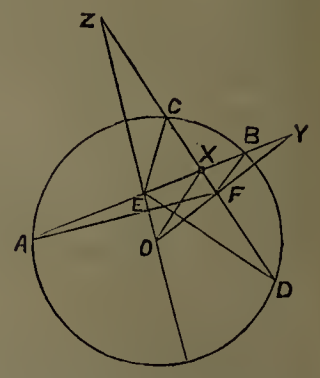
Solution by Professor ANDERSON, M.A.

1. Let the four points be the points of intersection of the conics $U = 0$, $V = 0$. Any conic passing through the four points may be written $S \equiv U + \mu V = 0$. Then, if the other conic be given by $W = 0$, and if the chord of intersection of S and W pass through a fixed point x', y', z', we have $W'^3\Delta - W'^2S'\Theta + W'S'^2\Theta_1 - S'^3\Delta_1 = 0$, where Δ, Δ_1 are the discriminants of S, W, and Θ, Θ_1 have their usual significations. It is easily seen that the above equation is of the third degree in μ; and there are consequently three conics fulfilling the required conditions.

[The rest in Volume.]

10602. (Professor COUPEAU.)—Si deux cordes AB, CD d'un cercle sont telles que les droites qui joignent A et B au milieu de CD soient symétriques par rapport à CD, les droites joignant C et D au milieu de AB sont également symétriques par rapport à AB.

Solution by G. E. CRAWFORD, B.A.; Prof. ANDERSON, M.A.; *and others.*



Draw perpendiculars from O on AB and CD meeting CD and AB in Z and Y; then C, E, D, Y are concyclic, since

$$\angle CEY = DEY,$$

and FY bisects CD at right angles; and Z, E, F, Y are concyclic. Also,

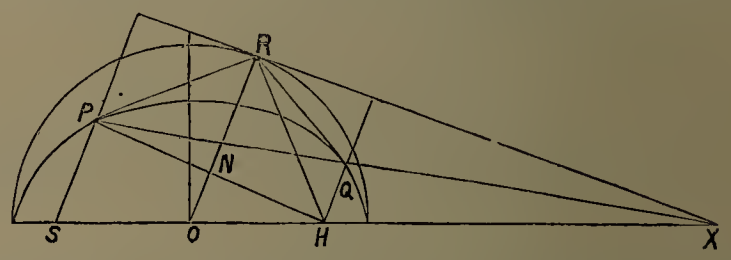
$$ZX \,.\, XF = EX \,.\, XY = CX \,.\, XD$$
$$= AX \,.\, XB;$$

therefore A, F, B, Z are concyclic, and, since EZ bisects AB at right angles, AF and BF are equally inclined to CD.

10640. (ROBERT BRYANT, D.Sc., B.A.)—The perpendiculars from the foci of an ellipse upon a tangent to the auxiliary circle cut the ellipse in two points on the same side of the axis major. Find geometrically the locus of the intersection of this chord with the aforenamed tangent.

Solution by Profs. ANDERSON, M.A.; CHAKRIVARTI, M.A.; *and others.*

Let the perpendiculars from the foci S, H of the ellipse on the tangent to the auxiliary circle at R meet the ellipse in the points P, Q, and let



PQ meet SH in X. PQ is clearly parallel to the diameter of the ellipse conjugate to OR. Join HR, RP. [The rest in Volume.]

QUESTIONS FOR SOLUTION.

10751. (Professor SYLVESTER.)—(1) Let M be any symmetrical matrix, D its determinant, S the sum of its principal first minors, M′ what M becomes when any line of elements in it is scored out, Σ the sum of the squares of all the complete minors in M′, D′ the principal minor to M which appears in Σ, S′ the sum of the principal first minors in the matrix to S′. Prove that $\Sigma = D'S - S'D$. *Ex. gr.*, let

$$M = \begin{vmatrix} a & h & g \\ h & b & f \\ g & f & c \end{vmatrix}, \qquad M' = \begin{vmatrix} a & h & g \\ h & b & f \end{vmatrix}$$

the theorem states that $(ab-h^2)^2 + (bc-f^2)^2 + (ca-g^2)^2$

$$= (ab-h^2)(ab-h^2+bc-f^2+ca-g^2) - (a+b)(abc-af^2-bg^2-ch^2+2fg).$$

(2) Apply this theorem to prove that, if Δ is the discriminant, in regard to λ, of (M, λ), meaning thereby what M becomes when λ is added to each term in its diagonal, the equation $\Delta = 0$ is, in general, the necessary and sufficient condition that the quadric function of which M is the determinant matrix shall be incapable of being transformed by any orthogonal linear transformations whatever (real or imaginary) into a sum of squares. Thus, *ex. gr.*, $x^2 + 2(-1)^{\frac{1}{2}}xy + 3y^2$ cannot, by any orthogonal linear transformation whatever, be deprived of its middle term.

(3) Show that, if $F = 0$ is the equation to a quadric surface (or any other such locus), and all the coefficients in F are real, the equation $\Delta = 0$ is the sufficient and necessary condition that such quadric surface (or other locus) shall be one of revolution.

—752. (Professor HAUGHTON, F.R.S.)—Apply the general formula for finding the metacentre of a floating body, to discuss the stability of Noah's Ark, which was 300 cubits long, 50 cubits broad, and 30 cubits high, and had three storeys; assuming with BOUGUER that it was immersed to a depth of 10 cubits when loaded.

—753. (Professor LAMPE, LL.D.)—Solve, for $n = 9$, and generally, the equation $2^{\frac{1}{2}(n-1)} \sin x \sin 2x \sin 3x \ldots \sin\frac{1}{2}(n-1)x = n^{\frac{1}{2}}$.

—754. (Professor DONALD MCALISTER.)—A convex inextensible pliable envelope in the form of a surface of revolution with its axis vertical is exposed to water-pressure from within. Prove that at the widest part the tension along the meridians is a maximum or minimum according as it is less or greater than the tension across them.

—755. (Professor CHRISTINE LADD, B.Sc.)—Prove that the product of the lengths of the tangents, from the radical centre of three circles, to any pair of circles through the intersections of the given circles, is equal to the product of the lengths of the tangents, from the same point, to any pair of circles tangential to the given circles.

—756. (Professor HUDSON, M.A.) — In a communistic society in which every one is equally frugal and industrious and devotes an amount (X) of his wealth to production, the wealth produced by each man's labour per unit of time is x times the capital with which he works. If the population increase at the rate of 100ρ per cent. per unit of time, prove that each man's wealth will continually increase so long as X bears

a greater ratio to his whole wealth than $p : x$; X, x, p being all supposed to vary continuously.

10757. (Professor DE LONGCHAMPS.)—On donne un triangle rectangle isosceèle AOB, dont les côtés de l'angle droite OA, OB sont égaux à $a+(a^2+h^2)^{\frac{1}{2}}$. Du point O, comme centre, avec h pour rayon, on décrit un cercle qui coupe l'hypoténuse AB aux points C, C′. Démontrer que si l'on projette l'un de ces points sur les côtés OA, OB, la droite qui passe par ces projections coupe la bissectrice de BOA en un point M tel que $OM = a\sqrt{2}$. Cette propriété s'applique au triangle A′OB′ obtenu en prenant sur les prolongements des segments AO, BO des points A′, B′ tels que $OA' = OB' = (a^2+h^2)^{\frac{1}{2}} - a$. Déduire, de cette remarque, une solution du problème de PAPPUS et la discussion qu'il comporte.

—758. (Professor DÉPREZ.)—On donne dans un même plan quatre points A, B, C, P. Prendre sur AP, BP, CP trois longueurs AA′, BB′, CC′ égales entre elles, et telles que (1) les points A′, B′, C′ soient en ligne droite; (2) que le triangle A′B′C′ soit maximum ou minimum. Déduire, de la solution du premier problème, celle du second.

—759. (Professor DECAMPS.)—Par les sommets B et C d'un triangle ABC, on mène deux droites BI, CI faisant respectivement avec les côtés AB, AC les mêmes angles que ces côtés font avec la médiane issue de A. Démontrer que $AI^2 = BI \,.\, CI$.

—760. (Professor WOLSTENHOLME, M.A., Sc.D.)—Any point Q being taken on a given parabola, focus S, a point P is taken on SQ such that, if PK be drawn parallel to the axis to meet the parabola in K, SP = PK. Trace the locus of P, proving that it is a quartic having two parallel rectilinear asymptotes and a parabolic asymptote. Also, if QSQ′ be a focal chord, QT, Q′T the tangents at Q, Q′, and on QSQ′ be taken four points P_1, P_2, P_3, P_4 such that $P_2Q = QP_1 = QT$, and $P_3Q' = Q'P_4 = Q'T$, these four points will lie on the quartic, P_1, P_2 will divide P_3P_4 harmonically, and $SP_1 \,.\, SP_2 = SP_3 \,.\, SP_4 = SQ \,.\, SQ'$.

—761. (Professor CATALAN.)—Si a, b, c désignent les côtés d'un triangle rectiligne, démontrer que $a^2b\,(a-b) + b^2c\,(b-c) + c^2a\,(c-a) \equiv 0$.

—762. (Professor BLATER.)—If the first five decimal places of the reciprocal of any number be given, the next five places may readily be found by the use of a Table of Quarter Squares. (Example: 114591559.)

—763. (Professor ORCHARD, M.A., B.Sc.)—Supposing the discomfort produced by excessive heat to vary (*inter alia*) with the increase, beyond the normal amount, in the kinetic energy of the blood corpuscles,—show how to connect the discomfort with the temperature.

—764. (Professor EVANS, M.A.)—A *rectangular* hole is cut at random through the centre of a sphere; find the average volume removed.

—765. (Professor NEUBERG.)—A, B, C, D étant quatre points d'un même plan, si quatre forces parallèles appliquées en ces points se font équilibre, l'équilibre a encore lieu après qu'on a transporté chaque force au centre du cercle circonscrit au triangle qui a pour sommets les points d'application des trois autres forces.

—766. (Professor MORLEY, M.A.)—In an infinite mass of perfect fluid are three straight parallel vortex-filaments, of unequal strengths. Show that, if the cross section is once an equilateral triangle, it is always an equal equilateral triangle.

—767. (Professor ZERR.)—Find the centroid of the area of the curve $r^{\frac{1}{n}} = a^{\frac{1}{n}} \cos \frac{1}{3}\theta$ in which the density at a point varies as the nth power of the distance of the point from the origin.

—768. (Professor CURTIS.)—Show that the cord of curvature of any point on an equilateral hyperbola passes through the centre of the curve.

—769. (Professor RAMASWAMI AIYAR.)—An ellipse is inscribed in a triangle ABC, the base AB of which is fixed so that the points of contact divide the sides AC, BC in given ratios. Show that, if (1) the major axis, (2) the minor axis, (3) the eccentricity, (4) the direction of axes, and (5) the distance between the foci, of the ellipse be given, the locus of the vertex C is (1) an ellipse, (2) a hyperbola, (3) a circle, (4) a rectangular hyperbola, and (5) an oval of CASSINI.

—770. (The EDITOR.)—In a lemniscate find the locus of the mid-points of all chords (1) of constant length, or (2) passing through a fixed point, or (3) parallel to a fixed straight line.

—771. (G. E. CRAWFORD, B.A.)—Assuming the principle of virtual work for a rod in equilibrium under forces at its extremities, prove, without any reference to the six conditions of equilibrium, that the principle must hold for any rigid body.

—772. (G. H. BRYAN, M.A.)—A liquid film is supported on a framework in the form of an equilateral triangle of side a. If the difference of pressures (p) on the two sides of the film is so small that the surface of the film is nearly plane, prove that its equation may be written $z = \frac{3}{4}a^2\,(p/T)\,\xi\eta\zeta$, where z is the perpendicular distance of any point from the plane of the triangle, ξ, η, ζ the *areal* coordinates of the foot of this perpendicular, and T is the surface tension.

—773. (J. D. H. DICKSON, M.A.)—Prove that the only triangle whose sides and area are rational integers, and such that, in order, these four integers are in arithmetical progression, is that whose sides are 3 : 4 : 5.

10774. (W. J. GREENSTREET, M.A.)—Prove from statical considerations that $$4\sqrt{2}\cos 27^\circ = 5\cot 36^\circ.$$

—775. (J. L. MACKENZIE, B.A., B.Sc.)—Two circles cut a given circular cubic in ABCD and ABEF, respectively; CE cuts the cubic in P, PD in Q, QF in R; prove that DR *touches* the cubic at D.

—776. (R. TUCKER, M.A.)—P, Q, R are three co-normal points on a parabola. The tangents at these points cut any double ordinate in L, M, N; the other tangents through L, M, N intersect in p, q, r. Prove that the circle pqr passes through the vertex.

—777. (Rev. J. ROACH, M.A.)—A galley rowed by slaves is moored at a point A which is four miles from B the nearest point of the coast, and C the nearest point of neutral territory is thirty miles from B, the coast-line BC being at right angles to AB. A slave on board the galley can swim, with the aid of the tide, $4\frac{1}{2}$ miles per hour, and can row $7\frac{1}{2}$ miles per hour. Find the point K in BC to which he must swim to reach C in the shortest time. Also, if he was missed after half-an-hour, and his pursuers rowed to B at the rate of four miles an hour, and then after some delay followed him on horseback at the rate of ten miles an hour, find how long they were delayed at B if they arrived at C forty seconds late.

—778. (D. BIDDLE.)—Referring to Quest. 9756, and observing that neither result given in the Solution in Vol. L., pp. 122–3, agrees with what, according to Professor SYLVESTER's Quest. 10219, Vol. LII., p. 97, it should be, if the triangle were supposed to be thrown down on a ruled floor, *Query*—Is a random line, crossing a stationary triangle, fully represented by a stationary line intersecting a triangle of random position? It depends upon whether the triangle be likely to be crossed in one direction more than another, or not. The same law must hold good of a given straight line. If, as held by many, the probability of a random line crossing a given straight line at a particular angle, be as the sine of that angle, then it is clear that the points in the given line are not liable to be passed through by random lines in all directions with equal probability. This seems absurd; but discussion is invited, so as to elucidate the matter.

—779. (Colonel CLARKE, C.B., F.R.S.)—Determine the positions in which a cube would float.

—780. (H. MCCOLL, B.A.)—If $f(\theta)$ denote the cubic expression $x\theta^3 + y\theta^2 + z\theta + u$, and if $\phi(\theta)$ denote $u\theta^3 + z\theta^2 + y\theta + x$, so that $f(\theta) = 0$ and $\phi(\theta) = 0$ are equations with reciprocal roots; find the chance that the roots of the two quadratic equations $f'(\theta) = 0$ and $\phi'(\theta) = 0$ are all four real, the coefficients x, y, z, u being each taken at random between $-u$ and u.

—781. (J. J. WALKER, F.R.S.)—If A be the refracting angle of a prism, and θ, ϕ the differences between the angles which the part of the ray within the prism makes with the normals to the faces, and between the deviations at incidence and emergence respectively, while D is the total deviation; prove (1) that $\sin\frac{1}{2}(A+D) = (m\cos\theta\sin\frac{1}{2}A)/[\cos(\theta+\phi)]$, and thence (2) deduce the position of minimum deviation.

—782. (G. F. HOWSE, M.A.)—If three circles be drawn touching each pair at their common point, and cutting the third at right angles, these will be coaxal.

—783. (R. CHARTRES, M.A.)—Show that R cannot be less than $2r$. [This follows immediately from distance between centres of in-circle and circum-circle $= (R^2 - 2Rr)^{\frac{1}{2}}$, and is connected with Quest. 9406.]

—784. (J. J. BARNIVILLE.)—Divide a right angle into 255 equal parts.

—785. (ALPHA.)—A person playing at "Poker" one evening met with this curious result:—32 cards are retained (so that 5 sets of 4 cards are removed). A had 2 aces in his 5 cards; B 2 kings; C 2 queens; D not known, but he has not ace, king or queen, and so throws up his hand. Stock 12 cards. A, B, C each rejects 3 and draws 3 from stock; and now A has 4 aces, B 4 kings, and C 4 queens. Find the respective chances connected with this curious result.

—786. (J. BRILL, M.A.)—The moments of n complanar forces about a point O in their plane are $m_1, m_2, \ldots, m_n$. Through O a straight line is drawn meeting the lines of action of the forces in the points $r_1, r_2, \ldots, r_n$, and a point R is taken on this line so that

$$\frac{m_1 + m_2 + \ldots + m_n}{OR} = \frac{m_1}{Or_1} + \frac{m_2}{Or_2} + \ldots + \frac{m_n}{Or_n};$$

prove that the locus of R is the line of action of the resultant of the given forces.

—787. (R. H. W. WHAPHAM, M.A.)—If n, r be positive integers, show that

$$r^{n(n-1)} > \left\{ (n+1)^{n+1} \left(\frac{n}{1}\right)^n \left(\frac{n-1}{2}\right)^{n-1} \left(\frac{n-2}{3}\right)^{n-2} \cdots \right.$$
$$\left. \cdots \left(\frac{2}{n-1}\right)^2 \left(\frac{1}{n}\right)^1 \right\}^{(2^{r-1}-1)\,2^{r-2}}.$$

—788. (D. EDWARDES.)—Prove that (1) the mean area of all triangles having their vertices upon the surface of a given right-angled isosceles triangle of area Δ and bases parallel to the hypotenuse, is

$\frac{13}{210}\Delta$; (2) the same result holds for any given triangle; and (3) the chance that the base angles are acute is $\frac{7}{20}$.

10789. (R. Knowles, B.A.)—In Quest. 9638, if P′, Q′, R′ be the poles of the sides of the triangle PQR, prove that the continued product of the perpendiculars, on either of the asymptotes, from P, Q, R, and P′, Q′, R′, respectively, are equal.

—790. (H. W. Segar, B.A.)—Show that

$$\frac{\pi}{4}\cdot\int_0^{\frac{1}{2}\pi}\log(1+\cos\theta\cos x)\frac{dx}{\cos x}=\frac{\cos\theta}{1^3}-\frac{\cos^3\theta}{3^3}+\frac{\cos^5\theta}{5^3}-\dots.$$

—791. (Rev. T. C. Simmons, M.A.)—Prove that the mean value of the nth power of the distance between two points taken at random within a given circle, n being not less than -1, is equal to

$$\frac{2^{n+4}\sqrt{\pi}}{(n+2)(n+3)}\cdot\frac{\Gamma[\frac{1}{2}(n+5)]}{\Gamma[\frac{1}{2}(n+6)]}r^n.$$

NOTICE TO CORRESPONDENTS.

Correspondents should be careful (*a*) to write each Question and each Solution on a *separate* paper (otherwise, when used for printing, the Editor has the labour of entirely *re-writing* such articles); (*b*) to make their Solutions as short as possible; (*c*) to send all Questions *early in the month*, but not to send Solutions till their Questions have been published; (*d*) to write their names at the *top* of *each* paper; (*e*) to *prepay* the postage in *full*; and (*f*) to send all communications to

W. J. C. Miller, The Paragon, Richmond-on-Thames.

THE LONDON MATHEMATICAL SOCIETY.

The following changes in the Council are proposed to be made at the Annual Meeting, on the 13th instant. Prof. Greenhill, F.R.S., to be President; Dr. J. Larmor, Major P. A. Macmahon, R.A., F.R.S., and J. J. Walker, F.R.S., to be Vice-Presidents; Messrs. A. B. Basset, F.R.S., E. B. Elliott, M.A., J. Hammond, M.A., C. Leudesdorf, M.A., S. Roberts, F.R.S., and Dr. Glaisher, F.R.S., to be ordinary members; and, in addition, Dr. Hirst, F.R.S., and Messrs. R. Lachlan, M.A., and A. E. H. Love, M.A., who are nominated in succession to Profs. W. Burnside, M.A., A. Cayley, F.R.S., and Sir James Cockle, F.R.S., who retire. Messrs. A. B. Kempe, F.R.S., M. Jenkins, M.A., and R. Tucker, M.A., retain their posts of Treasurer and Hon. Secretaries, respectively. The subject of Mr. Walker's Presidential Address is "The Influence of Applied on the Progress of Pure Mathematics." The retiring President will also present the De Morgan Memorial Medal (awarded by the Council in June last) to Lord Rayleigh, Sec.R.S., in recognition of his writings on Mathematical Physics. Sir R. Stawell Ball's communication (see *Educational Times* for August) is unavoidably postponed to the January meeting.

The following papers have been received or promised, viz.: "Proofs of Steiner's Theorem relating to Circumscribed and Inscribed Conics," Prof. G. B. Mathews, M.A., and "Spherical Harmonics of Fractional Order," R. A. Sampson, M.A.

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COLLEGE OF PRECEPTORS.

EVENING MEETING, NOVEMBER 12TH, 1890.

THE Chair having been taken by H. COURTHOPE BOWEN, ESQ., M.A., Dr. JAMES SULLY, M.A., read the following paper on

HOW THE CHILD BECOMES A LEARNER.

I have chosen what many may think an unmanageably large subject for our discussion this evening. For it may be said that a successful development of the learner sums up the whole business of education, intellectual and moral alike. Yet there is sometimes an advantage in rising to a point of considerable elevation above so large and complex a subject as education, and trying to take it in as a whole, with a rapid movement of the mental eye. To see clearly the large comprehensive end of our work is to save ourselves many an injurious error. Our object this evening will be to take a new comprehensive survey—or what the Germans call a "glance over"—of our educational aims and the correlated processes. For this purpose, we will look at the child as having for his main duty to learn, and at the teacher as being concerned with understanding and furthering the work of learning. And here I must ask you, in order to ensure clearness of ideas, to follow me in a short preliminary definition of terms and more particularly of the word "learn."

We are said to learn what we do not bring into the world with us, but acquire in the course of our life. Yet all that we acquire is not learnt. We do not learn a disease, or a slovenly gait that comes from mere indolence and want of effort; nor, strictly speaking, do we learn what we pick up in an unconscious way from others. To learn, then, is to acquire by a process of conscious exertion. Thus a child learns facts by using its powers of observation and understanding, and learns to do what is right by the exercise at once of understanding and of will. While we may thus distinguish intellectual and moral learning, we must bear in mind that they are at bottom one process; for both alike engage intellect and will in a process of intelligent reaching out towards and grasping some object. I need hardly say that for our present purpose we shall use the word with special reference to intellectual acquisition, or the laying hold of knowledge.

And now let us go a step further in our elucidation of the meaning of the term. There are evidently two ways in which a child can acquire knowledge. He may use his own senses and understanding, and in this way reach a respectable amount of such common knowledge as that the sun is hot, apples are sour ere they become sweet, and so forth. Or he may gain knowledge by way of instruction from others. In a large sense we might apply the term "learn" to each of these ways of coming by knowledge; and the actual usages of language do exhibit a tendency in the word to take on this comprehensive meaning.* Nevertheless, it must be admitted that, in English at least, we ordinarily understand by learning a mode of gaining knowledge which has derived some aid from others. A boy learns when he gets information from another by way of conversation, or of reading, or of formal instruction. While allowing this, however, I am far from saying that there is a radical difference in the mental process in the two cases. So far from this, it will be one main object of this paper to bring out that, when a child grasps a fact through another's information, he performs essentially the same piece of mental work as when he acquires knowledge independently. The existence of a special word for describing the process of acquiring knowledge from others may be explained by the practical importance of distinguishing the two modes of acquisition.

One other distinction has to be touched on in this connexion. If learning is a process of gaining *knowledge*, that is, a true apprehension of realities, it excludes verbal memorising, cramming, and everything that resolves itself on close scrutiny into a pretence of knowledge-getting. A child only learns when, by an appropriate exertion of his mind, he lays hold of some new fact, if only the fact that a known object bears a particular name.

And now let us see what is implied in the learner. A learner is obviously one who learns. Since every child begins to learn from others as soon as he becomes intelligent at all, we may say that every child is a learner. According to this view the learner is a *datum* and not a *quæsitum* of the teacher. But a moment's thought will tell us that the child beginning his school course, a prey to every disturbing sight and sound, impatient for the signal of the bell that is to bring him deliverance, is not a learner in the highest sense. A learner in the full sense of the word is characterized by one or more very valuable qualities. He is deeply impressed with the fact that there is a great deal to be known of which he is ignorant. He is exceedingly desirous to get as much of this unattained knowledge as possible. And he has the capacity of applying his mind in the way required for its attainment. Now it may be safely said that a child is not born but is formed a learner in each of these three respects. Emile, cut off from others and handed over to nature, would never have woke up to the fact of his profound ignorance. It is the dim apprehension of vast stores of knowledge which others possess, but which are as yet unpossessed by him, which quickens in the normally trained child the slumbering impulse to learn. Still more manifest is it that a child can only acquire the power of learning by help of trial, exercise, and the systematic training which a good education supplies. From all which it is evident that the teacher, while he presupposes a learner at the beginning, has a good deal to do with bringing up this feeble fledgling to the level of the strong-winged bird. Nor would it indeed be much of an exaggeration were I to say that the highest thing any teacher can do for any boy or any girl, is to draw out into joyous realization the full potentiality of the learner. And here let me just note that in this formation of the learner we are working not entirely for our own time and our own temporary ends, but for after-days. We want the child to be a learner, not altogether that he may learn this bit of Latin to-day and this portion of English history to-morrow, but that he may be fitted and disposed to go on learning all his life through. It is in this sense of the term, a mind that has acquired a lasting desire to extend the boundaries of his knowledge, and a capacity to learn trained to an unfailing habit, that we may call the learner the highest product of education.

Since a child becomes a learner by actual effort in learning, we shall have to look rather closely at this process of learning, in order to see what it involves, and on what conditions its success depends. What work does a child's mind perform when it learns something? If we can answer this question, we may be in a position to see more clearly into the nature of teaching, conceived, as we may conceive it, as a furthering and a regulating of the process of learning.

(1) The forms of the process of learning will differ somewhat according to the nature of the fact or truth learnt. Thus, a child's mind goes through one series of actions in learning that the sun is millions of miles away, that the cat, the tiger, and the lion are members of one family, or that the people of England used to elect their kings. But, allowing for the difference of the

* *Cf.* the use of *disco*, *μανθάνω*, *apprendre*, *kennen lernen*, &c.

subject-matter, the essential elements of the process appear to be the same. We may thus indifferently take any one of these examples in order to illustrate the point, and so may as well take the last.

The first thing that is necessary here is the presentation, through the medium of words, of a new fact. A child is, we may suppose, hearing or reading about the way in which the early Saxon people chose its rulers. Herein learning stands on precisely the same footing as gathering knowledge through the senses; for in this case, too, there must be some external object presented to the mind. In other words, learning obviously presupposes the presence or accessibility of something to be learnt. But now note, if you please, that though one obvious condition of learning, this presence of thought-suggesting words is not enough to ensure the process of learning. Just as there are many objects of sense that tell the child nothing, so there are many words that fall on his ear or strike his eye. In each case the mind must be active in relation to this material. We commonly express this by saying that the child must attend. Unless he fix his mind on the proposition, he will get no knowledge by any of it. Let us see how this fixing of the attention on a new fact comes about.

We may perhaps best discover what takes place here by saying that a certain state of bodily and mental tension is produced. This tension may come about in different ways. In the case of the baby staring at the candle-flame, it is a strong sensuous stimulus that calls forth this tension. This crude form of attention is, however, only indirectly helpful to the gaining of knowledge. The tension we want for purposes of learning involves more than this. It involves some feeling of defect or ignorance, and a vague consciousness that there exists knowledge which can supply this defect. In other words, the child that listens to the account of king-making among our ancestors, listens under the stimulus of a feeling of intellectual need and a desire to gratify its need.

This proposition may seem by no means self-evident to some. Let us then, for the moment, suppose that the child who is reading the fact about king-making has previously heard that English kings were not always hereditary. In that case, you will allow, a sense of ignorance, and the attitude of curiosity and inquiry, would have time to develop. Well, I say that something answering to this attitude of mind is developed in every case. A child will only listen to anything you say in so far as it goes through this experience of feeling defect and desiring its supply. There must be the consciousness of need before there will be the requisite exertion.

Now, I think, it is easy to see how such feelings of intellectual darkness, together with vague outreachings of mind towards the light, come about and become larger and more effectual as the child grows older. We are apt to take a far too mechanical view of intellectnal development. We greatly misrepresent it when we talk of it as a series of additions of intellectual material, much as if it were like packing new stores in a warehouse, or adding new stories to a building. Facts do not get into the mind in this simple and expeditious way. The child's mind, if it is fully awake, is quite as much occupied in brooding over what it sees and hears as in seeing and hearing. And it is highly necessary that it should so brood. This mental incubation means that the child is attempting to bring facts into their right relations one to another, to see the antecedents and consequents of this action, and to discover other facts like this one, and so forth. It is by such processes that a child finds out its limitations. Here stands a fact to which it cannot append its belongings. It sees, for example, the rainbow, and begins to wonder where it comes from, and how long it will be before it comes again, or it hears a fact about Africa, and begins to wonder how far away it is, and how long it would take to get there. The child's intelligence is, when normally active, continually engaged in such organizing work. And, now, what follows from this? That its mind is on a look-out attitude for new facts. It feels there is more to know, and it reaches out in desire towards this knowledge.

Thus it happens, in the case supposed above, that the child brings a certain openness and expectancy of mind to bear on what it reads. It drinks in the information about the old-fashioned way of getting kings, because it has already discovered that there was an old-fashioned way to be known about.

The particular desires for this, that, and the other knowledge tend to grow keen and prolonged in certain definite directions. Thus, one child gets specially curious and inquisitive in relation to animals; another in relation to countries, or regions for exploration; a third in relation to mechanical appliances, and so forth. What does this mean? That a sufficient mass of knowledge, relating to the particular class of objects, has been accumulated to generate recurring movements of inquiry. Thus, the child who has found out a certain number of facts about countries finds by reflection that his knowledge is incomplete. Thus, one book of travel has told him what animals he would find in Africa, but he has not learnt what animals he might come across in China, and he begins to wonder about this. What we call interest in a subject seems to me to imply this expectant, forward-reaching attitude of the attention. It means that the child has acquired a sufficient knowledge of some parts of the subject, and under the stimulus of these has wondered and imagined long enough about the other portions to be in a state, not merely of open-mindedness or receptivity, but of keen alertness in relation to any new contributing fact.

And here, let me say in passing, that the impulse of learning never takes its rise in a state of utter ignorance. I am not here concerned to explain how the child passes from its primordial nescience to its first knowledge. What we have now to do with is the child at the age of learning. And by that time it is indisputable that the direction of mental activity that constitutes the fundamental element in the process of learning is determined by interest, which, according to the view I am now taking, means a preceding adjustment of the mind to the fact or truth to be learnt. We may express this fact in various ways, as when we say that a thing interests the child when it is brought into relation to what he knows, or viewing the process in the inverse direction, that its old knowledge carries him on to the grasp and appropriation of new knowledge; or, as some of the Germans have it, constitutes a fund of ideas by help of which the new fact is "apperceived."

The proposition here contended for, that the child when learning attends or gives its thoughts to a subject just because it is prepared for, and, in a sense, on the look-out for the new ideas, seems to me to be provable by common observation. Every teacher must have remarked that it is the child who knows something about a matter, and has been made to think by what he knows, who will be keenest in learning more of the subject. Again, you can best excite a child's mind to the effort of learning by exciting the attitude of *qui vive?*—as when you get him to reflect on what he knows of a given point with a view to seeing what more there is to be known. And then, to quote a third fact, how much deeper does the interest of a child grow in a subject as he progresses in it, and so wins more vantage-points for looking out discerningly into the unexplored residue. For so vast is the realm of knowledge that the more he knows the larger seems to grow the region of the unknown. In the intellectual world it is indisputable that to him that hath shall be given.

So far as to the initial attitude of the learner's mind—the preliminary focusing of attention on given material under the stimulus of a desire for a particular sort of knowledge. This fixing of the attention may be said to start the true process of learning; or the appropriation or assimilation of knowledge. This last process is in every case a gradual movement or development. To begin with, since learning is an interpretation of words, there must be a due mastery of the language used, and a sufficiently full and distinct reinstatement of the ideas signified. All processes of learning involve this. Every teacher knows the difference in ease and rapidity of learning which turns on inequality in knowledge of words and readiness in verbal interpretation. It is obvious that the completeness of the acquisitive process must be limited by this circumstance. We may readily see this by comparing the ideas gained by different children from the reading of one and the same book. The one child has hastened on, content with vague shadowy ideal reproductions; the other has taken care to get at the precise meaning of the symbols. The latter has learnt much, in the sense of having acquired a mass of distinct information; the former has learnt nothing. The art alike of listening well and of reading well depends on a respect for words which prompts us to take sufficient pains to untie them, so to say, and see all that they contain.

This effort made, the process of assimilation naturally follows. The group of words, once properly attended to, would suggest a particular arrangement of ideas. Thus, on listening to the proposition "our Saxon ancestors elected their kings," there arises in the learner's mind a rough draught of the answering thought. But this thought does not grow distinct in an instant, but only gradually by help of various assimilative processes. Thus, the child understands this simple statement by help of the previous

knowledge it possesses of the Saxon people and their times. It further grasps the idea of king-elections by its analogies to choosings of leaders in the play-ground, and the like.

In the illustration just used the process of learning seems simple enough. Let us now take another kind of instance, say the understanding of a continuous description or narrative; or of a closely concatenated chain of reasoning. The very first condition of learning here is a *sustained* attention. A child that cannot or will not go on listening is not yet a learner in the fuller sense; that is to say, the appropriator of a complex piece of knowledge: at the same time, it is well to note that the prolonged attention needed here does not depend altogether on the initial effort or resolution of will. In listening to a narrative, say of the doings of Clive in India, there is a continuous re-creation of interest as the mind moves on; nay, more, there is a deepening or intensifying of this interest in connection with the assimilative process itself. Remember what I said just now respecting the fecundity of knowledge in breeding the desire for further knowledge. We may liken the effect here spoken of to that of pecuniary gains on the true gambler; the more he wins the more eager he becomes to win. The boy who hears or reads of Clive finds himself, after the first stage of application is passed, in possession of certain facts, say the low estate of the British dominion in India, and the immediate danger of its extinction. These facts, being in themselves interesting in the sense that they stir certain nascent patriotic emotions in his breast, are brooded on, and such brooding immediately begets that consciousness of want, out of which springs the impulse to gain knowledge. The brooding mind of the boy desires to know whether the French did succeed in driving out the Company's force, whether the daring young ex-clerk was able to hold his own against such odds, and so forth. The mind is put into a state of eager expectation, of highest tension; with the result that the attention instead of falling off gets more strained, more absorbent, as the narrative unfolds itself.

It is the same in the case of matter less excitant of the emotions, say the demonstration of the 5th proposition of Euclid. Here the learner, if he have the proper knowledge and interest in the subject to set out with, will grow more and more eager for each successive step. The curious construction awakens his curiosity. Why, he asks himself, go outside the isosceles triangle in order to prove two of its angles to be equal? As the steady march of the argument advances, the knowledge already furnished begets vivid anticipations or outstretchings of mind towards the succeeding steps, which fore-graspings will be more or less definite according to the amount and the distinctness of the learner's previous knowledge, and according to the degree of his inventiveness or power of applying knowledge to new uses. His mind is now strung to a tense state of inquisitiveness, and the whole process of learning is secured.

This brief account of the learning process may help us to understand the point emphasized in the title of this paper, that the child is not at the outset in the full sense a learner, but gradually becomes one. The mind of the now-born inexperienced babe is hardly more troubled by a sense of ignorance than that of a happy ruminating cow. It is apt to be provokingly incurious with respect to its surroundings, and so is inattentive, except in a spasmodic and ineffectual way. The feeling of ignorance must come, and bring the keen desire for knowledge and the strong impulse to attend. We see the germ of this in occasional watchings of persons and things, with a view to see what they are going to do. Later on, this wakening of curiosity evidences itself in a much more important form, viz., in questioning about this or that. The questioner is, for the moment at least, overtaken with a sense that there is knowledge not yet reached by him. And under this momentary consciousness of need he will, perhaps, await your answer, and even give it, in his lordly way, a passing consideration. How far this capricious undisciplined quest of information is from the genuine desire for knowledge, which makes the learner, I need not point out. The power of giving the attention to words must be exercised and made strong, by the exciting stimulus of story, before the child will be a true learner. And thus a certain assimilation of knowledge must have been made in order that his mind may move forward towards new facts and truths, not in a haphazard, but in a methodical way that conducts to the truth of things. For the first questionings of children are feeble and futile just because they are vaguely thought. It is only when a child begins to have some presentiment of the whereabouts and the nature of the knowledge he is in quest of that he becomes earnestly inquisitive. And as his organized sum of knowledge becomes more massive and more compact, he will grow more and more capable of learning. So that, far from having done for ever with lessons when he comes to leave teachers and school, he may be said in a sense to have merely got over the first preliminary business of learning how to learn, and will now be able to go on learning by himself from the store-houses of knowledge and wisdom which he will find if he looks for them in men and in books.

(2) This brings us to the second and practical division of our subject. What is the teacher's part in the development of the learner?

And, here, I would pray you, note that I am conceiving of the teacher's function in a somewhat unconventional way. People are apt to think of the instructor as finding the learner ready-made to his hand, and as having nothing to do but the agreeable task—if task it be—of ministering to the learner's needs. I venture to think that this optimistic view of the relation of teacher and learner is false, and fatal in its consequences. It seems to me to lead to an inadequate and unworthy view of the real function and scope of teaching.

Let us pause for a moment to see what are the logical implications of this "learner-before-teacher" theory. If that theory is true, one cannot help asking why the teacher is required at all. A Cambridge Professor not long since suggested that a good portion of University lectures are a mistake, it being much better for the student to get his knowledge out of books. And if the theory of ready-formed learners is correct, we might extend Professor Sidgwick's plea, and urge that the eager little searcher for truth of six or thereabouts had better be taught to read as soon as possible, and then sent to satisfy his intellectual hunger on the spacious pasturage of books. Such an amiable view of the childish mind leads, as Rousseau's *Emile* clearly shows us, to the practical conclusion that the teacher has nothing to do but to stand by like some good-natured custodian in a museum, ready to answer, as well as he can, any question the curious student may wish to put to him.

No! Providence has not done us teachers this doubtful service of growing a crop of eager and skilled learners all ready for our use. Even that much-misunderstood class, gifted children, require a little help before they become experts in learning. That precocious boy, Alexander Pope, could hardly have dared to cast aside the tutor's leading strings at twelve and take his education into his own hands, but for the scholastic training he had already received. And as for your undistinguished average child, what would become of him if his intellectual sustenance and growth were made to depend on the keenness of his own stomachic promptings, and on the natural degree of perfection of his powers of scenting out suitable knowledge, cropping and masticating the same, and so forth?

The truth is, that though possessing some natural strength of desire, and some rudimentary powers in respect of learning, the child left to himself is far from being as ardent or as competent a learner as we should like him to be. To begin with, his interest in knowledge is limited, capricious, sporadic, not wide, sustained, and fruitful of valuable results. The desire to gain information about things, to understand the world he lives in, the life and thoughts of his race, is largely a product of education itself. How little it belongs to the uneducated condition may appear in the sluggish condition of incuriosity in which the majority of the species are content to remain to the end of their life.

Hardly less important as showing the necessity of the teacher here, is the fact that the same indolence of mind which chokes curiosity is apt to breed a complacent conceit as soon as a little knowledge is acquired. I said just now that knowledge generates a desire for further knowledge; I must now add the limitation, in an active vigorous mind. Unhappily there are many minds of an inactive drowsy habit, and here a little knowledge is wont to become a dangerous thing morally as well as intellectually. We see this conceit of knowledge begetting an indifference to new ideas, and even an imperviousness of mind in relation to them, in the narrow-minded uncultivated adult. And we meet with it in the young also. The so-called home-training sometimes tends in this direction, fostering a ludicrous self-complacency in the matter of knowingness, and disposing the boy or girl to despise the idea of learning as something beneath the dignity of cleverness.

For these reasons, then, I hold that the teacher is needed in order to foster and strengthen the desire for knowledge, so as to bring it to the rank of a constant and dominant impulse of life. But this is only one reason why his services are needed as a factor in the formation of the learner. He is wanted not only to

strengthen and intensify the promptings of curiosity, but also to control their direction. A child may have strong impulses towards knowledge, but these may happen to take wrong directions. Thus children's uninstructed questions, as we all know, have not unfrequently to be left unsatisfied, for the good reason that there is no answer available, at least none that the questioner could take in and understand. Not only so: as was pointed out before, childish curiosity is apt to be light and flitting, like the movements of an impatient bee that lingers nowhere long enough for a good substantial take of honey. The curiosity that helps to make the learner is on the other hand a firm consolidated impulse; it is a strong soul-possessing desire to gain knowledge about this particular subject, leading to the concentration on this of the whole mind. The development of this absorbing interest in particular domains of knowledge is one of the main results of what we call methodical teaching.

In the second place, the teacher helps to form the learner, not only by awakening and wisely directing the impulse of inquiry, but also by aiding the awakened impulse in attaining its object. There is a methodical skilful expeditious manner of getting at knowledge, and this comes not by the light of nature. While it is true that all assimilation of knowledge is due to the activity of the learner's own mind, it is true likewise that this activity needs the guiding and steadying touch of the teacher's hand. Such control is obviously implied in the whole work of selecting and arranging the material to be learnt, in devising the lesson as an orderly methodical exposition; further, in adjusting subjects of instruction to the capacity and previously acquired knowledge of the pupil as these alter from year to year, and generally in the planning out of a methodical curriculum of study. In this way suitable, and so effectual, stimuli are brought to bear on the learner's mind, the desire for knowledge is evoked in carefully selected directions, and a methodical progress from elementary to advanced stages is rendered possible. The same control is implied in our modern and more scientific manner of teaching by evoking to the utmost the activity of the pupil's mind in the process of learning. Children's intellects are apt to be inert, and it sometimes happens that although they have the material in their previous knowledge which is needed for the assimilation of a new fact or truth, this material is not forthcoming. A skilfully directed question at such a moment, stirring the too inert mass of the young mind, will suffice to bring to the surface the needed analogy, principle, or illustration of principles. Such stirring of inert masses is one weighty part of the teacher's business.

I trust that I have now said enough to justify my contention that the teacher is needed before the learner is perfected as such. There is a sense, of course, in which it may be said that your pupil is there before you with his particular mind, his sum of capacities, tastes, impulses—and one may add errors and prejudices—and you have to adjust to it the whole course of your teaching. *En revanche*, your teaching works in the direction of bringing this embryo-learner more and more into adjustment to yourself as his teacher. That is to say, as the result of the mental exercises to which you subject this unformed mind, it grows more and more responsive to your touch, more alert, more companionable, more helpful. You are forming the learner, and the result is evidenced in the altered character of the progressive movement: your arm is no longer wearied by the backward drag of the laggard, the light grasp of your hand tells you that your companion keeps abreast of you, enjoying your pace.

I should like to bring to a close these rough notes on a large subject by pointing out one or two ways in which the teacher may most effectually contribute to the building up of the learner.

The first thing, I take it, in this great art of learner-forming is to bring the mind of your pupil into a favourable attitude towards the large domain of the unknown. He has an inkling of this already, but—not to speak of the blinding effects of conceit—he is little likely to suspect its vast dimensions. Never forget that the learner must pass through the dark and cheerless portal of conscious ignorance into the gladdening sunlight of knowledge. Do not be afraid for a moment to let him feel as far as he can that he knows as good as nothing. But be careful that it is only for a moment. The bleak chilly portal is not the place to detain him in. A complete sense of his utter ignorance, as measured by the vast territory of knowledge, would—were it possible for him to realize it—crush the learner-embryo within him. Be careful, therefore, not to unduly insist on the fact of his ignorance, and never suffer yourself to be drawn into the unworthiness of emphasizing your own superior knowledge.

And this suggests another and complementary counsel: to develop concurrently with the sense of ignorance the consciousness of a power (with your help) to surmount this ignorance. We want the painful stupor that is apt to whelm the young mind in face of the big unknown only as a spur to effort. The first dazing look out into the unbounded void must give place to a cheering perception of a track worn by human feet, which his own too may follow. In other words, as soon as the pupil is made to feel that his mind is a blank, he must be encouraged to put forth his powers of filling up the void. And here we see the importance of the highest tutorial tact at the very outset of the expedition, so as to secure the initial courage and firm forward tread. The beginning with the wrong subject, the sudden casting of the little traveller on some baffling steep of knowledge at the start, may cause a serious delay. On the other hand, the gentle leading of him from the actual level where he stands up some easy slope of learning will bring the needed confidence. At first, this confidence will be rather in you, his guide, than in himself; but, if your method is sound, he will soon come to see that it is his own limbs that bear him onward, and, trusting to you to show a passable way, he acquires a cheerful readiness to push forward.

I cannot refrain from pausing here to express my strong opinion that, in spite of all that Froebel and others have taught us, we are still far from realizing in our practice the supreme importance of the start in learning. Do we not even now abruptly plunge the beginner into the baffling obscurities of a new subject without any serious attempt at starting at the learner's actual standpoint? Theorists are no doubt making a beginning here. Thus, the Germans, with their notion of *Heimkunde*, or home-lore, have seen how to pave the way from the crude, unsystematized, and narrowly-bounded knowledge of the pre-scholastic mind to the methodical study of *Erdkunde*, or earth-lore. But this idea of setting out from the point of actual unaided attainment needs to be generalized and applied to all departments of study. I rejoice to see that a beginning has been made in Germany in something like a careful statistical investigation into the contents of children's minds. We must know the child-mind intimately—all its contents alike, whether these be true or false ideas—before we are in a position to instruct it. And when the teacher does truly see into all the odd workings of this child-mind, when he fully realizes how scanty is its stock of accurate observation, what a queer jumble of fact and childish fancy its first attempts at knowledge-getting have resulted in, he will, I venture to predict, make a profound and radical change in his methods.

The change I here refer to I should describe as the prefixing to exact systematic study of any subject a preliminary unsystematic study. Systematic study is an excellent thing if we can only secure it. But what if we cannot? What if the attempt to take the child through such a systematic study should issue in a mere unstable heap of vaguely apprehended fact in place of a connected and orderly arrangement of clearly apprehended fact? Take history, for example—I mean that of our own country. What can be worse, more staggering, more stupefying than to take a child destitute of the idea that his country has had a past, and suddenly flop it down on a particular period, say the times of the ancient Britons? The idea of history is not inborn in the child. He finds it hard enough to grasp the fact that he himself has had a past unlike the present, and is far from thinking this of what he sees about him. The idea of history must be led up to by a series of stories; partly biographies of men who had much to do with the making of this history, and partly story-like accounts of particular features of country and national life—*e.g.*, a short picturesque narrative, intentionally incomplete because detached from its historical belongings, of the changes in the outward aspects of the country; in the dress, manners, and the daily life of the people; of how we have come by some of our most valued possessions, such as the security and comfort of our homes, our liberties, and so forth. Such cuttings from history, if judiciously selected and brightly narrated in story form, could not fail to interest and arouse the childish mind. For they would all take their start in known facts, in the observation of things now surrounding the child; and they would exactly answer to one of the strongest outgoings of childish curiosity—the desire to know about the origins of things, the way in which they come to be. A few of these historical stories would suffice to familiarize the childish mind with the general truth that our customs, our institutions, our literature, and the rest of our modern possessions, did not always exist, but have been won for us by ages of human effort. And when the proper time arrives, the clear conscious-

ness of this idea of a past unlike the present, and of a gradual striving forward of the people to its present condition, will supply the needed interest in the connected and systematic narrative.

The contention here urged that an unsystematic study must precede a systematic study seems to me to be a deduction from the fundamental principle we all profess to adopt, viz., that intellectual progress is from the known to the unknown. If you want to carry on the child's thoughts with you, you must go back to where that thought is loitering; you must, therefore, be content at first to present knowledge in an incomplete and fragmentary form. To this extent I would concede to the maxim of Pestalozzi and Herbert Spencer that the individual mind acquires its knowledge as the race acquires it; gradually rising to the clear connected systematic view of the whole which the mountain-top gives, out of the detached partial views which were all that the successive climbing positions yielded.

I would add, however, by way of qualification, that, even in this rudimentary stage, instruction, just because it is instruction and has to exercise the learner in methodical work, must be definite and connected so far as it goes. You can tell, for example, the story of the English Parliament in a very incomplete fashion, in a manner that would make your historical pedant wring his hands perhaps, and yet enable the child-mind to reach a perfectly clear and connected view of the more important features of the history.

For the same reason that it is necessary to bridge over the chasm that divides childish ignorance and confusion of ideas from the perfectly organized knowledge of the educated man by a comparatively unsystematic mode of instruction, it is desirable to preface each formal lesson by what Zeller and other German writers on education call "preparation" (*Vorbereitung*). I do not mean the so-called preparation of learning a passage from a text-book. No, the true preparation here spoken of is done by the teacher, with the pupil's help, as a preliminary to the more formal exposition. It consists in bringing the learner's mind into the right condition for understanding the lesson. And this it does by producing the state of mental tension I spoke of above, by setting forth in vague outline the nature of the subject that is going to be studied, in clearing up some of the language to be used, and bringing out an understanding of some of the ideas, the whole to be carried on by means of the pupil's own backward searchings among facts already known. Such lesson-preparation will have none of the formality of set instruction. It will make much use of questioning. Yet it will not confine itself to the formal procedure of question and answer, but drop now and again into the easier procedure of a talk.

Next to making a right start, I should say the most important maxim as bearing on the development of the learner is: "Be careful at every step of the advance that the pupil's mind follows." This means that you move slowly—slowly, that is, as measured by our adult pace; slowly enough to give you time to keep a watchful eye on your young novitiate. And in this scrutiny you must not trust the outward look. Even the gaze of rapt attention may mislead. You must now and again pause, and, probing below the semblance of learning, put some searching question, so that you may be satisfied on this momentous point. Such interruptions of the exposition, and appeals to the learner to say where he is, are necessary, too, for the reason that children, even when honestly trying to follow you, are very apt to go off on a side-path. The peculiarities of their mind, their limited experience, all that makes their thought unlike your thought, expose you to the danger of being misapprehended, unless you take constant pains to examine, to draw out the new thought-products as they form themselves, so as to see how far they understand your words.

The last counsel I would give is this:—If you want to develop the learner in the child, you must bring to bear what we call moral influence, so as to form the habit of genuine conscientious work. And here I would try to make good any omissions that may have struck you when I was speaking of starting the young tyro in the path of knowledge. While I hold that the utmost labour should be undergone by the teacher in order to make the outset easy and even pleasant, I am no less strongly convinced that the learner must, as soon as possible, be accustomed to that prolonged methodical application of mind to a subject in which all that is worthy of the name of learning consists. Even the most highly gifted child will never become a learner till he has acquired this habit of steady pertinacious study. And as for your average child, what hope can there be for him till he has attained it? And here let me say that giving the child something to do outside the school is not only justifiable but highly needful if you want to form him as learner. Home-work, if properly selected in quality and quantity, is of the highest intellectual and moral value. It throws the pupil on his own unaided exertions, makes a certain demand on him as a free moral agent. It serves to develop in him a fuller consciousness of power, a self-confidence and a self-respect which are of the essence of the indefatigable learner.

Since learning is thorough methodical work involving an honest desire to gain real knowledge, you must form the learner by forming the virtuous character. I venture to say that dishonesty, a mean desire to shirk exertion and a readiness to pass off scamping for genuine work, is a greater obstacle to the teacher than the whole mass of childish stupidity, vast as are its dimensions. And you do most to secure the learner in every child when you develop and strengthen the good will with its loyalty to the sovereign behests of duty.

I am quite prepared to see the incredulous smile come over the face of the practical teacher at this plea for the thorough painstaking development of the learner. I have some little means of knowing how appallingly far our actual school-system is from even an approximation to the end here urged as of paramount value. Life is short, you will remind me, while art is long. The examination looms in the distance, and the examiner is inexorable. We have to pile up classes, and pile up subjects, till we lose touch with the individual child, and cannot trouble ourselves with the question whether he keeps up or not—we have to trust to the examiner to tell us this.

Yes, I know all this, and so deeply am I impressed with the failure of this system to turn out learners, that I am sometimes disposed to prophesy disaster. I very much doubt whether, if the results of our newest and undoubtedly our best schools were tested—I mean our girls' high schools—it would be found that one half of those who had been put through their mental drill carried away from it any impulse towards learning. And if this is true of the best, what shall be said of the worst? Ask yourselves what all these school-girls and all these school-boys that you are turning out into the world year after year read after they leave you, and you can easily answer the question whether your system is forming learners.

But I will not end with a pessimistic note. I believe that we are slowly following Germany and some other countries which had the start of us in recognising the paramount dignity and value of clear knowledge, and its correlative, the trained power of acquiring knowledge. We must recognise it much more fully yet. The parent must recognise it, and be willing to extend the period of study and to expend more on the accomplishment of it. The State must recognise it, and treat education, not as one of its smaller side-interests, but as its largest and most vital interest. The community that first comes to the full and distinct perception of what Education at its best is and can effect, is the community that will persist and expand in the future contentions of the race.

The Chairman said it was pleasant to see old ideas on the earliest steps in education refreshed and confirmed by the lecturer's experience and counsel. Disciples of Froebel had indeed, from the beginning, been putting into practice the doctrines he had inculcated, and the ground-idea of Froebel's teaching was, in fact, the ground-idea of the lecture. The processes of the teacher must follow the natural processes by which the young mind arrived at the first elements of knowledge. What teachers had to consider was chiefly what experience had taught them with regard to the process of learning,—what things were found most helpful at the beginning of the work,—how to grow the right kind of knowledge in a natural way,—how to create in the child the feeling of hunger for knowledge, and then how best to ensure that he shall assimilate it. It was an error to assert that the teacher was not needed to guide the child's first steps in learning; but at the same time it was true that much of the early development was due to the natural operation of the child's own consciousness. The point to be determined was: how far, and in what way, did the child stand in need of the teacher? Especially was there need of him when a new subject or new department of knowledge was being opened up, so that the energy of the child might be guided *towards* the new matter. As examples of how not to do it, he would instance the prefaces to the Clarendon Press editions of some of Shakespeare's Plays, with their dry archæological details and utterly uninteresting and superfluous information. The lecturer had suggested a doubt as to the ultimate results of our highest school education at the present day, as tested by the proportion of those who left school with a real desire for knowledge, and an aptitude to acquire it; but this, he thought, should be qualified by the consideration of what proportion of the pupils who came from the upper forms of, say, the high schools for girls were expected to continue their literary education in a systematic way after they had left school.

Mrs. Bryant said that she found little to add to what the lecturer had expressed. She strongly suspected that children had by nature a larger share of curiosity than was generally supposed, but that by the time they got to the age of ten or twelve the edge of their curiosity had been very much dulled by the ordinary course of their education. This might readily be observed in inspecting and comparing the different classes in a large school; it was due to some extent to physical development, and partly to the endeavours of their teachers to get the children to be thorough in their work. Now the average child hated thoroughness, and the teachers perhaps aimed at inducing it at too early a period. It was a good idea to put the child's mind in an inquiring frame, and this preliminary treatment should not be too systematic. As to the results of the teaching in the high schools for girls, it must be remembered that it was exceedingly difficult to get *all* subjects properly taught; but care should at any rate be taken to secure thoroughness in the teaching of at least some one subject in a given school. She did not quite agree with the remarks of the Chairman as to the results of the teaching in such schools being measured by the proficiency of the sixth and upper-fifth forms. The lower classes also had good results to show in their measure.

Mr. Thornton alluded to the method adopted by an American teacher, whose fate it was to have all the dullards handed over to him for treatment. He said he did not let them see a book for six months, and employed them largely on manual work. He (the speaker) was somewhat disappointed that the lecturer had not dealt with the question of the advantage of bringing in hand-work to aid that of the head. The scamping of book-work did not immediately reveal itself; but the kind of work turned out by the hand was easily and exactly appreciated by the teacher.

Mr. Orchard insisted on the necessity of sympathy of mind and heart between teacher and learner; both should, as it were, stand on a common platform, and there should be no mental jumping. The prime factor in education was the stirring up of a real interest in the object of study. The teacher's function was to overcome the pupil's mental inertia, to show him how and where to tread, and, as far as possible, to make the learner his own teacher. In the words of Dr. Temple, all the best cultivation of the child's mind was to be attained by the child's own exertions. All children were inclined to the process of analysis rather than synthesis; and they should be taught to put together again what they had taken to pieces. All sound education must repose on sound moral training, and therefore on true religion.

Mr. Hamilton remarked on the results of his own experience in examining the answers of pupils who had got up such text-books as those referred to by the Chairman. The introduction appeared to have been read, but not the play itself.

The Rev. C. Brooke said it was urged that the best way of getting the child to learn was by arousing his curiosity. He was inclined to recommend the opposite method—viz., to dwell chiefly on what was known and familiar, and to bring the learner gradually round to the recognition of a general principle or a new truth. Proper preparation for a lesson was the secret of success in learning new matter.

Mr. Lucas said that his work, as a School-Board teacher, brought him constantly face to face with the problems enunciated by the lecturer. He did not find much difficulty in stimulating the curiosity of the young; the chief difficulty was in directing and sustaining the interest awakened, so as to attain the object aimed at. The teacher's own personal interest in any subject would probably account, to a considerable extent, for the interest developed in the pupil. It was said that Charles Darwin, when at school, had a positive aversion to the study of Latin and Greek. Supposing that his teacher had the strongest interest in, say, Greek literature, was it likely that he would have succeeded in conveying some part of his interest to his pupil; or should he not rather have attempted to make use of his pupil's unusual interest in natural science to fix his attention on, say, a Greek work on that subject, and so attack the language through the subject-matter comprised in it?

Mr. G. Brown said that the ideal child the lecturer had in view appeared to him to be a very young child; and he conceived it to be hardly possible to develop a consciousness of want of knowledge at so early an age. Account had to be taken of the immense variety of character in the children with which the teacher had to deal in an average school. Curiosity was natural to children, and it was the function of the teacher to stand by, to direct, and to draw out. But when they considered the multiplicity of subjects that the teacher was called upon to teach in a limited time, it was hardly to be wondered at that the drawing-out process had to be curtailed. How to *focus* the mind of the learner was the great crux for the teacher; or, rather, having succeeded in focussing for the moment, how to keep the attention steadily fixed for a moderate time. To move slowly was the prime requisite in building up knowledge in the young. It was not fair to judge the teacher's work by the results of a final examination, leaving out of count the results of his patient effort in the development of character, which no ordinary examination could test. With regard to the thoroughness referred to by Mrs. Bryant, lack of it was, he considered, often due to physical infirmity, the *mens sana in corpore sano* being a necessary condition of sound knowledge.

Dr. Sully having replied to the remarks of the several speakers, a vote of thanks to the lecturer concluded the proceedings.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A meeting of the Council was held on Saturday, the 15th ult. Present—Dr. Wormell, Vice-President, in the Chair; Rev. R. Alliott, Miss Bailey, Mr. Baumann, Mr. Bidlake, Rev. A. W. Boulden, Mrs. Bryant, Miss Buss, Mr. Charles, Mr. Chettle, Rev. Dr. Conder, Mr. Eve, Rev. Dr. Frost, Rev. Dr. Hiron, Rev. W. T. Jones, Mr. Milne, Mr. Mason, Mr. Pinches, Mr. Reynolds, Mr. Robinson, Mr. Rule, Rev. W. J. Savell, Mr. Southee, Mr. Stièvenard, Mr. Storr, and Rev. J. Twentyman.

The minutes of the last meeting were read and confirmed.

The Secretary reported a substantial increase in the number of candidates entered for the forthcoming Christmas Examination for Certificates, to take place on the 9th to 12th December, as compared with the last examination at the same period of the year.

Friday, the 23rd January, was fixed as the date of the next General Meeting of the Members of the College.

The Report of the Education Committee was adopted.

The following persons were elected Members of the College:—

Miss M. Achurch, Mornington House, Avonmore Road, West Kensington, W.
Miss E. K. Clay, A.C.P., The Ladies' College, Derby.
Mr. W. H. Martin, 38 Silver Street, Warminster.
Mr. J. R. Phillips, Yorkshire Society's School, Westminster Bridge Road, S.E.
Mr. G. L. Pionnié, B.Sc. Paris, 21 Lupton Street, N.W.
Miss S. J. Russell, 114 Harrington Road, Workington.

The following books have been presented to the Library since the last meeting of the Council:—

Cassell.—Weidner's Xenophon's Anabasis.
Clive & Co.—University Corr. Coll. Series:—Allcroft and Hayes' Vergil's Aeneid X.; Allcroft and Haydon's Latin Composition and Syntax; Briggs and Stewart's Analysis of a Simple Salt; Low's History of English Literature 1485–1580; Masom and Allcroft's Synopsis of Roman History, B.C. 31—A.D. 37; Masom and Fearenside's Tacitus, Annals I.; Nesbitt's Translation of Vergil's Aeneid II.; ditto Book IV.; Wallace Stewart's Text-Book of Heat; ditto Light.
Longmans.—Quick's Essays on Educational Reformers.
Macmillan.—Blanford's Elementary Geography of India, Burmah and Ceylon; Deighton's Shakespeare's Richard II.; Elderton's "Maps and Map Drawing;" Eugène-Fasnacht's German Composition (First Course); Gwatkin and Shuckburgh's Aeschines in Ctesiphonta; Sime's Geography of Europe.
Nutt.—Eve and Baudiss's Wellington College French Grammar.
Calendars of City of London College (1890–91); St. Thomas's Hospital (1890–91); and University College, Nottingham (1890–91).

MR. ARTHUR SIDGWICK ON ELEMENTARY LANGUAGE TEACHING.

Two lectures on Elementary Language Teaching were delivered at the College of Preceptors on Friday, November 14, and Friday, November 21, by Mr. Arthur Sidgwick, M.A. The following is an abstract of the lectures:—

Lecture I.

Mr. Sidgwick distinguished three objects to be attained by the study of language: General Mental Discipline, Acquisition of the particular Tongue, and the Elements of Literary Culture. All three must be kept in view: the language must be learnt, and learnt soundly; but the pupil must be so taught that when he has been through the training he must *like his reading*. If this were done, the battle of Culture was won.

The lecturer said a few words about reading-books for the very young: advised stories, but deprecated the namby-pamby character of some early French books. He next gave a sort of specimen French lesson to show how the Discipline lesson might be used so as to stimulate thoughtfulness and interest, while keeping steadily in view the necessity of thorough mastery of the structure. He illustrated also the method of explaining difficulties, not by exposition on the teacher's part, but by leading on the pupils by careful steps from what they knew well till the point to be mastered dawned upon them.

But this method being slow, and it being necessary that the pupils should acquire the art of quicker reading, he urged that a considerable part of each lesson should be devoted to sight-reading: and he described how this could be done, even from the earliest stages, quoting (from what he had seen as teacher and examiner) instances of the effect of trying this upon both younger and older children. The words that were unknown were told them: they were helped over the stiles; and, if the text chosen was easy enough, the children learned soon to read with fair rapidity and to be interested in their stories.

Lecture II.

In this the lecturer dealt with Latin teaching in early stages. The difficulty here was not want of soundness, but want of reading: and he suggested that early books might be improved by having more *continuous* exercises, less pedantic *graduation*,

and more carefully chosen *diction*, so as to be within the children's range of ideas. He also urged sight-reading from the first, and made suggestions for improvement in grammar-teaching.

He also dealt with the totally different case of elder students beginning Latin: sketched a course suggested by experience: and spoke of the encouraging results obtained by those who had the teaching of University students beginning classics late.

Passing to English, the lecturer dwelt on the importance of using English lessons for Culture mainly, and far less for Discipline. Without interfering with existing curricula, *literary* training might be brought in at various points: reading by the master, holiday tasks, recitations, occasional extras, &c. He also deprecated application of classical verbal methods to English lessons: suggesting a compromise, that both in lessons and examinations the part *to be got up* should be short; the part to be read for literature should be considerable.

He illustrated the suggestions by handling a passage of Scott: pointed out the dangers of cram, or premature analysis: and concluded by an appeal to teachers to make it their main aim that the next generation should *like their English-reading* more than this.

UNIVERSITY INTELLIGENCE.

University of London.

The Colonial Examinations form a sort of fag-end of the summer examinations, the reports on which do not appear until after the long vacation. There seem to have been 31 colonial candidates for matriculation at eight centres, ranging from Hamilton (Ontario) to Brisbane; but only 9 candidates have passed, viz., 1 at Hamilton (a lady), 1 in Newfoundland, 1 at Bombay (a lady), and 6 at Mauritius; none are in Honours. For the Intermediate Examination in Arts 6 candidates appeared, at three centres, of whom 5 have passed, viz., 2 in Jamaica, 2 at Mauritius, and 1 in Ceylon.

The reports on the earlier autumnal examinations appeared during the third week in November. At the B.A. Examination there were 399 candidates (36 less than last year), and 218, or 54·1 per cent. pass; against 238, or 54·7, last year. Of women there were 78 present, and of these no less than 54 (above 69 per cent.) have passed; the numbers last year were 66 and 36 (54·5 per cent.).

At the B.Sc. Examination there were 145 candidates (28 more than last year), of whom 71 (49 per cent.) pass, against 60, or 51 per cent. last year. The women numbered 20, but only 8 have passed—all in the second division; the numbers last year were 11 and 8.

At the M.B. Examination there were 78 candidates, of whom 61, above two-thirds, have passed; the numbers last year were 69 and 50. In this year's examination the women have done astonishingly well; nine were present, and *all* have passed.

The usual annual series of "Brown-Trust" Lectures is now in course of delivery at the University, by Professor Horsley, F.R.S. The subject is, "The Arrangement and Function of the General Nervous System in relation to Epilepsy." Mr. Horsley has recently been appointed Fullerian Professor of Physiology at the Royal Institution; and it is rumoured that he is about to sever his connexion with the Brown Institution.

Cambridge.

On Tuesday, October 28th, a fire broke out in Clare College which threatened to be very serious. A beam in the floor of the rooms above the Combination Room must have been smouldering for some time, as there had been a slight smell of burning; but it could not be traced to its source. The doubt was solved on Tuesday, however, and the affair appeared very alarming, as it seemed that both the Library and Hall might be destroyed. Fortunately, however, prompt action was taken, and these buildings were saved, nor were they injured by the torrents of water which had been poured on them. Part of the fine panelling in the Combination Room has perished, but the other losses will be easily repaired. The ceiling of the Combination Room has disappeared along with the two rooms which were formerly above it, but there can be no difficulty in making this good. On the whole, the College has been fortunate in escaping so easily from what might have proved an irreparable disaster.

The Vice-Chancellor has announced that he has received a communication from Mr. Frank M'Clean, of Tunbridge Wells, in which the last-named, who is an M.A. of Trinity College, having graduated as 27th wrangler in 1859, says he will hand to the University a sum of £12,000 to found three University studentships in connexion with the sciences of astronomy and light. They are to be devoted to the study especially of gravitational astronomy, but also including the other branches of astronomy and astronomical physics and physical optics; and they are to be called the Isaac Newton studentships, one to be filled annually, and to be tenable for three years. The candidates elected must be Bachelors of Arts, under 25 years of age, and must be of the highest attainments in the subjects named and in the branches of mathematics applicable to them. Mr. M'Clean will place securities of the value named in the hands of Trinity College as trustees, for the purpose of founding the studentships. The questions relating to the mode of election, the conditions of tenure, and other matters, are to be provided for in the regulations in such a way as may hereafter be agreed upon.

The Senate has approved a report from the General Board of Studies, raising the status of Mr. Adam Sedgwick from that of University Lecturer to a Readership in Animal Morphology. His salary, however, remains at £100.

Mr. Walter Heape, of Trinity College, has been elected to the Balfour Studentship for original research in biology, especially animal morphology. The studentship is of the value of £200 per annum, and is tenable for three years.

Professor Henry Sidgwick has been appointed Secretary to the General Board of Studies.

The Newton Studentship has been awarded by the Vice-Chancellor to Mr. E. E. Sikes, of St. John's.

Professor Ewing, of University College, Dundee, has been elected to the Chair of Mechanism and Applied Mechanics vacant by the resignation of Professor Stuart.

Oxford.

The Professorship of Political Economy is now vacant, and an election will be proceeded with shortly. Candidates are requested to send to the Registrar of the University their applications, together with any such evidence of their qualifications as they may desire to submit to the electors, on or before December 8th.

The Bishop of Oxford, formerly Fellow of Trinity College, and Regius Professor of Modern History, has been co-opted a member of the Council of Keble, in succession to the late Dr. Liddon.

Lord Acton has been elected to an honorary fellowship at All Souls College—a distinction shared only by Mr. Gladstone.

The University of Bombay has been admitted to the benefits of the statute by which students, under certain conditions, are excused one year's residence. The same privilege has already been extended to the Universities of Calcutta, Sydney, and the Cape of Good Hope.

Besides his Deputy-Professorship of Comparative Philology, Mr. A. H. Sayce has resigned his other offices in the University, retaining only his Fellowship at Queen's College.

The Headmasters' Conference will meet at Oxford on December 23rd. It is said that the principal subject of discussion will be the Teaching of Greek in Public Schools.

The proposed statute admitting women to the medical examinations has been finally rejected by a majority of eighty-nine votes to seventy-five. This result was largely due to the exertions of Professor Case.

Mr. F. T. Howard, B.A., of Balliol, has been elected to the Burdett-Coutts Geological Scholarship.

Other Universities, Colleges, and Schools.

The Rev. A. W. Chennell, LL.D., formerly-Assistant Master at Leamington College, has been apponted Master of the Lower School, Ipswich; and Mr. A. Dews, B.A., late Exhibitioner of Balliol, 2nd class Mods., 1st class Greats (Classics), has been appointed to an additional Assistant-mastership.

Dr. F. R. Japp, Assistant Professor at the School of Mines, has been elected to the Chair of Chemistry at Aberdeen, vacant by the death of Professor Carnelly.

Mr. Arthur W. Thomson has been appointed by the Secretary of State for India to be Professor of Mechanism and Applied Science of the Science College, Poona.

The Court of Victoria University has rejected, by a majority of 18 votes to 13, a proposal to institute an examination for degrees in Divinity (questions on controversial subjects to be rigidly excluded).

The first election will shortly be made to a studentship in English language and literature on the Quain foundation at University College, London. The value of the studentship is £150 a year. Candidates must have attended for at least three terms one or more classes in English at the College.

A Fellowship in History, of the value of £150 per annum, has been founded at Owens College by the bequest of the late Mr. T. E. Jones.

Mr. James H. F. Peile, Assistant-Master of St. Paul's School, has been elected Headmaster of King Edward VI.'s School, Bury St. Edmunds.

Mr. Alfred Barker, M.A. (London), has been elected Headmaster of the Aske' School, Hatcham.

EDUCATIONAL NOTES AND SUMMARY.

We have to announce the death of Dr. Alexander John Ellis, F.R.S., F.S.A., the well-known philologist, which took place at his residence in Auriol Road, West Kensington, on October 28th. He was born in Hoxton in 1814, and educated at Shrewsbury, Eton, and Trinity College, Cambridge, of which he was elected a scholar in 1835, and graduated B.A., being sixth wrangler and first in the second class in classics, in 1837. He was elected a Fellow of the Cambridge Philosophical Society in 1837, of the Royal Society in 1864 (being a member of the Council for 1880–82), of the Society of Antiquaries in 1870, and a life-governor of

University College, London, in 1886. He was president of the Philological Society during 1872–74, and also 1880–82. He was also a member of the Mathematical Society of London, of the Royal Institution, of the Society of Arts, and honorary member of the Tonic Sol-Fa College. He received the silver medal of the Society of Arts for three papers in connexion with the "Musical Pitch" at home and abroad. Dr. Ellis was a voluminous author, his works including "The Alphabet of Nature," 1845; "Essentials of Phonetics," 1848; "Plea for Phonetic Spelling," 1848; "Universal Writing and Printing," 1856; "Early English Pronunciation, with special reference to Chaucer and Shakespeare," 1869–86; "Glossic," 1870; "Practical Hints on the Quantitative Pronunciation of Latin," 1874; "Pronunciation for Singers," 1877; "Speech in Song," 1878; and the following, which were first published in the *Educational Times*, and are now published in pamphlet form by F. Hodgson: — "Arithmetical Crutches for Limping Calculators," in 1875; "On the Acquisition of Languages," 1875; "On the English, Dionysian, and Hellenic Pronunciation of Greek," 1876; "How to Teach Proportion," 1877; "The Basis of Music," 1877; "On Orthography in relation to Etymology and Literature," 1878; "Logic for Children," 1872 and 1882. These and other tracts on kindred subjects were based on lectures which he gave to the Members of the College of Preceptors at their monthly meetings. Mr. Ellis was elected a member of the College in the year 1869, and a member of the Council in 1872; he retired from the Council in 1878. He was constant in his attendance during the time that he continued to be a member of the College, and only retired when he found it necessary to concentrate his energies on the completion of his Magnum Opus on English Dialects, which unfortunately remained unfinished at his death. He was never a teacher, but regarded himself as the representative on the Council of the cultivated general public. Mr. Ellis was always ready to lend his support to any movement started by the College for the advancement of education, and was a liberal contributor to the "Doreck" Fund, the "Professorship of Education Fund," &c. Besides lecturing, as we have said, on seven or eight different occasions, he very frequently took the chair at the evening meetings and discussions of members, at which he always spoke with effect.

We hear that many of the best and most influential teachers in the United States, have responded to the suggestion to form a Joint Stock Company for the purchase of the plates of the *American Journal of Education*, and thereby secure the two good results of relieving Dr. Barnard—whom all teachers must always hold in high honour—from the pinchings of poverty, and at the same time saving the stereotype plates of the thirty-one volumes of the journal from the melting-pot. The sum required is £5000, and this is to be raised by issuing 25,000 dollar shares. The holder of one share will be allowed 25 per cent. discount on his purchases; the holder of five shares, 33 per cent.; and so on, up to the holder of 100 shares, who is allowed 50 per cent. Address—The Barnard Publishing Company, Hartford, Conn., U.S.A. May the effort be crowned with complete success, and the noble-hearted old man be speedily freed from all anxieties!

The 28th of March, 1892, will be the tercentenary of the birthday of the great educationist Johann Amos Comenius, and an effort will be made on the Continent, and probably also in England, to celebrate the event in some fitting way. Those who are interested in the matter should write for further information to Prof. Ludwig Keller, Münster, Westphalia, who, with several other men of eminence, is busy arranging preliminaries and collecting opinions.

University College, London, has been employing part of the Quain bequest to augment its botanical department. The laboratory in the north cloister has been entirely refitted, and will now provide accommodation for forty-five students to dissect plants and examine their tissues microscopically. In the adjacent Birkbeck building a large room has been fitted up for advanced histological work. There is also a private laboratory for the Professor. The museum has also during the current term been enriched by a valuable collection of fossil plants occurring in the coal-measures. It was believed that the late Professor Lindley, who died in 1865, had among his collection such a series of fossil types, but search failed to reveal them, and it was only during the building operations just concluded that they were discovered by the workmen, after twenty-five years, stowed away in three large chests.

The Cambridge Local Examinations Syndicate recommend that the existing regulations for the local examinations be altered as follows:—1. That the syndicate be authorized to admit generally to the examination for senior students persons over the age of eighteen, on condition that such students as are over the age of nineteen on the 15th day of December in the year in which the examination is held are not placed in one of the honour classes. 2. That the syndicate be authorized to admit to the examination for junior students persons under eighteen on the 15th day of the month of December in which the examination is held, provided that the names of such of the successful candidates as are over the age of sixteen be not placed in any honour class, but be arranged alphabetically in one class separate from and placed after the lists of those below the age of sixteen.

Mr. Woodall, M.P., in distributing the prizes to the successful students of the Northampton Science, Art, and Technological Schools, said there was nothing so serious in the changes of their industrial system as the practical disappearance of apprenticeship. They were getting steadily, bit by bit, into a minute subdivision of labour, which, although it contributed enormously to the economical production of any article, and enabled them to carry on their competition with other countries, was obviously calculated to reduce the workman, if not to a mere machine, to a mere element in the machine. The substitution for apprenticeship, the corrective of the division of labour, lay in the technical schools, and there was no nobler duty incumbent upon those who enjoyed the confidence of the working classes than that of endeavouring to reconstruct the whole system of guilds, which should bring to bear upon every form of handicraft the highest kind of teaching for the improvement of the skill of the artificer and the development of any particular trade.

The Educational Institute of Scotland has, says the *Glasgow Herald*, drawn out a scheme in which they state that the proposed superannuation fund shall receive contributions from (1) teachers, (2) the local educational rate, and (3) a subsidy from the Government. The teachers' contributions are $1\frac{1}{4}$ per cent. on salaries under £60, $2\frac{1}{2}$ per cent. under £200, and $3\frac{3}{4}$ per cent. above £200. A teacher retiring at the age of sixty (or earlier if incapacitated by infirmity) shall obtain a pension of one-sixtieth of the income earned at retiral for every year the teacher had been a contributor to the fund. The superannuation fund contribution shall be compulsory on all engaged in teaching, and recognised by the Scotch Education Department, except those secured already by law. Five hundred and ninety-five teachers in this country have now salaries above £200 per annum, but 3,508 receive less than £75, and 5000 less than £100. . . . A communication received from the Lord Advocate by the West of Scotland Catholic Teachers' Association states that the scheme would be available by both Catholic and Protestant teachers alike.

"Mr. Mundella," says the *Western Morning News*, "moved last Session for a return showing what schools have the largest subscriptions. The result is to reveal that there are 184 Voluntary schools in England and Wales with no income whatever from subscriptions, educating 60,455 children by means of a grant from the Education Office of £54,158. There are 601 Voluntary schools with subscriptions of only 2s. 6d. a head, 417 with subscriptions ranging between 2s. 6d. and 5s., 331 with incomes up to three halfcrowns per head, 206 with 10s. a head, and 110 with subscriptions of over 10s. a head. It would hardly seem to be necessary to call schools voluntary which receive no voluntary contributions."

At the distribution of prizes and certificates gained by candidates at London Centres in connexion with the Oxford Local Examinations, the Bishop of London remarked: Good education depended more upon the cultivation of the moral qualities than the mere intellectual qualities, and the difference between those who succeeded and those who failed was in nine cases out of ten the effect rather of moral qualities than of intellectual qualities. It was because there was not the determination of will to succeed that success was not reached. It was necessary to lay stress upon this, because on occasions of that sort they were apt to think that intellect alone was rewarded,

whereas other things were far more valuable and important. There was a sense in which the giving of prizes seemed to be an encouragement not to the best boy or girl, but to the sharpest, cleverest, and quickest, though that was not all. The qualities which made a man a thoroughly good citizen, a good subject of the Queen, and fully capable of taking part in life, which made him respected, trusted, and valued in after years, were not tested, and could not possibly be tested, by an examination.

We quote the following remarks of Cardinal Newman on the character of his work as a teacher at Oxford, from *The New York School Journal*:—

"I have ever joined together faith and knowledge, and considered engagements in educational work a special pastoral office. When I was public tutor of my college at Oxford, I maintained, even fiercely, that my employment was distinctly pastoral. I considered that, by the statutes of the University, a tutor's profession was of a religious nature. I never would allow that, in teaching the classics, I was absolved from carrying on, by means of them, in the minds of my pupils an ethical training. I considered a college tutor to have the care of souls, and before I accepted the office I wrote down a private memorandum that, supposing I could not carry out this view of it, the question would arise whether I could continue to hold it. To this principle I have been faithful throughout my life. It has been my defence to myself, since my ordination to the priesthood, for not having giving myself to parochial duties, and for having allowed myself a wide range of secular reading and thought, and of literary work."

The Marquis of Ripon, in the course of an address delivered at the Yorkshire College, said there was another matter of great importance, and one in which that College could do a most valuable public work. He alluded to the scheme for the establishment of a day training college for pupil-teachers. When he last looked at the statistics, which was a year or two ago, he found that less than half of the elementary teachers were trained in the existing training colleges. Therefore it seemed clear that there was a great need for some other method of offering the advantages of a training college, and that that could best be done by the establishment of a system of day training such as might be carried out in connexion with the Yorkshire College. It depended, of course, on the arrangements to be finally made with the Education Department whether they could undertake this work or not, but he thought he spoke the opinion of his colleagues as well as himself when he said that they recognised the work as a most important one, and one which deserved to be undertaken.

The following, which occurs in the *Hertford Record*, may amuse some of our readers. It consists of the remarks of the School Board Visitor, regarding excuses of absence. He says:—

"I class excuses under two heads, 'reasonable' and 'absurd.' I'll give you some specimens of the 'reasonable': 'His trousers were washed yesterday, and he had to lie abed till they dried.' 'His boots are gone to be mended and aren't done.' 'Her mother's ill and she has to go to the doctor's for the medicine, and look after the house.' 'Her mother's dead and she has to get her father's dinner, and look after the baby.' 'If you please, mister, mother sells hearthstones, but she's very bad, and I'm going out with the stones.' Those are reasonable, if of no avail; but what do you think of these?—'His father says he's old enough to work, and isn't to go to school any more.' 'She's says she's going to be taught the pianny, and her father won't have no pianny-playing in his house.' 'He knows enough.' 'He's had more eddication than his father and mother together, and he ain't going to have no more.' 'She's cut her finger.' 'He's wanted at home to weed the 'lotment.' 'Her teacher scolded her, and I won't have her scolded.' 'His lessons are too hard.' 'His father's been reading in the paper about overpressure, and he says he won't have his children overpressed by nobody's youngsters.' 'What's the good of his going? you can't teach him any more.'"

GIFT BOOKS OF THE SEASON.

Cassell & Co., Limited.

This Company follows on the lines laid down by the old firm of Cassell, Petter, & Galpin, and therefore caters by means of popular literature for the intelligent reader, who expects to find solid mental food in that which is given him, and would not be content with the levity and extravagance of fiction. As an illustration, Sir R. Ball's charming popular work, *The Story of the Heavens*, which has just appeared in a new edition, is exactly a work suited to the traditions of the house. It has also been issued in monthly parts, and many an intelligent mechanic and artisan is now preparing to beguile the winter evenings by means of it. This has to be borne in mind when the substantiality of Cassell's Christmas Gift Books is contrasted with the lightness of the fiction produced by some other firms.

The Marvellous Budget: being 65,536 Stories of Jack and Jill. By the Rev. F. Bennett.—We may illustrate the method of piling up the number of stories by the toy made of pictures, cut into parts, and overlapping, the pictures admitting of many variations by taking the elements from the different sections. So here there are four page I., four page II., &c., and by ringing the changes, and combining different selections of one page from each set, it is evident that 4^8 or 65,536 eight-page stories can be formed. The book is sumptuously printed on one side of the paper only, and has at least one, sometimes several, illustrations on each page. The price is 2s. 6d.

Bo-Peep. A Treasury for the Little Ones.—The best Christmas gift book for little ones of four years to seven is "Bo-Peep." The stories and verses are simple, the print very large, and the engravings are stories in themselves, which the little ones will, in part, comprehend, and which will induce them to wish for further explanations, and stimulate them to read. It is tastefully bound, and the price is, cloth, 2s. 6d.; cloth gilt, 3s. 6d.

The World of Adventure: a Collection of Stirring Scenes and Moving Accidents.—These records are historical, and not imaginary, and illustrate the truth of the saying, "fact is stranger than fiction." There are about 100 separate accounts of peril or adventure, disaster or escape, achievement or experience, illustrated by about 200 engravings. The former are sometimes by the heroes or adventurers themselves, sometimes by eye-witnesses; the latter are chiefly by the three brothers Paget, who have already acquired a wide and lasting fame by the power of their pencils in illustrating adventure and fiction. There seems to be an absence of method in the arrangement of the pieces, as will be seen from the following examples, in which we pass from one century to another, and then back again, from earth to air and back, from Europe to America and back, without any evident arrangement. The first piece is the "Balaclava Charge"; the second, the story of "Doc," an account of an American railway accident; then the story of a "Flood on the Missouri in 1881"; a "Leap for Life," a thrilling Australian story of 1854; a "Spanish Prison," "Madrid in 1838;" next, De Quincey's "Vision of Sudden Death"; then the tale of the "Kent," an East-Indiaman burnt in 1825; the "Sufferings of Charles Jackson," in the riot at Wexford, 1798 (written by himself); the "Escape of a French Prisoner of War from England in 1809"; the "Escape of Earl Ferrers" (from Horace Walpole's letters); the "Defence of Caldecote Hall by Dame Purefoy against Prince Rupert in 1642,"; the "Prisoner of the Bastille" (1750–1756); then "Tales of Duels," "Perils and Adventures amongst American Indians," and so on. The best recommendation of the book is the presence throughout it of truthfulness, and the absence of Jack Sheppardism; stories of true heroism taking the place of this seductive and unwholesome literature.

Scouting for Stanley in East Africa. By Thomas Stevens.—The *New York World* sent out Mr. Stevens to look for Mr. Stanley just as the *Herald* had sent out Stanley to look for Livingstone. Stevens met Stanley at Msuwa. This book is more useful, if less exciting, than some others written by Stanley's coadjutors, for it contains fuller descriptions of the habits and manners of the natives who were encountered, and of the districts through which the travellers passed.

The Stories in *Strange Doings in Strange Places* appeared originally in Cassell's *Saturday Journal*, and are eighteen in number. No two are from the pen of the same writer. Charles Gibbon, Manville Fenn, F. W. Robinson, F. Molloy, are the names of a few of the contributors.

Modern Explorers. By T. Frost.—In this book the journeys of the principal explorers of the last fifty years are graphically dealt with. The travels of Arminius Vambéry in Central Asia first receive recognition; then follow the explorations of Sir Samuel Baker in the Lake Region of Equatorial Africa; the marvellous travels of Livingstone and Stanley in Central Africa; Nordenskiöld's Exploration of Arctic Asia; the proceedings of Francis Garnier in the interior of Indo-China; the travels of Paul Marcon in the villages of Lower Peru. A good and reliable book closes with an account of Commander Cameron's journey across Africa.

Far from tame is the recital of *Perils Afloat and Brigands Ashore, by Alfred Elwes.* Leonard Hervey and his sister sail with their father from Bristol to Civita Vecchia in an Italian barque. On the voyage a mutiny breaks out, and the crew, after killing the captain, desert the vessel, leaving our heroes to their fate. But fate is kind: they are picked up by an English yachtsman and landed in Spain, where Leonard, in a marvellously short time, is saved from drowning, from death at a bull-fight, and from hanging as a Carlist spy. He is captured by brigands, however; but a ransom is forthcoming.

Pictures of School Life and Boyhood. By P. Fitzgerald, M.A.—This is a collection of passages selected from various school stories and boys' books, representing the early life of a boy. They are connected by a story, which tells how little Lord Algernon, a sickly and effeminate child, who had been brought up by his mother in a most injudicious manner, became disgusted with his mode of life on having these stories read to him by his uncle. Very little literary merit is required in writing a story like this; but the passages are well chosen, and the editor has succeeded very well in his undertaking. A good feature of the book is that French and American, as well as English, boyhood is

represented, and the authors of the various books from which the selections are taken are men of recognised merit.

Tad; or, Getting Even with them. By E. S. Ellis.—Tad is the nickname of Thaddeus Jones, the principal character of this tale. Tad's father Billy has adopted a system which he terms "Getting even with everybody." He has brought Tad up according to this system, which everybody tries to persuade him is wrong. Billy maintains it is right. The tale goes on to show that the system is bad, by relating the troubles Tad meets with in trying to carry it out, and to show how Billy's ideas were changed.

The bright and lively style of *Dr. Gordon Stables* is well exemplified in *Wild Adventures in Wild Places*, in which the startling adventures of three young men, in almost every part of the globe, are portrayed. After a good introduction to sport in England, the three young men journey to the Arctic regions, but are wrecked, and endure great hardships on an iceberg. They eventually reach Cronstadt in a Danish ship, and do a deal of hunting in Russia. Their next journey is to the Cape, and afterwards they visit Central India, Australia, the Pampas, and the far West, shooting all kinds of game as opportunity offered.

Freedom's Sword, by A. S. Swan, is a tale of the times of Wallace and Bruce of Scotland. The only child of a Scottish lady was stolen and lost to his mother for many years. After Bannockburn, Bruce receives the dying confession of the culprit, and is surprised to hear that the missing child is his own page-boy whom he had attached to himself in London. Of course, a restoration is made to the grieving mother, who had mourned her son as lost for many a long year.

Cassell's Saturday Journal.—Of all the books available for Christmas presents, this bound copy of the year's numbers of the *Saturday Journal* offers most for the money. It contains 1,296 pages, with about 400 illustrations, and includes six complete novels, 100 complete stories, and many hundreds of interesting articles and anecdotes. The price is 7s. 6d.

BLACKIE & SON.

Last month we commented in favourable terms on the general appearance and contents of the gift books of this well-known firm. An additional collection of books which we have received present the same characteristics in even a more marked degree. Mr. Henty is to the fore in the matter of numbers; but, in quality, Mr. George MacDonald and Dr. Gordon Stables combine with him in leaving nothing to be desired. On the whole, we think the interest of the boys has been considered rather than that of the girls; but few girls will fail to get considerable amusement and benefit from such books as *A Rough Shaking*, *'Twixt School and College*, and *By Right of Conquest*; although in each of these the principal characters are of the manly type. In each of the larger books there are eight full-page illustrations, by prominent artists, executed in really beautiful style; while the quality of the paper, the firmness of the binding, and the exquisite taste displayed in the designs on the covers deserve the highest commendation. If we add that olivine edges complete the finish of the books, our readers will be able to form a clear idea of the beauty which has led us to speak in this the highest praise.

A Rough Shaking. By George MacDonald.—This story, which has been appearing as a serial in the pages of *Atalanta*, is now published in book form, and occupies nearly 500 pages. Clare, the hero, is a child when his mother is killed at his side by the fall of a church in the Riviera during an earthquake. The kindly clergyman and his wife, who adopt him, die while he is still very young, and he is again thrown upon the world. In his subsequent wanderings, his unswerving honesty and his passion for children and animals lead him into all sorts of adventures. The ill-usage he experiences on a farm causes him to leave his next guardians; his association with the little tramp Tommy, and his support of a baby in a deserted house, form reading at the same time intensely amusing and pathetic. His baby is parted from him by police interference, and finds an asylum in the workhouse; so the weird little boy gains employment in a menagerie, where ample scope is afforded him of cultivating his passion for fiercer animals than those of a farmyard. He is next taken into the service of an old lady, becomes a bank clerk, is kidnapped, and ultimately discovers his father on board the ship to which he has been conveyed. The lad had a "rough shaking" during his youthful years, his honesty often getting him into trouble; "but the rough shaking was his nurse, and she taught him to dwell in a world that cannot be shaken." A better book our boys cannot be presented with, and we really hope that many of them will be afforded the opportunity of reading the most attractive boys' book of the season.

'Twixt School and College, by Gordon Stables, C.M., M.D., R.N., is a tale of self-reliance. *Possunt quia posse videntur* was evidently the motto of Fred Hallam, the hero, the incidents of whose home-life are traced during the interval between his school and college days. Dr. Gordon Stables is never better than when he is disclosing the marvellous interest he takes in natural history and domestic pets. In this book the reader is introduced to a whole menagerie of pets, starling and terrier, cavy, cat, canary, collie, cow, and cockatoo among the number. These our hero keeps in an outlying cottage and garden on his father's farm, and many a rare time he has with them. Near the end of the book there are a few brief pictures of student life at Aberdeen University, the truthfulness of which is now thoroughly recognised.

The history of the conquest of Mexico by Cortez and his valiant band is the groundwork of Mr. Henty's *By Right of Conquest; or, With Cortez in Mexico.* With this is interwoven the adventures of an English youth, Roger Hawkshaw, the sole survivor of the *Swan*, which had sailed from Plymouth Sound to contend with the Spaniards in South American waters. He emerges successfully from numerous perils, thanks to an Aztec princess, who falls desperately in love with him, and assists him in a ruse to obtain the protection of the Spaniards. After the fall of Mexico he leaves the New World with his dusky bride, and settles down happily in his native land. By the way, before leaving in the ill-fated *Swan*, he had plighted his troth with a cousin. The way in which Mr. Henty makes a satisfactory arrangement between the parties concerned, on the hero's return, is by no means the least amusing feature of the book.

Hussein the Hostage; or, A Boy's Adventures in Persia. By G. Norway.—In *The Loss of John Humble* Mr. Norway gave his boy-readers a rare treat last year, and we have no doubt that *Hussein the Hostage* will afford equal, if not greater, pleasure. The portraiture of life and manners among the Persians betrays the same skill as was manifested in the ease of the Swedes. Hussein is a young prince; Askar is his faithful follower. The aim of these two is to free their downtrodden tribe from the Persian yoke. Hussein is held captive by the Persians, and Askar, after storing a secret cavern with provisions, sets off to rescue him. Unfortunately, he is himself kidnapped, and sold to a dervish—a showman. In the caravan he meets an English boy, Tom, who had been kidnapped in London. Askar at length joins Hussein, who has succeeded in escaping, gathered about him some of his old friends, and is holding the cavern against the Persian forces. These are dispersed when success seemed assured them, and the death of the Shah brings safety to Hussein and his tribe.

A Chapter of Adventures; or, Through the Bombardment of Alexandria. By G. A. Henty.—The tale opens with a descriptive account of the east coast fishing village Leigh, where dwells one of our three heroes, Jack, who, by an heroic act, secures the interest of a shipowner, and is placed as an apprentice on one of his ships. With two of his fellow-apprentices he is left behind at Alexandria, and experiences the bombardment, riot, and bloodshed which ensued. After many startling adventures, which only brave boys could endure, they escape, but are wrecked in a subsequent voyage off the coast of India, one of our heroes being lost. The story is full of life and interest.

Everybody's Business, by Ismay Thorn, is a well-written story of a London slum. Fever attacks the poor dwellers in the dingy court, and among the number a little girl, Lois, who had been befriended by an old shoemaker. They are befriended, however, by a kind doctor, who places them in a lovely country home.

The Light Princess, by George MacDonald, contains two other fairy tales besides the one which gives the title to the book. Mr. George MacDonald's style of writing for the young is too well known to require further recognition here. *The Light Princess* will entrance its youthful readers.

RELIGIOUS TRACT SOCIETY.

The Girl's Own Annual: the Eleventh Volume of "The Girl's Own Paper." The *Girl's Own Paper* continues to be one of the most useful, interesting, and instructive papers girls can read. The numerous well-told stories are not the only attraction, for we have here receipts for all kinds of dishes, articles on dressmaking, nursing, all branches of housekeeping, painting and drawing, music, and some most interesting ones on the Tudor Queens. Competitions are devised in painting, literary and needlework, prizes and certificates being given to the winners. This section has attracted many competitors. There are also pretty songs and pieces in every part, and short historical chapters and tales told by experienced travellers. We notice that the binding of the *Girl's Own Annual* has been improved this year. The editor offers the following bill of fare for the *Girl's Own Paper* which has just commenced:—"Types of Girlhood," by Sophia F. A. Caulfeild; "The Emancipation of Seamstresses," by Anne Beale; Pianoforte Pieces, by Madame Schumann; "Hints on Pianoforte Playing," by Miss Fanny Davies; "On Punting," with illustrations; "Society, and Going into the World"; "Kate Marsden and her Mission to Siberia," by Emma Brewer; "English and Irish Laces," by Mrs. Ernest Hart; "Dress in the Future," with illustrations, by Dora de Blaquière; "District Visiting: how not to do it, and what one must put up with," by a Lady; "Our Highland Holiday," with illustrations; "The Spirit of Fun in Literature and Art, or The Works of those who have made the World Laugh," by James Mason; "Black and White Heroism: stories from the Abolition Crusade," by Ascott R. Hope; "Wedding Trousseaux and Wedding 'At Homes'"; "How to Furnish a Drawing-room for £13"; "How to Collect Autographs"; "The Difference between Bible Reading and Bible Study," by Mary L. G. Petrie, B.A. Serial Stories, by Rosa Nouchette Carey, author of "Esther," "Aunt Diana," &c.; Evelyn Everett Green, author of "Barbara's Brothers," &c.; Lady Margaret Majendie, author of "For the King's Sake," &c.; Darley Dale, author of "The Shepherd's Fairy," "Noah's Ark," &c.

The Boy's Own Annual, being the Twelfth Volume of "The Boy's Own Paper." (*Boy's Own Paper* Office, 56 Paternoster Row, London.)—The stories in this paper seem, with each succeeding year, to become more

fascinating and more instructive. There is truthfulness about its geographical and historical information. Some of the tales of life in the colonies, although full of adventure, are not startlingly romantic. Both these, and the tales by experienced travellers, give to intelligent readers some pictures of the hardships and drawbacks, as well as the advantages, of colonial and sailor life. The best stories in this year's number are the following:—"Our Home in the Silver West," by our old friend Gordon Stables; "For Life and Death, or The Chief of the Red Sword," by David Ker; "Uncle Towser," by Rev. A. N. Malan; "Bush Luck, an Australian story," by W. H. Timperley; "Barbicane & Co.," by Jules Verne, written in his usual exciting style; "The Wire and the Wave, or Cable-laying in the Coral Seas," by J. Munro, a story every boy should read; and "The Lost Expedition, or The City of the Skulls," by David Ker. There are numerous shorter stories, besides interesting information on various other subjects. The frontispieces this year are quite works of art, and quite worth having in themselves. The following new stories have commenced, and will be followed in due course by others by well-known B.O.P. authors:—"George Freeborn, Sailor, Exile, and First Parson of Aurora Island," by Rev. A. Baker, M.A., R.N. (with illustrations by Alfred Pearse); "The Tale of a Pig: an Arcadian Story, by E. M. Chettle (with illustrations by the Author); "A Coral Prison, or The Boy Hermits of the Indian Ocean," by David Ker (with illustrations by Bernard Munns); "Taffy, or The Tale of a Grouse," a school story, by Ascott R. Hope. The following is a typical selection from the general programme:—"The B.O.P. Rustic Cart, and how to Build it," fully illustrated; "How to Prepare and Mount Objects for the Microscope," by R. A. R. Bennett, B.A.; "Dogs I have known," by Dr. W. T. Green, M.A.; "Some Queer Uses of Animals, and Mistakes about Snakes," by Dr. Arthur Stradling, F.Z.S.; "South Sea Island Kites," illustrated; "Boating and Yachting Stories"; "In the Middle Watch," by G. A. Patterson, R.N.; "How I Shot a Tiger in a House," by Major-General R. C. Money (illustrated by John Jellico); "Burmese Football"; "Sports and Pastimes of the Month"; "Saved by a Single Strand," by Captain Ozanne, O.S.D.; "The Story of Admiral Snipe," by E. E. Cuthell; "Work for Winter Evenings"; "A Dream Charade, and other Papers," by Rev. J. B. Bartlett, M.A.; "All about Pets and Pet Keeping," by Dr. Gordon Stables, R.N., Rev. Theodore Wood, and many others; Athletics and Aquatics — Indoor Occupations and Amusements, Songs and Instrumental Music, Acting Charades and Breaking-up Pieces, &c., &c., by representative authorities, fully illustrated; "All about Brasses, Coin-collecting, &c."; "How to Succeed" Papers; Travel and Adventure Papers, fully illustrated; "Electricity and Photography"; "Our Public Playgrounds—Free Libraries, and How to Use them—Albert Medal and other Present-Day Heroes, &c."; "Our Prize Competitions." "Doings for the Month—In the Garden, the Aviary, the Pigeon Loft, the Kennel, the Vivarium, the Aquarium, with Rod and Line, &c., &c.," by eminent Experts, Professional Judges, Referees, and others specially skilled in their various departments.

T. Nelson & Sons.

The new prize-books of the season which have been sent to us by this firm have two strongly marked characteristics. The first thing that strikes us in glancing over the books is the excellence and firmness of the binding; and a closer acquaintance leads us to the satisfactory conclusion that scrupulous care has been taken in the selection of the subjects. Their general outward appearance is neat, and in no case do the covers present a too gaudy aspect. In excellence of paper and printing, if not in the matter of illustrations, the firm well holds its own.

Fritz of Prussia: Germany's Second Emperor. By Lucy Taylor.—No better biography of the Emperor Frederick has been written in English, at least for young readers. The simplicity of the manners, the nobleness of the character, and the transparency of the mind of the great sufferer of '88 make this biography particularly suited for juvenile reading, and for this purpose it could not be written in better form than the one before us.

Alison Walsh: a Study of To-day. By Constance Evelyn.—A book of over 400 pages, with not a suspicion of dryness, from the arrival of the young doctor at Milhurst to his marriage with the heroine. The story throughout circles around these two characters, which are sketched with spirit, and are admirable in themselves. Alison's religious difficulties are dealt with in a purely religious spirit, with a perfect abstention from cant. For this reason we commend the book to the notice of all lady district visitors and those who are interested in any phase of religious work. Its healthy tone should ensure its success.

The Stories of the Trees. By Mrs. Dyson.—It is no light task to write an account, at once interesting and instructive, of the principal trees: yet Mrs. Dyson has done the task carefully and well, and has given us a very readable work, written in a smoothly flowing conversational style. The characteristics of, and the stories in connexion with, twenty-five trees make up the book, the oak of course holding the chief position. Instead of giving a list of the trees which are dealt with, it will be better to say that no tree which is to be found in the ordinary English forest is missing from the list.

Pictures and Stories from English History and the *Royal Portrait Gallery* are two large-sized volumes, of about 250 pages each, teeming with pictures and portraits of historic scenes and personages. Both are written in simple language, and will cause additional interest in the study of history to be taken by young readers. Many of the illustrations, and much of the writing, have already appeared in *Nelson's Royal Reader*. This fact will give a clearer idea of the nature of the books before us.

Favourite Stories of the Nursery.—Here are the old stories in new attire: "Ali Baba," "Tom Thumb," "Sleeping Beauty," "Red Riding Hood," "Babes in the Wood," "Sinbad," "Blue Beard," and the "Yellow Dwarf," some in prose and some in rhyme, with numerous excellent illustrations, the whole being well printed and strongly bound.

Children's Treasury of Pictures and Stories, 1891.—A neat little present for a child of seven to twelve, containing 128 pages, with about a hundred separate articles, stories, descriptive and informational articles, and about 70 illustrations.

Swan Sonnenschein & Co.

Maggie in Mythica; or, What She Saw in Fairyland, by F. B. Doveton, is a successful attempt to keep out of the beaten track. Maggie is a little lass of ten summers, who, after much longing for a sight of elves and fairyland, has her wishes gratified. We are sure the reading of what she saw, and the strange adventures she met with, will give much pleasure to our young folks, both boys and girls. The book is printed in large type, and on stout paper. The illustrations, as one might expect in a fairy book, are funny, but well executed.

Wells, Gardner, Darton & Co.

The books forwarded by this firm of publishers are to be commended for their bright appearance, and the reasonable prices at which they are issued. The annual volume of *Sunday* is among the number, and, apart from the interesting matter and profuse illustrations which are well known, is strongly bound in prettily decorated covers. Here, too, we notice that this firm has more considered the interests of our boys than of our girls.

Two Blackbirds. By the author of "Honor Bright."—Gordon, the young lad from the East Indies, seems to have inherited some of the bad traits of his fast father, and gives great trouble to the country doctor, his guardian, before he sees the error of his ways. The purchase of a bull-dog (which worries a farmer's sheep) leads him into bad company. The climax is reached, however, when he catches "scarlet fever" at the races, and causes the death of Daisy, the pet of the doctor's family.

Exciting and amusing is the *The White Kangaroo, by E. D. Cleland*, which relates the adventures of two young boys, the sons of a sheep farmer in Australia, in their attempts to seize a white kangaroo reputed to be bewitched. They catch a sight of the animal, dismount, and foolishly leave their horses untethered. The result is, after a fruitless chase, they find their horses gone, and are many miles from their friends. They are seized by Indians, but manage to escape, and are met by their friends when overcome by thirst and fatigue.

All's Well, by the Author of "Honor Bright," is a capital tale for boys, and the adventures of the three in the book will give immense satisfaction to youthful readers. The ship in which the boys sailed touched at America, Palermo, Messina, and Naples, and many opportunities for adventure were afforded them at each stopping-place.

Tom's Opinion, by the Author of "Honor Bright," is in very much the strain of the *Two Blackbirds*, noticed above. There are two boys, one good but poor, the other rich but bad, and, strange to say, the bad boy goes, not to the races, but to a circus, and catches scarlet fever; his schoolfellows are soon down with the complaint, and the good boy dies. We recommend the author of *Honor Bright* to dismiss this "scarlet fever" business. It is too prevalent.

Larry's Luck. By the Author of "Honor Bright."—Larry always experienced bad "luck" at school, as the constant difficulties in which he found himself were termed by his schoolfellows. But he seems to have had some good points about him, as the perusal of the book will show.

Hardy and Foolhardy, by the Author of "Honor Bright," will be read with much interest by young boys, and will doubtless impress deeply the lesson of avoiding bad companions.

Seeley & Co.

A Young Macedonian in the Army of Alexander the Great. By the Rev. Alfred J. Church, M.A.—The hero of the book, a young Argive, and a distant relative of Alexander the Great, enters the army of the latter in company with a young Theban friend. The major part of the book deals with the different campaigns of Alexander, in which the hero and his friend take part, and closes with the death of Alexander at Babylon, and the settlement of the two friends at Galilee, where with their wives they spend the rest of their lives in peace and happiness. A nicely bound and well-written book, which will prove an acceptable prize or present.

Longmans.

The Red Fairy Book. Edited by Andrew Lang. There are here three hundred and sixty pages of fairy tales, not so familiar perhaps as the "Red Riding Hood," "Sleeping Beauty," and their usual companions which are given in Mr. Lang's *Blue Fairy Book*, but at the same time

the former are not less attractive than were the latter. The only very familiar title we find here is "Jack and the Beanstalk," and the version of this is one which has not been spoilt by modernizing. The others, such as "The Little Good Mouse," "The Golden Goose," "The Story of Sigurd," "The Enchanted Pig," "Dapplegrim," "Princess Rosette," are all from Norse, French, and German sources, which are acknowledged by the editor. There are many striking illustrations, and the book is handsomely bound, and is gilt.

CORRESPONDENCE.

To the Editor of the "Educational Times."

SIR,—I am sure that the thanks of many hard-working schoolmasters and anxious parents are due to you for republishing the correspondence which appeared in the *Standard* relating to the Society bearing the pretentious title of "The Society of Science, Letters, and Arts, of London."

I would strongly advise all, who have the opportunity, to read what the Editor of "Crockford's Clerical Directory," 1890, has to say respecting this Society, pp. 17, 18, 19, 20, of the Preface. If these pages could be reprinted, with the kind permission of the Editor of "Crockford," and circulated amongst the members of the scholastic profession and others, it would at least be the means of putting the public on their guard.

With reference to the "F.S.Sc." I was at one time well plied with correspondence urging me to fill up certain papers, and so become a Fellow of the Society; these papers were at once consigned to the waste-paper basket. But the most barefaced and impudent thing was, that I was asked to become the Society's Local Secretary, in place of a neighbour "resigned." On making inquiry, I found that the gentleman (a 1st Class Classic, Cambridge) had never had any connexion whatever with the Society. The Society then conferred a Fellowship on the organist of the church where I officiated (and, I believe, appointed him their Local Secretary); which distinction produced a paragraph in the local paper.

If I am not mistaken, Dr. Sturman, who seems to be the mainspring (with all due respect to the Irish Baronet) of the "Society of Science, Letters, and Art, of London," was at one time a dealer in Foreign Degrees, and any one may see, by consulting page 20 of "Crockford," 1890, that he is still open to do a little business in the Degree line "for others and for himself;" though, as the Editor says, "It might have been thought that a degree more or less would scarcely have been of importance to the happy possessor of ten or a dozen titles," as the said Dr. Sturman appears to be.

It has been on my mind for some time that in giving the lists of Graduates and Members of the College of Preceptors, in the valuable and well got-up calendar, it would be well to require each member to fill up a form stating *Degree, University,* and *Date,*—the latter points being of great importance when one considers how large a number of spurious degrees, &c. there are at present passing as genuine in the scholastic world.

Twenty-six years ago, I was asked by a German gentleman at Brighton to fill up certain papers and pay certain fees in order to become a "Ph.D. and M.A." of a German University. (How many schoolmasters are Ph.D's and M.A.'s of Universities they have never seen?) I declined the honour; but—and this is the point—a gentleman, who was a Principal—I was only an Assistant—was offered the like distinction on similar conditions; he took the bait, ordered a new "brass plate," and for more than a quarter of a century has been styled by parents and pupils "the Doctor."

With many apologies for troubling you with this,

Faithfully yours,

WILLIAM BOWELL, M.A.,
Trin. Coll., Dublin.

Chandos School, Hereford.

To the Editor of the "Educational Times."

DEAR SIR,—The adoption of the name "Kensington Locals" for the examinations and "Kensington Degrees" for the purchased diplomas of the so-called Society of Science, Letters, and Art deceives many people, and no doubt it is intended so to do. I have known a case in which "Honours, gold and silver medal, Kensington," appearing after a name, was understood to indicate a high distinction awarded by the South Kensington School of Science. Is it not possible that some who have used these phrases have themselves been misled into the belief that the so-called Society is connected with the Science and Art Department?—

Yours truly,

SOUTH KENSINGTON.

November 10.

Alphabetical List of the Principal College and School Books, and New Editions, published during the month ending November 30th, 1890.

Amicis's (E. de) Holland and its People, translated by C. Tilton, 8vo, 7s. 6d. c
Arnold's (M.) Poetical Works, cr. 8vo, 7s. 6d. cl.
Ball's (W. W. R.) Elementary Algebra, 12mo, 4s. 6d. cl.
Ball's (W. P.) Are the Effects of Use and Disease inherited? cr. 8vo, 3s. 6d. cl.
Ballow's (W. R.) A Compendium of Equine Anatomy and Physics, cr. 8vo, 4s. 6d. cl.
Beaconsfield (Lord), by J. A. Froude, cr. 8vo, 3s. 6d. cl.
Beet's (J. A.) St. Paul's Epistles to the Ephesians, &c., 7s. 6d. cl.
Bikelas's (D.) Seven Essays on Christian Greece, 8vo, 7s. 6d. cl.
Blass's (Dr.) Pronunciation of Ancient Greek, translated by W. J. Purton, 8vo, 6c. cl.
Bottone's (S. R.) Electro-Motors, how Made and how Used, 3s.
Bywater's (L.) Aristotelis Ethica Nicomachea, 4to, 10s. 6d. cl.
Caine's (W. S.) Picturesque India, Handbook for European Travellers, 8vo, 10s. 6d. cl.
Calleja's (C.) Theory of Physics, cr. 8vo, 5s. cl.
Calleja's (C.) General Physiology, cr. 8vo, 6s. cl.
Chamber's Encyclopædia. Vol. 6, roy. 8vo, 10s. cl.
Chaignet (A.): Histoire de la Psychologie des Grecs, Vol. 3, 7fr. 50.
Clair (C.): La Vie de Saint Ignace de Loyola, 20fr.
Clerke's (A. M.) System of the Stars, 8vo, 5s. cl.
Cucheval-Clarigny: Les Finances de la France, 1870 à 1890, 7fr. 50.
Curtis's (H. H.) Class-Book of English History, 1485–1890, complete, cr. 8vo, 3s. cl.
Dearlove's (A.) Tables to Find the Working Speed of Cables, 32mo, 2s. cl.
De Leon's (E.) Thirty Years of my Life on Three Continents, 2 vols. 8vo, 21s. cl.
Denis (E.): Fin de l'Indépendance de la Bohême, 2 vols, 15fr.
Döllinger's (J. J. von) Studies in European Life, translated by M. Warre, 8vo, 14s. cl.
Dufferin and Ava's (Marchioness of) Our Viceregal Life in India, cheap edition, cr. 8vo, 7s. 6d. cl.
Dürer (E.): Edison, Elektrische Skizzen, 1m. 50.
Earle's (J.) English Prose, its Elements, History, and Usages, 8vo, 16s. cl.
Eliot's (C. N. E.) Finnish Grammar, cr. 8vo, 10s. 6d. paste grain.
Ely's (T.) Manual of Archæology, 8vo, 6s. cl.
Euripides's Ion, with a Translation into English Verse by A. W. Verrall, 8vo, 7s. 6d. cl.
Field's (H. C.) Ferns of New Zealand and its Immediate Dependencies, 4to, 21s. cl.
Fletcher's (C. R. L.) Gustavus Adolphus and the Struggle of Protestantism for Existence, cr. 8vo, 5s. cl.
Fullerton's (W.) Architectural Examples in Brick, Stone, Wood, and Iron, 4to, 15s. cl.
Fürst (J.): Glossarium Græco-Hebræum, Part 1, 1m. 50.
Georges (K. E.): Lexikon der Lateinischen Wortformen, Part 5, 3m.
Goethe's Wilhelm Meister's Apprenticeship, Introduction by E. Dowden, edited by C. R. Shorter, 2 vols, 2s. 6d. cl.
Hamerling (R.): Die Atomistik d. Willens, 2 vols, 12m.
Hatch's (The late E.) Influence of Greek Ideas and Usages upon the Christian Church, 8vo, 10s. 6d. cl.
Hossfeld's Advanced French Grammar, by H. Lallemand and A. Antoine, cr. 8vo, 2s. 6d. cl.
Law of Musical and Dramatic Copyright, by E. Cutler, T. E. Smith, and F. E. Weatherly, cr. 8vo, 3s. 6d. cl.
Lewes's (V. B.) Inorganic Chemistry, cr. 8vo, 3s. 6d. cl.
Leplay (H.): Chimie des Industries du Sucre, Vol. 2, 8fr.
Lloyd's (W. W.) Sketches of Indian Life, folio 6s. bds.
Mahaffy's (J. P.) Greek World under Roman Sway, 10s. 6d. cl.
Mataigne (H.): Nouvelle Géographie de la France, 15fr.
Matthay's (T.) 1,350 Questions on German Literature, 2s. 6d. cl.
Matthews's (G. F.) Manual of Logarithms, 8vo, 5s. cl.
Meyer (L.): Grundzüge der Theoretischen Chemie, 4m.
Mitchell's (E. H.) Forty Days in the Holy Land, Before and After, cr. 8vo, 6s. cl.
Moore's (Late A. L.) Lectures and Papers on the History of the Reformation, 8vo, 16s. cl.
Newman's (Cardinal) Sayings, 8vo, 2s. cl.
Pallain (G.): Le Ministère de Talleyrand sous le Directoire, 8fr.
Pentecost's (G. F.) Bible Studies, cr. 8vo, 4s. cl.
Pinkerton's (R. H.) Theoretical Mechanics, 12mo, 2s. cl.
Preacher's Homiletic Commentary on the Book of Ezekiel, by Rev. D. G. Watt, &c., 8vo, 7s. 6d. cl.
Renan (E.): Histoire du Peuple d'Israël, Vol. 3, 7fr. 50.
Reed's (T. A.) Biography of I. Pitman (Inventor of Shorthand), cr. 8vo, 3s. 6d. cl.
Rössing (A.): Einführung in das Studium der Theoretischen Chemie, 6m. 50.
Sadler's (Rev. M. F.) Epistles of St. Paul to Titus, Philemon, and the Hebrews, 12mo, 6s. cl.
Schmid (A.): Erkenntnisslehre, 2 vols, 9m.
Scotti's (Dr. C.) Italian Prose Reader, 32mo, 2s. cl.
Simcox's (late W. H.) Writers of the New Testament, 2s. 6d. cl.
Smith's (Rev. G. A.) Book of Isaiah, Vol. 2, cr. 8vo, 7s. 6d. cl.
Sophocles's Plays and Fragments, with Critical Notes by R. C. Jebb, Part 4, 8vo, 12s. 6d. cl.
Taisey-Chatenoy (Marquise de): A la Cour de Napoléon III., 3fr. 50.
Thucydidis Historiarum Libri 6–8, rec. C. Hude, 5m.
Trivier (E.): Mon Voyage au Continent Noir, 3fr. 50.
Verne's (J.) The Flight to France, cheap edition, 3s. 6d. cl.
Weiss (J. J.): Essai sur l'Histoire de la Littérature Française, 3fr. 50.
Wood's (Late J. T.) Modern Discoveries of the Site of Ancient Ephesus, cr. 8vo, 2s. 6d. cl.
Worsley's (H.) Dawn of the English Reformation, 8vo, 7s. 6d. cl.
Wright's (C. R. A.) The Threshold of Science, cr. 8vo, 6s. cl.
Young's (A.) Sociology Diagrammatically Systematized, 7s. 6d.

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THE EDUCATIONAL TIMES.

LONDON, DECEMBER 1, 1890.

A good deal of attention is being given in Germany to the condition of secondary and higher education in anticipation of important reforms which are pending. The views of the Emperor William on the subject of Education are freely commented on in the discussions. The Emperor has frequently manifested his interest in education, and the way in which he speaks of it shows that he has his own well-defined opinions, based on his own reflections on the subject, and it is suspected that with his accustomed energy he is using his influence in the endeavour to secure the carrying out of the plans which he himself approves. It is believed that Guszfeldt's book, "Die Erziehung der deutschen Jugend," just published, which is exciting much discussion in Germany, contains authentic information on the Emperor's ideal.

The author of this book first addresses himself to parents, and points out where most mistakes are made in the earliest education at home. Then he deals with the transition from infancy to boyhood, and here he complains of a sudden leap and change of method from one in which education is the whole aim to another in which there is an overweight of instruction over education. To avoid this break of continuity, or at least to minimise it, is the chief aim of the great movement in Germany. Guszfeldt describes the nature and object of the education of youth as "training directed to the development of health, physical power and skill, a pure heart, feeling for one's fellow-creatures, firmness of character, sense of duty, acuteness, and a certain amount of knowledge." The separation of instruction and education interferes with the course of such uniform and harmonious training, and hence he declares that the watchword for the future must be "Less knowledge and more training."

The author makes the following amongst other suggestions. The school which is an institution for instruction must be transformed into an institution for general training. The necessary time must be obtained by extending the school hours over a longer portion of the day. The number of direct lessons should be reduced to four or five daily, but the pupils should have time to work independently or to do private study during certain hours. Home work should be altogether abolished, and many of the subjects of tuition should be done away with altogether. Early specialisation should be avoided. The special knowledge required in the pupil's subsequent vocation he should acquire from his eighteenth year onwards. But the suggestion which excites most surprise in Germany is that much more time should be devoted to the development of the body—to physical exercises. The Englishman is here taken as a model, and, in the amusing criticisms which the book has received in the German Press, this point is sometimes severely dwelt on.

It is very naturally pointed out that the conditions in the two countries are not the same, and it is repeatedly stated that an Englishman, twenty years old, with a fair amount of knowledge, can always secure a good, remunerative situation in England or in the Colonies, and in contrast we read such comments as the following:—"Our (*i.e.*, the German) colonies do not invite emigration, our young people remain at home a long while waiting for a situation. There is energetic action in England which carries the young forward, whereas discouragement impedes them in Germany. The struggle for life is fiercer in Germany on account of the larger number of competitors. The younger pupils have none of that self-government which the author suggests is possessed by young Englishmen; it does not lie in the German blood." Again, in other criticisms on the same book, we read:—"The German is created and trained for family life, not for public life. What does a regular student at the University value most? The instruction he gets? No. The unconventional intercourse with a friendly family. Recreations enjoyed under the eyes of the teacher will always lack the charm of unconventionality. It is impossible that the master can join in the school games. There are always some pupils who would like to wheedle round him, and they would find their opportunity in the playground. However much the master might try to keep them at a distance, the tone could never be free; nor can the teacher place himself altogether on a level with the pupil." The lesson we think all this teaches us here is, that as what is said to be impossible in Germany is easy in England, so also things which are possible in Germany may be impossible in England. The educational systems of the two countries could not be interchanged.

There is, however, very general agreement with the author on the part of the Press on some points, such as that the thorough knowledge of Greek and Latin will have to be acquired at the universities, and not in the schools; that the mother-tongue (German) is at present greatly neglected, and that this is also the case with history. The history of Germany, especially the more modern, is to the pupils of the German Gymnasium "*a book with seven seals.*" Both Conservative and Republican newspapers agree that there is a want of moral and religious teaching, and both agree that the Realschulen must step in to satisfy the demands of the present movement; but such reservations as the following are made:—"A safeguard against inundation must be provided in these schools when the changes are effected. The culture of the mind must not be neglected. The Gymnasien, the number of which need not be so large as that of the Realschulen, must still devote themselves to the culture of the mind. The latter will be frequented by those who hope to obtain wealth through skill and energy; whereas the future high officials of State will continue to frequent the Gymnasium. It is to the ideal feature in the training given by the Gymnasium that Germany owes her bureaucracy which many other nations envy. Protected against want, the officials of Germany serve their country with disinterestedness, and without envying those who, in the economical struggle, may acquire millions." If this be a true picture, technical education is carried high in Germany.

As various rumours and statements have recently been set afloat with reference to the proposed Reconstitution of the University of London, we deem it desirable to give our readers (so far as the latest accessible information allows) a brief sketch of the present state of the negotiations which that process has involved. Since the publication of the scheme of the Senate, dealt with in our leader of March 1st, several revised schemes have appeared, each in succession embodying fresh provisions for meeting the demands of the London colleges and medical bodies. The last scheme is dated June 25th; and, in the way of concession, it has drifted considerably beyond the Report of the Commission. In a proposed Senate of forty-two members, eighteen are to represent constituent colleges, and four the professional bodies. It gives, as we understand it, to the constituent colleges (*i.e.*, at present, University and King's only) the virtual direction, not only of their own curricula and teaching, but also of their own examinations, up to and including the degree examinations in Arts and Science; and candidates who pass these examinations are to receive the degrees of the University of London. These powers, it is true, are to be exercised under the control of a standing committee of the Senate; but then at least a half of this committee will consist of college representatives. It is understood that the two colleges have accepted this scheme. Examinations for medical degrees are to be conducted by a conjoint board of examiners, partly appointed by the Senate, and partly by the Royal Colleges of Physicians and Surgeons; but we are at a loss to understand why a controlling committee of the Senate is not provided for in this case also. From later correspondence it would appear that the Physicians consider some such control an indispensable condition of accepting the scheme; while the Surgeons propose that the Senate's powers should be delegated to a body outside of itself. This difference between the two great medical bodies is the first difficulty in the way of the adoption of the scheme. A second arises out of the inflexible attitude of provincial colleges. Without repeating their protests, to which indeed we have more than once drawn attention, we believe we may venture to state that what would satisfy these colleges is one of two things: either (and in preference) that the University should remain as it is; or, if it does not, that they should be placed on precisely the same footing as the London colleges. Now the scheme we are writing about already provides that provincial colleges may, under certain conditions, have the same powers of examining their own students as are offered to University and King's; but their further demands clearly mean that they should be similarly represented upon the Senate, and also upon any standing committee to which the Senate may delegate the control of the examinations already provided for. Thus the Senate yet has much to do to satisfy the colleges all round; and, if it succeeds, the scheme will still have to run the gauntlet in Convocation. Thus the prospect at present does not seem very favourable to a settlement, or at any rate an early settlement; and it is hardly surprising that University and King's Colleges should have addressed the daily papers in their recent conjoint letter, which means, we take it, that, in case of any modification of the scheme to their detriment, or of undue delay in bringing it into effect, they will feel at liberty to withdraw their acceptance of it, and to press for a charter as an independent University.

The London School Board have been putting themselves in evidence pretty assiduously of late. As plaintiffs in an

action against a bankrupt building-firm, they have recovered over two thousand one hundred pounds damages. In the loan market, through the good offices of the London County Council, they have been able to obtain one hundred thousand pounds at $3\frac{1}{8}$ per cent., the principal to be repaid in 50 equal annual instalments. They have settled the piano business to the satisfaction of a majority of the members, and they are now greatly exercised over the very grave question of establishing a legal department of their own. All this activity, whatever may be its educational outcome, can hardly be welcome to the ratepayer rated up to a shilling in the pound. Whatever else may come of it, he may be excused for concluding that it will certainly lead to an increased school-rate. One Board may differ from another Board in its component units, but all Boards agree in showing an incurable incapacity for keeping down the rate. At election time, candidates pay such homage to the great virtue of economy as is implied in enunciating economic commonplaces; but, once elected on the Board, they seem neither to have the will nor the power of effecting any appreciable retrenchment. The evidence given at the trial of the action above referred to helps to explain the difficulties a popularly elected body are exposed to when transacting business with which they are unfamiliar, and, at the same time, accounts for that excessive expenditure with which they are justly reproached. It appeared that in August, 1884, the defendants contracted with the Board to build the Kilburn Lane Schools for a sum of £17,397, according to specification. The schools were completed in August, 1885, and the late architect of the Board gave his certificate. Three years later, it was discovered that there had been in the execution of the work very flagrant deviations from the specification. "In fact," said the counsel for the plaintiffs, "the whole building was found to have been in many places scamped, and £5000 would be required to put the schools in decent order, and even then they would not be of that strength and value they would have been had the terms of the contract and specification been properly observed." Now, of course, the Board trusted to their officials to see that the work was properly done. They paid their architect a salary of a thousand a year, and allowed him to pursue his own practice as well, and yet this gentleman admitted that he never visited the works until they were completed, and then only "to gather ideas for future schools, and not to examine the work done." The supervision of the work was entrusted to an inspector, who was to visit the works and report to the architect any reports he received from the clerk of the works. This last-named official stated that he had three other schools to look after at the time the Kilburn Lane Schools were in course of erection, and at a later period he had as many as seven schools to attend to, with the result that they were practically erected without supervision. No wonder that the judge, in his charge to the jury, should remark that the defendants would indeed have to be proof against every human temptation builders are subject to, if they did not occasionally take a somewhat liberal view of the true construction of the specification; and then he added, with grave irony: "The Board were bound in the interest of the public to bring this action, even against bankrupts, to prevent contractors from violating their agreements, simply because the Board were unbusinesslike."

The mode of doing business brought to light by the evidence given in this case goes far to explain the remarkable reference, in Mr. Diggle's annual survey of the work of the Board, to the expenditure of £75,000 annually on the repairs of school buildings. These buildings, having all been erected within twenty years, cost on an average about £200 each, per annum, to keep them in repair. "The 48 schools," observes the Chairman of the Board, "opened in 1885 and 1886, cost, in the year ending 25th March, 1890, in repairs, a round sum of over £4,100, and they had cost in the preceding year, £3,000. Upon one of these schools £25,000 would have to be spent during the current year, and there were several others upon which a considerable, but at present unascertained, expenditure would be necessary." Comment on this is needless. *A priori*, no arrangement would promise to work more economically than one that entrusted to those who provided the money the choosing of the body which was to spend it. The School Board for London is a standing example of how little *a priori* considerations should count in practical affairs.

Happily the friend of popular education may still hope that the great work of educating the masses will go on without check, in spite of its cost. Its very magnitude is the best excuse that we can offer for the mistakes that have been made. Mr. Diggle tells us that the Board over which he presides is responsible for the right education of 67 out of every 100 children attending the elementary schools of London, which was equal to 13 in every 100 of that of England and Wales. He was therefore well justified in saying that the Board's work was an intensely human work, as it touched the family life of the great majority of those who lived in London.

Has the School Board raised that family life to a higher plane of civilization than that of twenty years ago? Has it quickened its intelligence, refined its manners, improved its morals? If it has not done all three in an appreciable degree, it must be pronounced a failure, more or less. We think there is evidence that something has been accomplished in all three directions, and there is promise of still greater results in the future. Mr. Diggle's statement affords evidence that the intelligence of the scholars is increasing, although it comes in a form which lessens our satisfaction that it is so. It is found that the children pass the higher standards in greater numbers, and are leaving school at an earlier age, than formerly. Now, it is well known that mental training ends, for the great majority of children, with the end of their school life. Not only so, but the small acquisitions of their schooldays are lost too. Special provision has been made to meet this evil by the legislation of last session, designed to make evening schools more attractive to youths approaching manhood than has hitherto been the case. The Education Code Act, 1890, provides that "it shall not be required as a condition of a Parliamentary grant to an evening school that elementary education shall be the principal part of the education there given, and that so much of the definition of the term 'elementary school' in section 3 of the Elementary Act, 1890, as requires that elementary education shall be the principal part of the education given in an elementary school, shall not apply to 'evening schools.'"

Unfortunately, this by itself is not sufficient to induce those who obtained employment on passing the required standards

to resort to the continuation school thus provided by the Legislature. What mental energy is left to the operative for an evening class at the end of a ten hours' day spent in the monotonous repetition of some simple operation, too often in a vitiated atmosphere? Is it surprising, then, that he is eager to escape at the earliest moment to some form of recreation or repose? In addition, therefore, to making the continuation school attractive, there is needed some regulation such as obtains in France, in which the Government and the employers of youths aid each other. In each of the arrondissements into which Paris is divided the Government maintains a science school, in which geometry, machine-drawing, applied mechanics, mathematics, and other subjects are taught. Attendance at these science classes is obligatory in apprentices, and they leave work at five to enable them to go. Account is kept at the school of their attendances, and is sent regularly to the employer, a bad attender at school being liable to dismissal from the shop. Some such co-operation between the school authorities here and employers is needed that the continuation school may yield its best results.

Mr. Diggle discusses the question as to whether the school fee was a hindrance to school attendance, and remarked that it had no bearing upon the present affairs in London. The present Board had relaxed the enforcement of the payment of fees, so that practically there was free education for those who were not able to pay. For the year ending the 25th March, 1889, with an average attendance of 342,300 children, the amount received in school fees was £124,000; for the year ending 25th March, 1890, it was £120,000 for an average attendance of 345,500, or a decrease of £4000 in fees with an increase of 32,000 children. The Chairman has to report, notwithstanding the relaxations in respect to the fee, that "the regularity of school attendance meanwhile was not improving, but was perceptibly diminishing." The percentage of average attendance, which last year was 78·7, was this year only 78 per cent. Mr. Diggle interprets these figures to mean "that every day there were 97,397 children absent from school in London, many of whom undoubtedly ought not to be absent." This is a very serious matter, and calls urgently for a remedy.

REVIEWS, NOTICES, &c.

German School Books: (a) A Manual of German Composition, &c. By C. H. Ohly, Ph D. (Williams & Norgate.) (b) Macmillan's Course of German Composition. First Course. By G. E. Fasnacht. (Macmillan.) (c) A Second German Reader and Writer. By W. Stuart MacGowan, B.A. (Swan Sonnenschein & Co.) (d) Grimm's Kinder- und Hausmärchen. With Explanatory Notes by W. G. Hickie, M.A. (e) 1350 Questions on German Literature. By T. Matthay. (D. Nutt.) (f) Fouqué's "Undine." With an Introduction, Notes, and Vocabulary, by H. C. G. Von Jagemann. (New York: Henry Holt & Co.)

German school-books increase in such an alarming quantity that it is hardly possible for the educational critic to keep pace with them; and we only wish, for the sake of the subject of German, which we consider a most beneficial element in modern education, that the demand may be equal to the supply. This day we have selected for brief notice a few of the numerous German publications recently poured forth by the English and American Press. To begin with one of the most important subjects in the study of foreign languages, we will first notice the two books in our list referring to German Composition. Both editors seem to have taken great pains with their compilations, and to have, on the whole, a commendable knowledge of the special subject of their treatises; but we cannot bestow unqualified praise on the details of workmanship. Dr. Ohly divides his book into two sections. The first, consisting of 100 pages, contains a theoretical Introduction, whilst the second contains, in about 130 pages, the materials for translation. The disproportion of this arrangement is evident. The theoretical Introduction to a book of this kind should be as concise as possible, and any supplementary remarks ought to be inserted in the shape of notes. The examples given to illustrate the rules are far too difficult, and often clumsy. The passages for translation, given in Part I. of the practical section, are not arranged in a strictly graduated form, and contain, besides, a number of hackneyed anecdotes. The second part consists of Macaulay's well-known essay on Frederick the Great, written, like the one on Warren Hastings, in the author's most passionate and biassed vein. Some of the severest reflections seem to have been omitted, but enough of harsh censure has been left to make the book—to express it mildly—an ungracious medium for the study of German. Moreover, the translation-notes are not invariably correct, and often give renderings of easy expressions whilst the more difficult ones are skipped over. Several of the defects in Dr. Ohly's book are to be met with in M. Fasnacht's compilation, so that we deem it superfluous to dwell on them specially; but the latter has the external advantage that the theoretical part is placed at the end of the book. Unfortunately it is far too diffuse and unsystematically arranged. The useful feature of "parallel passages" is marred by the circumstance that they contain, like the first-named manual, a number of those hackneyed pieces from which the compilers of modern-language school-books seem unable to emancipate themselves.

Mr. MacGowan's "Second German Reader," which forms part of the "Parallel Grammar Series," is not quite free from the same defect, although it only contains 43 pages of German prose. The plan of illustrating the various parts of speech by connected passages is certainly a very commendable, but by no means new one; only in order to attain the object in view, the respective extracts should be much longer than they are in the present little volume. The editor might have gained some space for this by omitting the poems—among which, by the bye, "Knight Toggenburg" is quite out of place—as well as the few letters, which are far too childish for a "Second Reader." The book is neatly got up, and the German type good.

We believe there are already several editions extant in this country of selections from Grimm's "Fairy Tales," and none of them have secured a permanent footing in the English schoolroom; perhaps for the simple reason that our young readers know them too well in the English garb. We cannot, therefore, predict great success for Mr. Hickie's "Selection," consisting of ten of the most popular of Grimm's "Fairy Tales"; more especially as his notes show no decided advantage over those of his predecessors in the same field.

Herr T. Matthay has published in a small volume the formidable number of "1350 Questions on German Literature," for the benefit of those of his pupils "who have already made some *advance* in the German language." Among the questions, many of which touch upon a number of the most trivial topics, we hit upon the following:—"*Aus wie vielen Versen besteht das* (!) *Titurel, etc.? Was für ein Geschäft* (!) *betrieb Hans Sachs, etc.?* Heine is dispatched with three questions, whilst twenty-five are devoted at the end of the book to Vilmar's *résumé* of the *Nibelungenlied.*

We regret to see that the Professor of the Germanic Languages in the Indiana University has grammatically dissected Fouqué's most charming and romantic fairy tale, *Undine.* Such poetical creations should never be burdened with rules of grammar. Something should be left to the young reader of German to enjoy, without any disquisitions on the use of the subjunctive and the ethical dative.

Questions de Pédagogie théorique et pratique. Par E. Brouard et C. Defodon. (Hachette et Cie.)—This book is divided into four parts. The first treats of the general principles of pedagogy; the second, of moral education; the third, of the general principles of instruction; and the last, of the school programme. The topics discussed under these heads—in all about seventy—are, on the whole, well chosen; but, unfortunately, they are dealt with from a "crammer's" point of view. The book is meant for young teachers who are preparing for the professional examinations of primary instruction. Suppose two of Her Majesty's Inspectors were to prepare for pupil teachers a series of model answers to examination questions on teaching and school management, they

would produce just such a book. We say this to mark the limitations of the book. But, at the same time, we will add that a great number of the questions are answered very neatly and clearly, though by no means profoundly, and the authors would certainly score well in an examination. Probably, too, the authors, who appear to have had great experience in the construction of such books, know fairly well how much (or how little) young teachers can carry, and are wise in their moderation. Still, if we were the examiner, we should give some of the answers no marks at all, on the grounds that, though well expressed, they are far too vague and general to be of any real help to the work of the schoolroom.

Rulers of India:—Warren Hastings. By Captain L. J. Trotter. (*Clarendon Press*).—Many of the inaccuracies in Macaulay's work the author of this work has corrected; praise he has bestowed on Hastings wherever he has thought it due, and has exculpated him from the crimes with which Macaulay has saddled him. An interesting chapter is given under the heading "Truth about the Rohillas." We are told that the chief of the Marathas descended on the Rohillas, but was beaten off by Suraj-ud-daula. Rahmat Kahn, the Rohilla chief, refused to pay for this assistance; and English aid was given the Nawab to punish the ungrateful tribe. The occupation of the lands of the Rohillas would bring the frontiers of Suraj-ud-daula nearer to the Marathas, and, in Hastings' words, "render him more dependent on us and cement union between us." The Rohillas were severely defeated by Champion, but the evidence of this warrior contradicts the "legend" of Burke and Macaulay. The "100,000 people who fled from their homes to the pestilential jungles" were really only 18,000 followers of Rahmat who were forced to cross the Ganges. Another instance in which Captain Trotter defends the conduct of Hastings is in his dealings with Chait Singh and with the Begums. He also denies that Hastings had anything to do with the death of Nanda Kumar, which he ascribes entirely to the malice of an old enemy of the latter; Macaulay thinks that Hastings was the prime mover, and Sir J. Stephen exculpates both Hastings and Impey. On the whole, we have no hesitancy in saying that Captain Trotter has done his difficult task well, and we heartily recommend all who wish to form a more just idea of a great character than is given in Macaulay's essay to peruse the book.

Dictionary of National Biography, Vols. XXIII. and XXIV. Edited by Leslie Stephen and Sidney Lee. (*Smith, Elder, & Co.* 1890.)—Six years have now elapsed since Mr. Leslie Stephen began his colossal work on the national biography of Great Britain, and, at the rate of one large volume every quarter, we have now reached the twenty-fourth of the series, which brings us within touch of half the fifty volumes originally contemplated. The two parts under notice extend from Gray to Harriott, and it is clear that twelve years and six months will not quite suffice to finish the task on the same proportions. Amongst the more interesting and attractive lives in the last two volumes, we have those of Thomas Gray, John Richard Green, two or three Grenvilles and Greys, George Grote, Henry Hallam, Sir William Hamilton, John Hampden, Handel, and Robert Harley. The life of Sir William Hamilton, which is by the editor-in-chief, is a specially satisfactory chapter in the history of psychology, and a good example of the extent to which we may fairly look for a philosophical conspectus in what does not profess to be more than the summary of a philosopher's life. In less than two columns, Mr. Stephen enables the reader to perceive what was Hamilton's intellectual relation with his predecessor Reid, with his contemporaries at home and abroad, and with his immediate successors. Amongst the minor notices we may mention for approval those of Mr. and Mrs. S. C. Hall, whose names and literary productions were for more than half a century familiar and popular; Edmund Halley, the astronomer, of whom Dr. Glaisher declared a short time back that, "but for Halley, the *Principia* would not have existed," for Halley suggested the work to Newton, paid the expenses of publication, and corrected the proofs; the Harcourts and Vernon Harcourts, including the grandfather and father of Sir William Harcourt, who were, respectively, Archbishop of York and the friend of Davy and Wollaston, who virtually founded the British Association for the Advancement of Science. As a matter of fact, there is scarcely a page in the Dictionary which has not its special interest from some particular point of view. As the work proceeds, its value is constantly enhanced by the increased facility of cross reference to associated names; and it has already become one of the most indispensable works in the library of a literary man.

French Course. By T. H. Bertenshaw, B.A., B.Mus. (*Longmans.*)—This course is in two parts—Part I. up to and including the Regular Verbs; Part II. embracing Pronouns, Reflexive Verbs, Adverbs, Irregular Verbs, the Subjunctive Mood, the Infinitive, Participles, &c. There are two essential qualifications for the writer of a really good French course for English students—the first is, that the writer shall be a trained, skilled, gifted, and experienced teacher; the second, that he shall have an educated knowledge of the language he undertakes to teach. Now, the first of these qualifications is evidently possessed by Mr. Bertenshaw: he has marshalled his facts with great skill; he has foreseen and provided for all the difficulties of the English schoolboy who is driven to commence French; and, by the arrangement of his facts, he has provided all desirable aids for the memory. When, however, we come to consider the second qualification we have named, we are bound to admit that it is conspicuous by its absence. Many of the sentences are not French at all; some are English in construction, being simply represented by French words; some would not be understood by a Frenchman, and not a few are ambiguous in meaning. No Frenchman, we venture to think, would be able to understand the following from p. 95, "Tu ne te serais pas présenté ignorant devant le maître." He might, perhaps, assume that it meant, "Si tu avais eu conscience de ton ignorance." Out of a very large number of faulty sentences we select the following, giving what we suppose to be the words intended:—

Part I., p. 15. D'où sont ces fleurs?—You could say: *D'où êtes-vous?* But this should be: *Où avez-vous cueilli ces fleurs?* or, *Dans quel parterre avez-vous cueilli ces fleurs?*

p. 22. Il avait un bâton noir qui était *aigu.*—*Aigu* should be *pointu.*

p. 24. Ce vieil homme.—*Vieillard* is the only word for "old man." *Dépouiller le vieil homme* = "to mend one's ways." *Dépouiller du vieil homme* is also used in the same sense.

p. 29. Chaque jour a ses devoirs.—*Un jour* cannot have duties to perform. We may say: *A chaque jour suffit sa peine.*

p. 33. Où est l'Irlande?—We may say: *Où est mon frère?* but a country being always in a fixed place, we cannot ask where it is. Say: *Où est située l'Irlande?* or, better, *Dans quelle partie du monde est située l'Irlande?*

p. 34. La Tamise *a* sa source.—This should be: *La Tamise* prend *sa source.*

p. 34. La Seine est dans le nord de la France.—Say: *La Seine arrose le nord,* &c.

Part II., p. 81. Malgré moi l'enfant jouait dans le jardin.—*Malgré ma défense,* &c., is without doubt better.

p. 83. Notre congé est long.—We may say: *Mon bâton est long;* but, *Nous avons un long congé.* An adjective before the noun gives a figurative meaning, whereas an adjective after the noun gives a literal meaning.

p. 88. La ville *dont* il est venu.—This should be: *La ville* d'où *il est venu.*

p. 91. Ce chien traversait *une* rivière *par* un pont.—Say: *Ce chien traversait* la *rivière* sur *un pont.*

p. 92. Auquel des chevaux monterez-vous?—This should be: *Quel cheval monterez-vous?*

p. 97. Ces pommes se vendent vingt pour un franc.—This should read: *On donne vingt de ces pommes pour un franc.*

p. 105. J'aime plus la peinture.—This should be: *J'aime mieux la peinture.*

p. 105. J'aime le moins son frère aîné.—Say: *C'est son frère aîné que j'aime le moins.* But even this is hardly French; there ought to be a comparison, as: *J'aime moins son frère aîné que tous ses autres frères.*

p. 105. Par où faut-il aller pour la source?—This should be: *Par où faut-il aller pour trouver la source?* or *pour arriver à la source?*

p. 105. Marchez tout droit jusqu'à la ferme, alors prenez le chemin à gauche.—This should be: *Marchez,* &c., *puis prenez le chemin à gauche.*

p. 124. Elle sortira quand elle se sera vêtue.—Say: *Elle sortira quand elle sera habillée. Vêtu* needs an object, as in *Vêtue de sa robe bleue.*

p. 126. Ma lanterne s'est éteinte à cause du vent.—This should be: *Le vent a éteint ma lanterne. Ma lanterne s'est éteinte au moment où nous arrivions* is good French.

p. 128. Dès que le discours fut *conclu.*—*Conclu* should be *terminé.*

If Mr. Bertenshaw had been associated with an educated Frenchman, we might for once have had a really good work.

Cardinal Newman. By Richard H. Hutton (*Methuen & Co.*).—Cardinal Newman may be regarded from many points of view. Some have seen him only at a distance, and have known him only by his writings; some only by a reputation which has reached them through a surrounding medium. By such, his purposes and motives can be but very dimly appreciated. Others have seen him by the light of a closer contact, or of friendship, and this light often lays open to view the motives for action which are hidden from the stranger. Mr. Hutton writes under such a light. He has written much about Newman during the past forty years, and evidently likes his subject. He has always shown a great appreciation of Newman's genius, and has always written with a transparent sympathy. He is admirably fitted, therefore, to be entrusted with the production of this volume of

the series of "English Leaders of Religion." Mr. Hutton tells us in the Preface that the whole of this little essay was written, and in type, and most of it corrected for the press, before Cardinal Newman's death. He thought it better, considering the smallness of the space available for the treatment of so great a subject, to devote the main part of the book to the study of Dr. Newman's life before leaving the Anglican Church—in other words, to the course of thought which led him to the Church of Rome—and to compress the latter part of his career into a single long chapter. This seemed to Mr. Hutton the best way of making the book of interest to the great majority of English readers. The first chapter is headed "Newman's Genuineness and Greatness." All Englishmen will agree that Newman was a great man; but when the question is asked on what features of his character and work he is entitled to be considered great, the agreement will certainly disappear. Some would found his greatness on his saintly life, on his steadfast uprightness and true simplicity; others on the power of his voice and pen. The *Athenæum* says, for instance, that "he deserves the name of great because, in an age of materialism and superficial intellectualism, he held aloft the banner of spiritualism; because, amidst all obloquy and insult, he held to what he considered the truth; because he yielded up the proud position of a great spiritual leader to follow the inward summons. He has been one of the operative forces that have aided to transform England. It is for this reason he has been honoured and mourned by Englishmen of all creeds, quite apart from the merits and demerits of the theology to which he devoted his life." Mr. Hutton's view is as follows: "Whether tried by the test of the nobility, intensity, and steadfastness of his work, or by the test of the greatness of the powers which have been consecrated to that work, Cardinal Newman has been one of the greatest of our modern great men." The difference in these estimates will probably be regarded by most readers as microscopical. Subsequent chapters deal with "Newman's Early Life at Home and at Oxford," "The Mediterranean Voyage," and "His Relation to the Tractarian Movement." The most interesting chapters are the V.—IX., which form a masterly epitome of Newman's theological opinions, and are given under the following heads:—"Newman's Alleged Scepticism;" "Balancing;" "the Preacher of St. Mary's;" "Advancing Estrangements;" "The Theory of the Development of Christian Doctrine." One hundred and ninety pages are given to the early part of Newman's life, and only fifty pages to the period following his entry into the Church of Rome. The last chapter is devoted to Newman's chief poem, *The Dream of Gerontius*, "the most unique and original of the poems of the present century"; and to a demonstration of the unity of his life. Mr. Hutton's monograph has, we think, but one fault: it is too condensed for most general readers; it is harder reading than Newman's own works, which are now being re-issued in popular editions by Messrs. Longmans & Co.

Elementary Art Teaching: an Educational and Technical Guide for Teachers and Learners, including Infant Schoolwork, the Work of the Standards; Freehand; Geometry; Model Drawing; Nature Drawing; Colour; Light and Shade; Modelling and Design. By Edward R. Taylor, Headmaster of the Birmingham Municipal School of Art. (Chapman & Hall.)—The style of this book is a striking testimony in favour of the author's claim to be heard on questions of art. It is not only a guide to learners, it is also a guide to publishers. The book deals only with the simple foundations of art teaching, but the author has succeeded in exhibiting the beauty of the subject even in the beginning, although in his modesty he suggests that little can be done to this end with the mere elements. The work is divided into eight sections:—I. Preliminary and Infant Schoolwork and Standard I.; II. Freehand Drawing, Standards II., III., and IV., and Second Grade Freehand; III. Colour, Flat-tinting; IV. Model Drawing and Plant Drawing; V. Geometry, Plane and Solid, Development of Surfaces; VI. Light and Shade, an interesting chapter on Shadows, and the Shading of Model Drawings; VII. Elementary Modelling; VIII. A chapter on Design. The plates are beautifully executed; indeed, with one or two slight exceptions, they are faultless. The author evidently believes in the Science and Art Department, although, for his own purpose as a teacher, he points out its weak points. He also condemns the system of *payment on results* as used by that Department. Yet he gives it credit for having brought about great improvement in art, adding that—

"Although not faultless it has no parallel on the Continent, and its working and results have been keenly inquired into by successive commissions, who have recommended similar organizations for their own countries. It began its work when industrial art was dead in England, although surviving as a vital force in France and Germany. Even in the year 1851 industrial art had scarcely begun to revive; the illustrated catalogue of the great exhibition of that year, which gave illustrations of the best art work exhibited, is as a chamber of horrors in contrast to the art work of to-day. The organization had to create the instruments by whom the work was to be done, to send them to centres where no standard of art existed, and where the seed sown was often hindered in its growth as much by the mistakes of the few who, while anxious for its cultivation, did not possess sufficient knowledge to give it wise nurture, as by the apathy of local magnates and the veiled or open opposition of vested interests."

The Two Kinds of Truth: a Test of all Theories; with special reference to those of Creation, Immortality, and Instinct. By T.E.S.T. (T. Fisher Unwin.)—This is a book with a distinctly educational value, being written less for savants than for young readers, and for such as wish to obtain rapidly and easily a general view of the scope of philosophic inquiry. The main idea put forward by the author is that all truths are either natural or universal—perhaps we might say phenomenal or abstract; that the former should not be carried beyond the natural sphere, whilst the latter are worthy of all acceptation, and their opposites are inconceivable. Building on this foundation, the author piles up a lofty edifice of clear conceptions and appreciations, whilst at the same time he exposes a large number of fallacies and hasty conclusions. His clue to the maze of philosophy is really very serviceable, and might well be placed in the hands of growing boys and girls. The book is too large and too diffuse for ordinary educational purposes. If T.E.S.T. had confined himself to stating, amplifying, and exemplifying the principle originally laid down by Descartes, he might have produced a small volume which could have been introduced as a reading-book into the curriculum of the schools; but he has proceeded at great length to apply the test to the more or less abstruse theories of instinct, immortality, creation, evolution, and so forth. The result is, undoubtedly, very interesting for the general reader. The author's method, discursive as it is, throws new light on many an old truth. Even when we cannot altogether agree with his conclusions, his inquiries feed and stimulate the mind. Evolution he accepts in a limited sense, as applying to the natural sphere. In relation to immortality, he goes at perhaps unnecessary length into the records of ancient history and the prehistoric periods, in order to show (1) that civilization and learning have not always been progressive; (2) that religion and art in like manner have had their periods of retrogression—as, for instance, from monotheism to polytheism; and (3) that all peoples, so far as known to us, civilized and savage alike, have in all ages possessed the idea of immortality. The book is full of thought, even to the point of congestion, and we can only regret that its substance was not concisely set forth in a volume of something like half the length.

OUR LIBRARY TABLE.

Virgil, Æneid, IV.–VI. By T. L. Papillon, M.A., and *A. E. Haigh, M.A. (Clarendon Press.)*—The second volume of this edition of the *Æneid* has followed closely on the first, which we noticed favourably a few months ago. The Introduction, under the heading of "Life and Poems of Virgil," is the same in each, and in other respects the books are similar. Fortunately the commentary is not too advanced for boys in the higher forms of schools. This fact, combined with the cheapness of the book and the high repute of the editors, should ensure its adoption in all schools.

Pitt Press Series: Livy, Book V. Edited by L. Whibley, M.A. (Cambridge Press.)—Mr. Whibley has given us a carefully compiled commentary of an important book, and will merit the gratitude of all schoolmasters who adopt his edition. The Introduction is divided into sixteen paragraphs, occupying thirty-two pages, and is generally interesting and to the point—the treatment of the vexed question of the Etruscans being particularly so. Short abstracts of the matter contained in the text are given on the side of each page, and a more succinct account at the head. The notes are bulky, but contain little which could well be spared. The frontispiece is an excellent map of Latium and the surrounding country, reproduced from that of Dr. Kiepert.

(1) *Russian Conversation-Grammar*; (2) *Elementary Russian Grammar. By Pietro Motti. (David Nutt.)*—The latter is an introductory abridgment to the former, and will in many cases suffice for those who wish to learn the language for practical purposes only, without any pretension to literary or scientific knowledge. In both, the method followed is the Gaspey-Otto-Sauer. The Conversation-Grammar is divided into two parts: the first presents the rules of accidence and the elements of the language in general, including the irregular verbs; the second, syntactical and complementary rules. The book closes with a threefold Appendix,

for travellers, tradesmen, and army and navy officers, the three classes of probable students. A Key to each is published separately.

Shakespeare—The Tragedy of King Richard II., with Introduction and Notes by K. Deighton. (*Macmillan.*)—There seems to be no delay in the production of the many numbers of this light-covered series of English Classics. Volume follows volume with commendable rapidity. Mr. Deighton is responsible, we believe, for more of them than any one else. We have several times commented on the excellence of his productions, so that it is almost unnecessary to introduce him at length to our readers; suffice to say that his work shows no falling off from the high standard displayed in the past. The Introduction (24 pages) is somewhat shorter than is usually to be found in the books of the series. It contains a discussion of the date of composition, historical details, and outline of the play. For the character of Bolingbroke, and the course of events which Richard's reign initiated, the student is referred to the Introductions of the author's *Henry the Fourth* and *Henry the Fifth*—plays which should be read in connexion with *Richard II.*

Studies in Elocution. Adapted and Arranged by T. Harrower, F.S.Sc. Lond. (*Nelson.*)—This contains an introduction to the study of elocution, and about a hundred selections in prose and poetry, the majority of which are well-known selections usually given in books on elocution; but some well-chosen pieces are not so common. They are carefully arranged, well and accurately printed—indeed, the greatest error of the book is probably on the title-page. There is certainly no degree of the University of London represented by the letters F.S.Sc.

A History of English Literature, A.D. 1485–1580, *by W. H. Low, M.A.* (*Clive & Co.*), is a well-bound book of seventy pages, written for the use of students who are required to prepare for examination purposes the *history* of English literature in the period with which it deals. In the introductory note a useful list of works, written between 1485 and 1580, is given, from which the student is recommended to select his reading. The work is divided into seven chapters, is well written, and abounds in short extracts from the poets and prose-writers of the period. It closes with a synopsis and index of authors.

Dust and its Dangers. By T. Mitchell Prudden, M.D. (*Putnam's Sons.*)—This is a well-printed and well-bound little work, showing, in simple language, what the real danger is of acquiring disease, especially consumption, by means of dust-laden air, and how this danger may be avoided. Many well-drawn conclusions are given, and the illustrations show what an unpleasant subject we are dealing with.

Elementary Classics:—Xenophon's Anabasis. Book IV. By the Rev. E. D. Stone, M.A. (*Macmillans.*)—The fourth book of the Anabasis contains much interesting matter, and is deservedly the book to place before a beginner. The notes, vocabulary, and appendices in this edition will enable the beginner to make his way through the narrative with no further aid than that of an elementary Accidence. The text is well printed, and the map showing the route of the Ten Thousand remarkably clear.

The Albert Arithmetic (*Gill & Sons*) is in six penny parts, each part being adapted to the requirements of a standard. The exercises are numerous and good.

Pauper and Felon. By Percy Dane. (*John Bale & Sons.*)—This is an autobiography and a comparison of the lot of the two classes of unfortunates mentioned in the title. The hero has experience of the workhouse and of outdoor relief, owing to the death of his father; but he overcomes all difficulties, and rises to the position of master of the village school. On a single occasion he loses his temper, and strikes a boy on the head. The boy dies; the master is tried for murder, found guilty, and condemned. He actually ascends the scaffold, but the drop, in some mysterious way, refuses to act, and the sentence is commuted to that of penal servitude for life. For aiding the warders in a mutiny of the convicts, he receives a free pardon, and rejoins his friends. The attacks in the book on the present systems of poor-relief and Board schools are very severe, rather more so in fact than the present condition of things justifies. The paper on which the book is printed is of the commonest.

The Finger New Testament. (*Clarendon Press.*)—A few months ago, we noticed an elegant little curiosity in the shape of *The Finger Prayer Book*. We now have before us another, viz., *The Finger New Testament*. This tiny but beautifully bound book, printed on the now famous Oxford India paper, is 4 ins. in length, 1 in. in breadth, and ¼ in. in thickness, and contains the whole of the New Testament, and is small enough to allow of its being attached to a lady's chatelaine. The print, although small, is particularly clear.

Pocket Volume of Selections from the Poetical Works of Robert Browning. (*Smith, Elder, & Co.*)—This neat and convenient book of selections is uniform in style and size with other volumes of the Pocket Library published by Messrs. Smith, Elder, & Co. There are few of the smaller pieces of the poet which will be missed from the volume. It contains 320 pages and cuts.

Hymns for School Worship. Compiled by M. A. Woods. (*Macmillans.*)—This book contains 100 hymns, each occupying a page, all general favourites, by authors of three centuries: the 16th, Sternhold and Hopkins, Spenser, Sidney, Southwell, and others; the 17th, Ben Jonson, Fletcher, Herbert, Milton, Vaughan, Baxter, Ken, and others; the 18th, Watts, Newton, Toplady, &c.; the 19th, Montgomery, Hogg, Heber, Keble, Longfellow, Newman, Faber, Thring, and others. It will be seen, therefore, that the compiler has considered literary merit in making the selection, and, as regards subject, she has preferred devotional hymns to doctrinal or didactic. The exact words of the original are given, even when popular taste has accepted an emendation. This is, perhaps, not always an advantage, as, for instance, in Toplady's hymn, "Rock of Ages," where the line, "When my eye-strings break in death," has been almost universally replaced by the smoother line, "When my eyelids close in death." Some useful notes are appended.

A Manual of Wood-Carving. By Charles G. Leland, M.A. Revised by John J. Holtzapffel. (*Whittaker.*)—We may at once write this down as the best text-book on wood-carving. Besides directions as regards tools and methods, and progressive examples or models, the work gradually develops bold artistic elementary forms useful for different purposes, and gives excellent examples of panels, mouldings, frames, ornaments, and articles of furniture. The directions are well written, and the designs boldly executed.

Memories of the College School, Gloucester, during 1859–1867. *With Historical Sketch and Notes of the "Evans Dynasty." By Frederic Hannam-Clark.* (*Gloucester: Packer.*)—Memories of a particular school are seldom of interest to any one but "old boys" and friends of the school in question, yet those before us deserve a wider circulation. Mr. Hannam-Clark has evidently bestowed great pains on his work, and we hope that it will receive due recognition, at least from the classes above-mentioned. Many things in the book will strike even an outsider; he will be led to look back on his own schooldays, and will doubtless find many parallels. Even the *sobriquet* "badger" will awaken memories in the "old boys" of another school of similar status.

The Nine Worlds. Stories from Norse Mythology. By Mary E. Lichfield. (*Ginn & Co.*)—These stories of the Norse gods are simple enough for children, but not so simple as to be uninteresting to older persons. We highly recommend them to all those who have the slightest taste for such paganism.

Royal School Series.—The Standard Authors Readers. (*T. Nelson*).—This series of Readers is to consist of six books, which may be used in Standards IV., V., VI., and VII. We have received the first three volumes. Volume I. contains lives of Marryat, Hemans, and Southey, with copious extracts from their works. Volume II., Dickens, Longfellow, and Coleridge. Volume III., Defoe, Mackay, and Campbell. A special and interesting feature is the presence, after each Life, of the opinions of the author held by eminent men. The books are profusely illustrated, and are undoubtedly suitable for class use.

Excelsior Test Map of Western Europe. (*Bacon & Co.*)—This is a small wall map which might, with greater truth, be described as of all Europe south of 60° N. latitude except East Russia. Its principal features are the extremely distinct marking of towns, mountain-ranges, and rivers. All names are printed in minute type. It is beautifully coloured and well glazed.

Principles of Practical Book-keeping. By A. Sarll, A.K.C. (*Gill & Sons.*)—A new and enlarged edition of a very useful work. Some of the exercises have been changed, and others, of a simple character, added. These additional exercises, with the full explanations given for working them, make this edition a decided improvement on the preceding ones.

A New Geological Map of England and Wales (*Bacon & Co.*) is published in three forms—on paper, folded in case; on cloth, in case; and on rollers, varnished. It is extremely clear and well printed, and has been compiled from the best authorities.

Aytoun's Lays of the Scottish Cavaliers. With Notes. The Burial March of Dundee. (*Blackwood.*)—This is eminently the edition for junior classes. It is short, well annotated, and cheap (2*d.*), and contains a Historical Introduction, John Graham of Claverhouse, and a Life of Professor Aytoun.

Practical Inorganic Chemistry. By E. J. Cox. (*Percival & Co.*)—This class-book is intended for the use of students preparing for the examinations of the Science and Art Department in the elementary stage of Practical Inorganic Chemistry, and is adapted to the new syllabus. It contains Notes, Reactions of Acids and Metals, and Analytical Tables. A useful feature of the book is the presence of a number of diagrams illustrative of particular experiments. These the student is recommended to draw.

Drawing for Infants and Junior Schools. By L. J. Phillips. (*Joseph Hughes.*)—An extremely useful series of three cases of forty cards each. Set I. deals with vertical and horizontal lines. Set II. the lines of Set I., with oblique lines forming angles of 45°. Set III., the lines of Sets I. and II., with oblique lines forming any angles. They are to be copied on squared paper, or on slates ruled into squares.

Elementary Science Reader. Course A—Mechanics. By W. H. Grieve. (*Percival & Co.*)—This book has been compiled to assist those teachers who desire to continue the object-lessons of the infant school in due order through all the lower standards, and so to lead up to the regular study of physics in the higher standards. It contains thirty lessons upon common objects, as well as upon some of the phenomena of nature, and covers the requirements of Standards I. and II. of the Government Code, 1890, as well as Standards I., II., and III. of the alternative course. The book is well printed and illustrated.

Plant Organization. By R. H. Ward, M.A., M.D. (*Ginn & Co.*)—This book is intended to give students an insight into the structure of plants,

and to help and guide them in applying the knowledge obtained to the description of any plant given to them for that purpose. Twenty pages are devoted to a glossary of the terms to be used; this is fully illustrated by small diagramatic sketches, and is followed by a synopsis of the natural orders. The main feature of the book, however, is a number of leaves containing a much extended schedule, one of which is to be filled up for each plant examined, one schedule is filled up as a type of such work. A student who goes through the book will become acquainted with descriptive terminology, and will acquire a certain facility in describing plants, but it is doubtful if the educative value of such a course will be commensurate with the amount of mechanical labour required.

Object Lessons from Nature: A First Book of Science. By L. C. Miall. (*Cassells.*)—As a first guide to the study of Nature we predict that Mr. Miall's work will meet with much success. The plan he has adopted is this: simple explanations about Animals and Plants, with very familiar examples, described in detail, come first; then some chemical and physical facts are introduced, and various experiments are explained. Upon this foundation various simple, yet interesting, lessons on Natural Phenomena are based. The illustrations of the book are numerous and excellent.

We have received the first four numbers of *Examination Copy-Books.* (*Joseph Hughes.*) The chief characteristic of the series appears to be that children who use the books cannot copy their own writing; for a new and different copy is given frequently after each line has been written. The copies, though not exactly modern in style of writing, are clearly printed on first-class paper.

Map of Australasia. (*Bacon & Co.*)—This (so far as the Continents are concerned) is the concluding map of the popular Excelsior series, which for careful colouring and general accuracy have previously secured our commendation. The same qualities that have distinguished the rest of the series are characteristic of the map before us.

Theory of Differential Equations, Part I: Exact Equations and Pfaff's Problem. By Andrew Russell Forsyth, Sc.D., F.R.S. (*Cambridge Press.*)—We have already received at length the author's *Treatise on Differential Equations*, and which is an excellent student's text-book, and now we have received the first part of a larger treatise which follows the historical course of the development of the subject, and includes every substantial contribution on the subjects included in the title. It is a work of reference rather than a text-book, it is clearly and accurately printed, and has been edited with great care.

My Councillor. Holy Scripture arranged as Morning and Evening Meditations throughout the Year. (*Oxford University Press.*)—A text in red at the top of each page indicates the subject for meditation, and below it texts collected from all parts of the Bible, bearing on the subject, are arranged in a regular literary sequence according to the sense. In the margin, chapter and verse quoted are given. The arrangement of the text has evidently been made with great care, and, in most cases, read like a continuous exposition. The lines of the margin are red, and thus relieve the page of heaviness. The book is printed on India paper, which the Oxford Press has succeeded in manufacturing and using with much good effect; consequently, although the book contains 764 pages, it is but of convenient size for the pocket. The price is 3*s.* 6*d.*

England and Wales. Excelsior Series. (*Bacon & Co.*)—The two leading features of this map are the attractive colouring and the distinct printing of names. While being highly artistic, the colouring is so put on that it in no way obliterates the marking or naming of either mountains, rivers, boundaries, or towns. The positions of the towns, indicated by decided spots in red, can easily be distinguished by all pupils in a large class. The names are not crowded together, but, by a simple arrangement, each is made to stand out in its proper place.

British Isles. Reduced Scale. (*Bacon & Co.*)—While preserving the general characteristics of the series, the small scale on which the map is done renders overcrowding of names almost a necessity. However, the general features are so clearly coloured and printed that each member of a small class of about twenty pupils will easily be able to distinguish the important features and most of the names. Routes of coasting steamers, with distances in miles, and indications of differences in time allowable for difference of longitude, are characteristics of the series.

Test Map. Western Europe. (*Bacon & Co.*)—The physical features, towns, boundaries, &c., are very distinctly marked, and the colouring is very artistically arranged, but the printing of the names is so small that it is readable only by the teacher or by some one very close to the map. It will be invaluable for Civil Service work or for final revision of Code work.

Messrs. Cassell & Company have published *A Guide to Evening Classes in London*, which well shows what is being done for the promotion of technical and secondary education. The classes are arranged as follows:—School Board Classes; Recreative Evening Classes; Classes in Special Subjects; Classes of the Working Men's Club and Institute Union. Under each subject is given the postal district, the name and address of the Institution; the day and hour of the meeting of the classes; the name of the Instructor; the amount of the fee; with other remarks. The guide is the first systematic attempt to supply this kind of information. We hope its career will be as successful as it deserves to be, and that the yearly numbers of the future will present still more items of usefulness and interest.

(1) *Magnetism and Electricity;* (2) *Sound, Light, and Heat. By J. Spencer, B.Sc.* (*Percival & Co.*)—Students who are preparing for the elementary stage of Sound, Light, and Heat, and of Magnetism and Electricity of the Science and Art Department, for the Oxford and Cambridge Local, the College of Preceptors, or the London Matriculation Examinations, will find a complete discussion of all they require in these text-books. All explanations are given through the medium of experiments; due attention is paid to the mathematical aspect of the study; and the illustrations are extremely well produced. A number of Exercises is given at the end of each chapter, and complete examination papers at the end of the book.

Science Ladders. (1) *The Life-Story of Our Earth.* (2) *The Story of Early Man. By N. D'Anvers.* (*Philip.*)—"Science Ladders" form a new series of simple reading books in elementary science for the young, and are intended to teach in simple language something of the great laws of nature. The first is an elementary introduction to Geology, and the second is a continuation of the first dealing with recent discoveries in connexion with the prehistoric human inhabitants of the earth.

Dr. Beach's Entertaining Readers. (*Joseph Hughes.*)—The A B C Book of this series is sold at a penny; the Infants' Primer at twopence. They may therefore be commended on the score of cheapness. Further praise we cannot give. We fear that the attempt to illustrate, by means of interesting pictures, has been carried too far, and that infants will draw erroneous conclusions from many of the illustrations—from those illustrative of U, P, B (p. 2) W. (p. 6), many on p. 12, and of *sad* and *zone* on pp. 14 and 15. The Primer is better, and contains a treatment of numbers and figures on the domiuoe plan.

Teneriffe: Personal Experiences of the Island as a Health Resort. By G. W. Strettell. (*Fisher Unwin.*)—A pleasantly written book of a hundred pages, truthfully detailing both the advantages and defects of the island as a health resort.

English-Eskimo and Eskimo-English Vocabularies. Compiled by Ensign Roger Wells, jun., U.S.N., and Interpreter John W. Kelly. (*Washington.*)—This is a circular of information, issued from the Bureau of Education, Washington, containing, in addition to the Vocabularies, Maps of Alaska and the Arctic Ocean, and ethnographical memoranda concerning the Arctic Eskimos in Alaska and Siberia.

Father Mathew: a Biography. By John Francis Maguire, M.P. (*Dublin: Eason & Son.*)—In connexion with the centenary of the birth of Father Mathew, Mr. Maguire's brilliant Life of the apostle of temperance has been re-edited by Miss Rosa Mulholland, and published, in an abridged form, at a popular price. The biography is a stirring record of the wonderful career of Theobald Mathew, and is full of interesting and characteristic incidents, and contains many extracts from the speeches delivered. The author contends that the influence of Father Mathew is still powerful in Ireland, and that the attitude of all classes has been changed, although many went back from their pledge of abstinence on his death; this is undoubtedly largely true, but we may hope for similar self-sacrificing enthusiasts to alter the habits of many in all parts of the Empire.

Harmony in Praise. Compiled and edited by Mills Whittlesey and A. F. Jameson. (*D. C. Heath & Co.*)—This is a collection of about 300 hymns, intended to meet the requirements of home, school, and college. For the most part, four hymns, suitable respectively for (1) morning, (2) evening, (3) prayer, and (4) praise, are grouped round the same tune. This idea is a happy one, and susceptible of considerable development; but we fear the selection of hymns will hardly commend itself to English teachers: many of the best known and most popular are omitted or painfully shortened, while the newer compositions are of very unequal merit.

Public Libraries. By Thomas Greenwood, F.R.G.S. (*Simpkin.*)—In this volume Mr. Greenwood, the veteran advocate of the movement, traces the progress of public libraries until last summer; and supplies all the information that is likely to be required by those who are promoting the establishment of such institutions, or are connected with their management. The revised edition, which is entirely re-written, extends to nearly 600 pages, and is an encyclopædia of condensed information on every phase of the subject: at the same time, the price is so remarkably low that no one interested in the question need suffer from lack of knowledge. We are glad to note the recent activity in London and its suburbs, and the indications that the ratepayers of many of the Metropolitan boroughs and parishes are prepared to provide facilities for healthy reading. During the last four years the Act has been adopted in 75 districts, as against 133 in the preceding thirty-six years; and this progress has been achieved without any central organization for the purposes of general propaganda.—[Mr. Greenwood desires that the term "Public Libraries" should replace the less accurate designation "Free Libraries," which tends to stamp them as being of the nature of charitable institutions.]

New Editions.

"Stops," or How to Punctuate. By Paul Allardyce. (*Fisher Unwin.*)—A sixth and revised edition of this practical handbook for writers and students is now published.

The Biblical Atlas and Scriptural Gazetteer, with Geographical Descriptions and Copious Bible References. The Maps by Henry Courtier, F.R.G.S. (*Religious Tract Society.*)—The introduction to the maps has been revised, with large additions, based on the investigations of Major J. R. Conder. The Gazetteer has been reprinted from a former edition, with necessary corrections, and now not a place mentioned in the Old and New Testament is missing. In its present shape the Atlas may be highly recommended to all young Bible students.

Notes on Roulettes and Glissettes. By W. H. Besant D.Sc., F.R.S. Second Edition, Enlarged. (*Deighton, Bell, & Co.*)—Dr. Besant's notes on the curves produced by the rolling or sliding of one curve on another were amongst the *right things to read* by mathematical students; but, being out of print, they have been handed on from one generation of students to another in MS. This new edition, containing the text of the first, together with such additional notes and examples as the last ten or twenty years have produced, will therefore be welcome to many.

Waverley. By Sir Walter Scott. (*Adam & Charles Black, Edinburgh.*)—This is the first volume of a popular sixpenny edition of Scott's Works. It is a copyright edition, embodying all the improvements of the Centenary Edition, with the annotations of Dr. Laing. It is certainly the best sixpenny edition ever published. The volumes will be issued on the first of each month, the second being *Guy Mannering.*

The Art Ballad, Loewe and Schubert. By Albert B. Buch (*2nd Edit.*). (*Blackwood.*)—The original of this interesting monograph was prepared as an illustrated lecture on the Ballad Airs of Loewe and Schubert, for the members of the Philosophical Institution of Edinburgh. This fact accounts, perhaps, for the striking introduction of the Scottish ballad of Edward, given in Percy's *Reliques.* The account of the way in which the gloomy and dreadful ballad furnished Loewe with a congenial theme is most entertaining. With regard to the new edition, the author says, "I have nothing to add nor to alter in the book. I have only to tell my readers the interesting news that Dr. Runze has found an opera by Loewe called 'Elizabeth.'" The interesting news is worth a new Preface.

ON HERBERT SPENCER'S "EDUCATION."*

By the Rev. R. H. Quick, M.A.

There is a good deal to be learnt from popular expressions. Such expressions often tell us as much as a whole dissertation could tell of the popular way of thinking.

As regards the material world, this is the country of free trade. We welcome the products of every clime, and so long as a thing serves our purpose we do not care a straw what country produced it. But in the world of ideas it is otherwise. Here we are strict protectionists. We have a strong prejudice against foreign notions, and seem to think we have enough native wisdom for home consumption, and many even go into the export trade as well.

Our distaste for ideas that come from abroad is marked by our use of the word *outlandish.*

To judge from their mode of expression, there must be a marked difference between the English and the Germans in this respect. While *we* speak contemptuously of everything "outlandish," the Germans say of anything they think worthless, "*Das ist nicht weit her!* That doesn't come from far!" implying that everything of value must be imported.

And yet within the last thirty or forty years we have seen some important changes, especially from Germany,

"come over to live on the Island."

There is at least one art in which we supposed ourselves to excel, the art of war, where the Germans have led the way, and we have been compelled humbly to imitate them. Another art might be named, perhaps of almost equal importance, the art of education, to which the Germans have paid a vast amount of attention. Possibly in this also they have some lessons to teach us, and if so, the sooner we learn them the better. It would be by no means safe for us to be behindhand in the art of war; but in the long run it may prove far more dangerous to be behindhand in the art of education.

To-night we have to consider the merits of a book on education, written, not by a German, but by a distinguished Englishman. The book, however, though written by an Englishman, is a vigorous protest against our English education, and an urgent demand for radical changes. If, as Mr. Spencer says, our present education is all wrong, on what lines should we change it? Mr. Spencer undertakes to teach us. It is of the very greatest importance that in this age of change some one shall tell us the right direction of change. A guide offers himself in Mr. Spencer. Let us examine his qualifications.

In setting up as a guide in education, a writer must rely, first, on his knowledge of the best thought and practice in civilized countries, especially in the country which takes the lead in education—Germany; and secondly, on thought and practice of his own. It is absolutely necessary that our guide should be acquainted with the best thought current in the leading communities of the world, especially in Germany. And then, if he be a person of Mr. Spencer's powers, he may add to it from his own resources.

So, before we entrust ourselves to Mr. Spencer's guidance, we must ask: What evidence does he give that he knows what the Germans think on education? From the evidence of his book, I should say that his knowledge was very scanty indeed. I think I see in his book defects that he would have avoided had he made a thorough study of the man who has so profoundly affected German education—I mean Pestalozzi. To Pestalozzi Mr. Spencer does, indeed, refer; but he does not seem to have heard of the philosopher who further developed and built upon Pestalozzi's ideas—Froebel. However great his power of original thought, a man who has studied Pestalozzi only partially, and Froebel not at all, is hardly likely to be in the van of progress in education.

Of course, I do not expect you to take my word for the defects in Mr. Spencer's book. I shall endeavour to point them out. In doing this I shall naturally fall into a controversial tone; and some may think I am trying to play the David in attacking with a very humble weapon a man far bigger than myself. But I should be sorry indeed to look on Mr. Spencer as a champion of the opposite camp. On the contrary, he falls on the common foe, blind use-and-wont, with crushing blows, and his suggestions for reform, though, as I hold, some of them are impracticable and some of them mistaken, are in other particulars admirable.

First, I must express my surprise that a scientific writer like Mr. Spencer should have written a book on education without giving any clear notion what education is.

The old mistake of the schoolmaster, against which all the best thought, at least from Locke's to Froebel's, has been directed, is the mistake of considering that education consisted first and foremost in giving knowledge. Opposed to this is the conception, first formed by Pestalozzi and afterwards worked out by Froebel, that education does not give anything, but consists in judicious superintendence of the development of an organism, and that knowledge is to be estimated, not with reference to its intrinsic value, but chiefly as a means of aiding development. This fundamental idea entirely changes the nature of the educator's functions. His mind is no longer fixed on knowledge to be forced in, but on the nature and faculties of the child by whom knowledge is assimilated.

But the conception that lies at the root of all that is best in modern educational theory is set aside by Mr. Spencer, whose division of the subject drives us back to the exploded misconception of the schoolmaster. The book is made up of four chapters, which bear these titles:—

1. Which knowledge is of most worth?
2. Intellectual education.
3. Moral education.
4. Physical education.

So, according to Mr. Spencer, the first thing to consider in education is: "Which knowledge is of most worth?" In my opinion, a great improvement would be made in the book by simply inverting the order of the chapters.

I extremely regret that the book which is considered in foreign countries *the* English contribution to the literature of education in our century should thus start off on what I hold to be entirely the wrong lines. In the second chapter Mr. Spencer seems far wiser, and we come across a passage which involves the condemnation of the first chapter. In this second chapter we are told that "we are on the highway towards the doctrine, long ago enunciated by Pestalozzi, that, alike in its order and in its method, education must conform to the natural process of mental evolution; that there is a certain sequence in which the faculties develop and a certain kind of knowledge which each requires during its development; and that it is for us to ascertain this sequence and supply this knowledge" (p. 66). What a pity Mr. Spencer forgot this law when he was writing chapter one! In that chapter Mr. Spencer denounces all the instruction at present given. On what grounds? Does he object that the knowledge given is not suited to the stage of development at which it is

* Delivered at the College of Preceptors on the 28th of November, 1890.

given? This, no doubt, might often be said; but Mr. Spencer does not say it. He entirely ignores the development of the faculties, and denounces the teaching of the classics on the sole ground that the classics are *useless*. Having mounted the utilitarian hobby, Mr. Spencer parades before us the good we get from a variety of sciences, and then exclaims how culpable it is not to teach children these sciences. Mr. Spencer need hardly have devoted several pages of a short book to enumerating some of the advantages obtained from science. No one out of Bedlam, and surely none but the most desperate cases in Bedlam, will ever think of questioning these advantages. But it is one thing to admit the usefulness of this or that science, and another to agree that every boy, or at least boys in general, should learn it. When we have proved most conclusively the usefulness of, say, the Nautical Almanack, we have thrown very little light on the proper curriculum for common schools.

"What knowledge is of most worth?" asks Mr. Spencer, and he seems to think that this is the same as asking, What knowledge is most useful? But before we go any further we must make a distinction that Mr. Spencer seems to ignore. In testing the usefulness of knowledge, are we to consider its usefulness to its possessor or to the community to which he belongs? In preparing a young person for adult life, are we to think of him simply as an individual, or are we to think also of the community of which he will be a member? In its early stages education is, ideally at least, the same for all; and the days have gone for ever when it was thought necessary to treat as a separate problem the education of a Prince, as if different treatment from birth would produce a different sort of being, just as by special food the bees make a queen. In childhood what is best for one is best for all. But in after-life the nation or society has different uses for different individuals.

Waiving, then, my objection to putting this inquiry in the forefront of a treatise on education, I consider the question, "What knowledge is of most worth?" and I find several things have to be settled before we can attempt to answer it. First, we must know the age of the pupil; next, if the pupil is over twelve years old we must know his probable function in life. In most cases there will be some limit of age in the school education. But even where there is no such limit we must answer Mr. Spencer's question by another: Of most worth to whom? To the individual or to the community? Some knowledge and skill has to be given to qualify the individual for complete living; other knowledge and skill to enable him to perform some special function for the good of the community. Before we settle the purpose of the knowledge, it seems to me about as wise to inquire which knowledge is of most worth as to inquire which is better for the human body, food or air.

By all means let us recognise with Mr. Spencer the vast importance of science; but let us also remember, what Mr. Spencer practically ignores, its vast extent. I, for one, entirely agree with him that the extension of science has made the notion of higher education which would confine it to the study of Latin and Greek an antiquated absurdity; but I am far indeed from wishing to substitute, as Mr. Spencer seems to recommend us to substitute in the place of Latin and Greek, *all the sciences*. The great lesson forced upon us by the extension of science and the manifold needs of modern life is this, that there is no knowledge of most worth for everybody; and that when mind and body have been fitly developed by a course of primary education, young people must be allowed to specialize, to some extent even in their secondary education, and still more in superior education or in the course that takes its place. This is a truth which has at last forced itself upon our Universities. Forty years ago, when I was an undergraduate, studies were divided by us pretty much after the manner of a mathematical friend of mine, who arranged them under three heads, viz.: 1st, mathematics, having for their objective the mathematical tripos; 2nd, classics, for the classical tripos; and 3rd, *slops*, which might be left to poll-men, and to persons who had not the advantage of belonging to a University. But this analysis is no longer considered satisfactory, even at Cambridge. In the first place, the spread of knowledge has practically destroyed the two triposes. In the higher mathematics it has been found necessary to specialize, and also in the higher branches of the study of language. And just as white wine and red are no longer mere names for sherry and port, so it is found that classics and mathematics are not the only subjects to which men who aspire to fellowships can wisely turn their attention. Success in other triposes is allowed to count also.

And this need of taking up special subjects, which the spread of science has brought upon us, is also seen in the limits within which those who are working on the same subject must exercise their main activity. A man whose business it is to investigate and possibly advance the science or theory of a subject, cannot give to the working details the amount of time and attention necessary before the business part of it can be carried on successfully. No doubt, the theorist should as far as possible be acquainted with the details, and most certainly the practical man is wise in studying, as far as time will admit, the theory; but their main energy and strength are claimed in different directions. To secure the best results for the community there must be a division of labour. To take an instance: Mr. Spencer tells us that the discovery of the entozoon that gives sheep the staggers is a debt that agriculture owes to biology. We may accept this statement without accepting Mr. Spencer's inference from it. To me this fact no more proves that farmers should take up the study of biology than that biologists should devote their time to keeping sheep.

In considering the means of making a livelihood, Mr. Spencer leaves out of account practical ability, and attributes success in all cases to knowledge of theory. In this respect he seems to me to err as much in one direction as the ordinary Englishman errs in the other. It is no proof of the wisdom of the English farmer or of the English schoolmaster that, in times which we will hope are past, he scoffed at "theoretical notions" and pronounced them all humbug. The farmer has now learned many a lesson from the theorist, and in time the schoolmaster will learn also. Let both farmer and schoolmaster make up their minds once for all that what is true in theory is true also in practice; but the main energy of both farmer and schoolmaster must be devoted to practice. What the theorist has established should most cretainly affect practice; but to some extent there must be a division of labour. The theorist investigates truth for its own sake; the man who is engaged in the work learns or should learn all he can from the theorist, but he must study it, not for its own sake, but only as it bears on practice. As Professor Stanley Hall has said: in the future, success will be possible for none but experts; but there are different kinds of success, different kinds of experts, and to reach great success of any kind a man must throw himself heart and soul into the pursuit of it. Theory may be made to minister to practice, and practice may minister to theory, but only in rare cases will the same man be great in both. As the area of knowledge extends, we have more and more a new meaning forced on us of the old rule, *Divide et impera*: Divide your forces in order to conquer the difficulties and complications of modern life.

We see, then, that Mr. Spencer is very vague in his notions of what education is, and that he would start us on a hopeless quest after the knowledge of most worth without distinguishing between the worth of the knowledge to the individual and to the community. Moreover, he dwells too exclusively on the importance of the theoretical side of things, or science. Science stretches far beyond the area in which the intellect of any one man can follow it; and, though each individual should study to some extent the science that bears on his particular pursuit in life, it is only a man here and there that can devote himself entirely or mainly to this study. The community has great need of men of science, but not of them only; and, much as we are indebted to them, they, too, are indebted to us. A community of men of science, were such a thing possible, would fare very ill indeed.

I proceed to point out that all men have needs that science cannot supply, and that these needs are ignored and, in effect, denied by Mr. Spencer.

He does not tell us what he means by science, any more than what he means by education; but I suppose we may take it for the knowledge of phenomena and of their classification and their sequences, as far as these have been ascertained by the human intellect. But certain poets, and many who are not poets, have held that beyond phenomena there lies

"a wide realm of wild reality,"

and that human nature has needs which the study of phenomena cannot satisfy.

I am a good deal perplexed by Mr. Spencer's assertion that true science is "religious." Professor Huxley, quoted by Mr. Spencer, says that true science and true religion are twin sisters; and in this those who care for either of them may agree without considering the two to be identical, which is an entirely different proposition. Far be it from me to assert that science is irreligious, but to maintain that it is not irreligious is one thing, to call it "religious" is another: and on this point I find myself at issue with Mr. Spencer.

"True science," he tells us, "is essentially religious." I ask myself, What can he mean by "religious"? He says he does not use the words "scientific" and "religious" in their ordinary limited acceptations, but I suppose he attaches *some* meaning to them, and I endeavour to find out what it is. He gives us three reasons why he holds science to be religious: first, "because it studies the universe, and thus studies the works of its cause"; secondly, "because it generates a profound respect for and an implicit faith in those uniformities of action which all things disclose"; and, lastly, "because it alone can give us true conceptions of ourselves and our relations to the mysteries of existence. He explains, further, that this power to "give us true conceptions of ourselves and our relations to the mysteries of existence" is purely negative, for "science leads us clearly to recognise the impossibility of comprehending the ultimate cause of things by bringing us in every direction to boundaries *which we cannot cross*."

It seems, then, that science denies the possibility of our getting at anything that science does not give us, and on that account science is declared to be "religious."

So long as he keeps to the domain in which he is undoubtedly our superior, most of us would be willing to receive Mr. Spencer's dicta at least with respect, if not conviction; but when he ventures beyond that domain and asserts that science proves that there can be no such thing as religion, and on this account calls science "religious," he seems, if an unscientific person like myself may presume to say so, to be guilty of an abuse of language.

Mr. Spencer poses as the high priest of science, and a sense of dramatic propriety leads him to dogmatise. But we unscientific people need not be overawed, even by the authority of Mr. Spencer. His dogmas find little favour with some philosophers no less scientific than he is. Since the time of Bacon we have made many discoveries; but which of them disproves Bacon's words when (as Sir John Lubbock tells us) he speaks of "the world being inferior to the soul, by reason whereof there is agreeable to the spirit of man a more ample greatness, a more exact goodness, and a more absolute variety than can be found in the nature of things"?

"The nature of things"—this, so far as it can be ascertained by the human intellect, is science, and is, Mr. Spencer tells us, not only the knowledge of most worth, but all the satisfaction the spirit of man can ever attain to. About things it tells us much: beyond things it not only tells us nothing, but, if we are to listen to Mr. Spencer, it tells us that nothing can be known. He lays it down that science brings us in every direction to boundaries which we cannot cross. Observe that he says, "*we* cannot cross." How can he prove this? Would it not have been wiser and more truly scientific to say, not that *we* cannot cross, but that *science* cannot cross? On the great problems of existence science keeps and must keep silence. But maybe there are more things in heaven and earth than are dreamt of in Mr. Spencer's philosophy, and when the lamp of science goes out it is, at least, rash to assert that we are left in total darkness. We yearn for light, and sad indeed would it be for the human race if it were driven to Mr. Spencer's conclusion that beyond science no light is possible.*

There is then, in my opinion, no wisdom, but quite the reverse, in what Mr. Spencer tells us on the subject of religion.

But even if the great mass of mankind found, like the eminent man of science, Mr. Darwin, that they could do without religion, still they might have wants that Mr. Spencer's science could not satisfy. Mr. Darwin himself needed family affection, and I do not think that either he or Mr. Spencer has demonstrated that family affection is nothing but applied science. And there are many ideas connected with complete living—ideas, *e.g.*, of love, generosity, honour, duty—which can hardly be traced to science or learnt from it. In his chapter on Moral Education, Mr. Spencer gives us some advice which, as far as it goes, seems to me very good indeed; but it does not go far, and hardly gives us a hint how we should assist the young in becoming loving, generous, honourable, dutiful. "In acquiring knowledge," says Matthew Arnold, "we need to relate it to conduct and to beauty." We turn to Mr. Spencer to learn how this is to be done, and our "guide, philosopher, and friend" does not give us much assistance. With reference to conduct, he has very little to say. With reference to beauty, what he says is not very accurate or very helpful.

The object of education is to fit the educated for complete living. Here at least we may agree cordially with Mr. Spencer; but one of the requirements for complete living is the appreciation of beauty. An exclusive devotion to science, instead of developing the sense of beauty, is detrimental to it. On this point we can have no better testimony than that of Mr. Darwin. "My mind," he writes, "seems to have become a kind of machine for getting general laws out of large collections of facts; but why this should have caused the atrophy of that part of the brain alone on which the higher tastes depend I cannot conceive. . . . If I had had to live my life again, I would have made it a rule to read some poetry and listen to some music at least every week, for perhaps the part of my brain now atrophied would have been kept alive through use. The loss of these tastes is a loss to happiness, and may possibly be injurious to the intellect and more probably to the moral character, by enfeebling the emotional part of our nature." (Quoted by Hettinger.)

Here we find one of the greatest authorities in science asserting that for complete living we need something besides science, something outside of the domain of science, viz., a sense of beauty which science cannot give.

What does Mr. Spencer say to this? He says, (1) in the first place that poetry and the fine arts may be cultivated after science has been provided for, and (2) then he claims that poetry and the fine arts are only applications of science, and that, therefore, the only road to success in them is the study of science.

(1) He tells us that in our educational system the plant is neglected for the flower, but that, as the fine arts, *belles lettres*, &c., occupy the leisure part of life, so should they occupy the leisure part of education (p. 39).

Here, as in so many places, Mr. Spencer speaks as if "our educational system" was and ought to be the same for every one. According to him, every one in his youth should be taught in what way to treat the body; in what way to treat the mind; in what way to manage his affairs; in what way to bring up a family; in what way to behave as a citizen; in what way to utilize those sources of happiness which nature supplies—how to use all our faculties to the greatest advantage of ourselves and others (p. 8). If all this knowledge is to be imparted, where shall we find the leisure part of education?

(2) But, more than this, as Mr. Spencer threatens to invade religion with science, so he threatens art.

We should have supposed that the first requisite for the artist

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* As I infer from the following passage, Professor Huxley does not agree that science, and science alone, can give us true conceptions of ourselves and our relations to the mysteries of existence. In the *Nineteenth Century* (December, 1885) he writes:—"'And what doth the Lord require of thee but to do justly and to love mercy and to walk humbly with thy God?' If any so-called religion takes away from this great saying of Micah, I think it wantonly mutilates, while, if it adds thereto, I think it obscures, the perfect ideal of religion. But what extent of knowledge, what acuteness of scientific criticism can touch this, if any one possessed of knowledge or acuteness could be absurd enough to make the attempt? Will the progress of research prove that justice is worthless and mercy hateful; will it ever soften the bitter contrast between our actions and our aspirations; or show us the bounds of the universe, and bid us say, 'Go to, now we comprehend the infinite'?" According to Mr. Spencer, science does show us subjectively "the bounds of the universe." There is abundant evidence that Mr. Spencer speaks in his own name alone, not as representing "men of science." Perhaps more of these would agree with the late Stanley Jevons than with Herbert Spencer: "Are not all high thoughts, all pure desires, the gift of God? Are not all hearts moved in more or less degree towards the good they would not otherwise have conceived? We do believe that there spring forth from the human mind and heart the feelings which science will never analyse—hope and trust and self-devotion." (Quoted in *Pall Mall Gazette*, June 4, 1886.)

As for "complete living," perhaps more wisdom than in all Mr. Spencer's science may be found expressed in this lovely simile of Jean Paul's: "Lass deine Tochter zwar recht einwurzeln und eingreifen in das wirthschaftliche Treiben; nur halte durch Religion und durch Dichtkunst das Herz für den Himmel offen; drücke die Erde fest an die nährende Wurzel der Pflanze, aber in ihren Kelch lass keine fallen.—By all means let thy daughter lay hold on the workaday business of life, and be firmly grounded in it; but by religion and poetry keep her heart open for heaven; press down the earth round the nourishing root of the plant, but let none fall into the blossoms." (Quoted in H. Attwell's *Book of Golden Thoughts*.)

Beauty, and even truth, may be found beyond the domain of science. As Wordsworth says:—

"Oh! 'tis the heart that magnifies this life,
Making a truth and beauty of its own."

—*To Lyconis.*

was manual skill. With that equipment he may rise into his proper region. When the technique of his art has been mastered, it is for

> "the Painter's hand
> To express what then he sees; and add the gleam,
> The light that never was on sea or land,
> The consecration and the Poet's dream."

But this, Mr. Spencer tells us, is quite impossible without science. Art-products are all more or less representative of objective or subjective phenomena; and because they must conform to the laws of those phenomena, *therefore* the artist must know what those laws are (p. 40). It would never do for an unscientific person like myself to dogmatise on this or any subject; but in this remarkable assertion I cannot help suspecting that Mr. Spencer's zeal for science has led him into a great fallacy. There seems an unscientific vagueness in his use of the word "law." *Laws* of phenomena are, I suppose, not the phenomena themselves, but their sequences. Art-products are concerned in part with phenomena, and the artist must know the phenomena, but it does not follow that he must know the laws or sequences of phenomena. The great works of art, the excellence of which, as our artists admit, remain—and probably will remain—unrivalled, were produced before most of these laws were ascertained. It seems to me about as reasonable to say that the artist cannot paint till he knows the laws of phenomena, as to say a boy cannot throw a stone till he knows it will describe a parabola.

After all, when the advocate of science tells us that everything must in the future be governed by science, we unscientific people, without the least desire to depreciate science, may take refuge in the thought that, while human nature remains as it is, the greater part of life will be concerned with cares and pleasures, hopes and fears—in a word, with *interests*, to which science can assign no law. "Physiological learning," says Dr. Johnson, "is of such rare emergence that one may know another half his life without being able to estimate his skill in hydrostatics or astronomy; but his moral and prudential character immediately appears." And so it is that our friends will always value us more for our character than our knowledge, and those of us who are engaged in education, whilst they are by no means careless about the knowledge acquired by their pupils, should always think far more about the character.

I had intended examining a law laid down by Mr. Spencer; a law which, if I am not mistaken, differs in some important particulars from a law of science. It is the following: "It would be utterly contrary to the beautiful economy of Nature if one kind of culture were needed for gaining information and another kind were needed as a mental gymnastic." But I refrain; remarking only that, while we cannot value too highly the laws of science, we need not attach much importance to the laws of scientific men.

I am conscious that I have now endeavoured to do a thing in which I had no chance of succeeding. In a single lecture I have tried to refute the mistakes into which, as I hold, a writer of enormous intellectual power has fallen. The examination of the book has cost me a good deal of time and trouble, and, as the result, I have put before you what in half-an-hour you have little chance of taking in. Instead of a lecture I have written a critique; and, with all possible respect for my audience, I feel that no audience could possibly judge on the spot of charges brought against a man like Herbert Spencer. If instead of lecturing I had been listening, or trying to listen, I suspect that while I was thinking about one point the lecturer would have passed to another, and the lecturer would have left me in a state of bewilderment. It is just possible that this is the condition of some who are present this evening. If so, let me state simply and baldly my main accusations against Herbert Spencer's book, and ask you at your leisure to test them by the book itself.

First, I think that the book in many ways, especially by the order of the chapters, gives countenance to the common mistake of teachers—that the gist of education is found in giving knowledge, and not in developing the powers.

Next, that, in trying to settle what knowledge is of most worth, the writer seems to assume that the knowledge of most worth to the *man* ought to be given to the *child*.

Next, that in considering what knowledge is of most worth to the man, he confuses between the value of knowledge to the individual for complete living, and the value of knowledge for the service of the community; and so he loses sight of the truth that there can be no knowledge of most worth, because the needs of the community are many, and they can be supplied only by different individuals cultivating different departments of knowledge and skill.

Next, that Mr. Spencer, in singing the praises of science, falls into two distinct mistakes:

First, he attributes success to a knowledge of theory in cases where success depends far more on practical skill.

And secondly, in the name of science he advances beyond the domain of science, declares religion to be impossible, and treats of art as if it were a branch of applied science.

But if I am right, why should I recommend the study of this book? Why am I pleased that a part of it should have been set for examination by the Education Department?

My reason is this: Mr. Spencer may have dwelt too exclusively on the theoretical side of things; but this is just the side that we English people, as a body, fail to see. Any one, therefore, who will make us look at this side does us an immense service. He becomes a very important factor in our education. And there are few writers who do this for us as well as Mr. Spencer. By his admirable style he arrests our attention, and forces us to look at things as he does, on the side of theory. Reading his book has been, and will be, an "eye-opener," as the Americans say, to many a teacher. It will not only widen his view of his task, it will give him a new way of looking at it. The best thing you can do for a young teacher is to show him the possibilities of his calling. His great danger is the danger of getting engrossed by his immediate surroundings, and so failing to see the forest for the trees. There are a particular set of children to be controlled, there are certain subjects to be taught, probably there are piles of exercises to be corrected. The school course has almost always been settled by use-and-wont, which has grown up no one knows how. This school course sucks the young teacher (so to speak) into it, and keeps him going round and round in the same circle, with no power to get beyond it. *What* he is to do is prescribed for him, and by the time he has ceased to be young this has become, in his eyes, the only thing possible. *How* he is to do it he learns by degrees, chiefly by doing. But besides the What and the How there is another question, which usually escapes his notice, and this is the *Why?* A writer of Mr. Spencer's power forces this question upon him, and in doing this makes a vast difference in his conception of his task. Most teachers never ask themselves what they are trying to do; and so they drift along with no effort except to get through their prescribed duties. But, if we would make our life a noble life, we must fill it with *purpose*, and we must have our purpose well defined. Before we can aim at performing our function properly, we must have considered what our function is. It is by studying this theoretical side of things that we rise to a higher level, and see our work in its connexion, not only with our neighbourhood, but also with our nation and with humanity. Mr. Spencer takes a theoretical view of education, and, though I should be sorry if our teachers adopted all his conclusions, I trust they will learn from him to take a theoretical view also. No one despises theory who is capable of understanding it. An insight into the theory of education is capable of making the humblest teacher of children a conscious worker for the good of the human race.

MATHEMATICS.

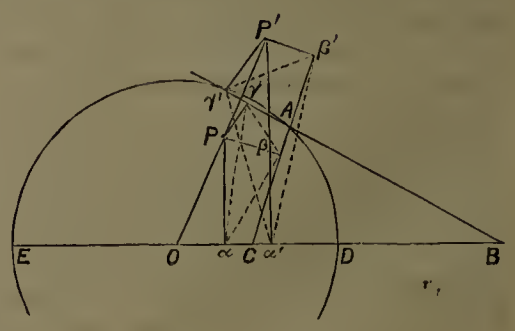
10695. (Professor Neuberg.)—Soient P, P′ deux points inverses par rapport à un cercle d'Apollonius du triangle ABC. Démontrer que les triangles podaires de ces points par rapport au triangle ABC sont inversement semblables.

Solution by Professor Schoute.

Le cercle d'Apollonius du triangle ABC par rapport à BC passe par A et a son centre O au milieu du segment DE déterminé sur BC par les bissectrices de l'angle A. On a donc, P et P′ étant deux points inverses par rapport à ce cercle, les relations

$OA^2 = OB \cdot OC = OP \cdot OP'$,

ce qui mène à une foule de couples de triangles semblables.



[The rest in Volume.]

10719. (Professor Hudson, M.A.)—Supposing that the prosperity of a country varies as the excess of the average individual wealth over a given sum, and that by defeat and civil war one-mth of the wealth and one-nth of the population are destroyed, and the nation has to pay a property tax of $100r$ per cent. to the victor: find what fraction of the population the ruling Government must now put to death in order that the prosperity may be the same as before.

Solution by D. Biddle; Rev. J. L. Kitchin; *and others.*

The "given sum" of the question may be left out of account. Let M = the total wealth, and N the total population prior to the war. Then we have the following equation, in which x is the required number to be slain:

$$(1-r)\,\mathrm{M}\left(1-\frac{1}{m}\right)\Big/\left\{\mathrm{N}\left(1-\frac{1}{n}\right)-x\right\}=\mathrm{M/N},$$

whence

$$x/\mathrm{N}=r\left(1-\frac{1}{m}\right)+\frac{1}{m}-\frac{1}{n}.$$

Thus, if $\frac{1}{m}=\frac{1}{30}$, $\frac{1}{n}=\frac{1}{1000}$, and $r=\frac{1}{20}$ (so that $100r=5$),

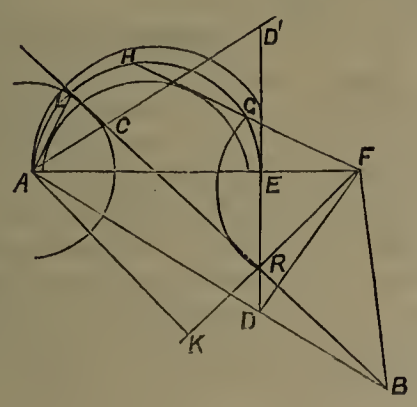
we have

$$x/\mathrm{N}=\left\{\frac{29}{600}+\frac{97}{3000}\right\}=\cdot 080\dot{6},$$

and the number required to be put to death will be about 8 per cent. of the population.

10677. (The Rev. T. W. Openshaw.)—Given the vertical angle of a tirangle, its altitude, and the sum or difference of the sides; construct the trianglo.

Solution by the Rev. J. R. Lunn, B.D.; D. Biddle; *and others.*



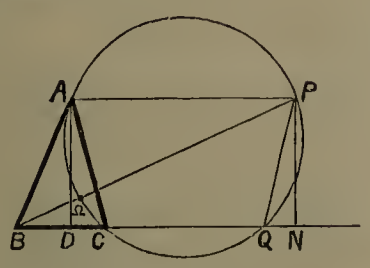
Bisect the vertical angle CAB by CF; let AD = ½ sum of sides, draw DF perpendicular to AB; then F is on the circumcircle of required triangle. Draw DE perpendicular to AF, on AE as diameter describe circle, and in it place AL = required altitude; draw a circle concentric with former, and FGH a tangent to this; then HG = altitude AL. With centre F, and FG, FH as radii describe circles cutting ED in R, and FR in K; through R draw BC perpendicular to FR; then ABC is required triangle.

[The rest in Volume.]

10737. (R. F. Davis, M.A.)—Give a *geometrical* proof of the formula

$$\cot\omega=\cot\mathrm{A}+\cot\mathrm{B}+\cot\mathrm{C}.$$

Solution by the Proposer.



Let ABC be a triangle; and let a circle be described touching AB in A, and passing through C. Then, if AP be the chord of the circle parallel to BC, BP intersects the circle in Ω, the positive Brocard-point, and the angle PBC = ω (Vol. xlvii., App. II., p. 9.)

Let BC meet the circle again in Q; draw AD, PN perpendiculars upon BC. Since AP, CQ are parallel chords,

$$\mathrm{AD}=\mathrm{PN},\ \mathrm{DC}=\mathrm{QN};\quad \text{therefore } \mathrm{BD}+\mathrm{DC}+\mathrm{DQ}=\mathrm{BN}.$$

Dividing each side by AD or PN, $\cot\mathrm{B}+\cot\mathrm{C}+\cot\mathrm{A}=\cot\omega$, for angle CAB = AQC in the alternate segment.

10717. (Rev. T. C. Simmons, M.A.)—A triangle is formed by three straight lines chosen at random. Show that the chance of its being acute-angled is $\frac{1}{2}(4-\pi)$ or ·4292 nearly.

Solution by D. Biddle.

Let the longest side = unity, let x = the side next in length, and y = the shortest side. Then, for *any* triangle, the range of x is between $\frac{1}{2}$ and 1, and of y, between $1-x$ and x. But for acute-angled triangles, the ranges of x, y, are $(\sqrt{\tfrac{1}{2}}, 1)$, $[(1-x^2)^{\frac{1}{2}}, x]$; hence

$$\mathrm{P}=\left(\int_{\sqrt{\frac{1}{2}}}^{1}\int_{(1-x^2)^{\frac{1}{2}}}^{x}dx\,dy\right)\Big/\left(\int_{\frac{1}{2}}^{1}\int_{1-x}^{x}dx\,dy\right)$$

$$=\left\{\int_{\sqrt{\frac{1}{2}}}^{1}\left[x-(1-x^2)^{\frac{1}{2}}\right]dx\right\}\Big/\left\{\int_{\frac{1}{2}}^{1}(2x-1)\,dx\right\}$$

$$=\left\{\left(\tfrac{1}{2}-\tfrac{1}{4}\right)-\left(\tfrac{1}{8}\pi-\tfrac{1}{4}\right)\right\}\Big/\left\{\left(1-\tfrac{1}{4}\right)-\left(1-\tfrac{1}{2}\right)\right\}=\tfrac{1}{2}(4-\pi).$$

10642. (W. J. C. Sharp, M.A.)—If V be the volume of the tetrahedron of reference; Δ_1, Δ_2, Δ_3, Δ_4 the areas of its faces; A′, B′, C′, D′ the projections of a point P, the tetrahedral content coordinates of which are λ', μ', ν', π', upon the faces; show that (1) the content of the tetrahedron PB′C′D′ is $\frac{3^4}{2^2}\cdot\frac{\mu'\nu'\pi'}{\Delta_1^2\cdot\Delta_2^2\cdot\Delta_3^2}\mathrm{V}^2$; and hence (2) the points A′, B′, C′, D′ all lie in the same plane, if

$$\frac{\Delta_1^2}{\lambda'}+\frac{\Delta_2^2}{\mu'}+\frac{\Delta_3^2}{\nu'}+\frac{\Delta_4^2}{\pi'}=0.$$

Solution by Professors Anderson, Swaminatha Aiyar, *and others.*

The volume of the tetrahedron PB′C′D′ is, by a well-known theorem,

$$\tfrac{1}{6}\mathrm{PB'}.\mathrm{PC'}.\mathrm{PD'}\left\{1-\cos^2(\mathrm{BC})-\cos^2(\mathrm{CD})-\cos^2(\mathrm{BD})\right.$$
$$\left.-2\cos(\mathrm{BC})\cos(\mathrm{CD})\cos(\mathrm{BD})\right\}^{\frac{1}{2}}$$

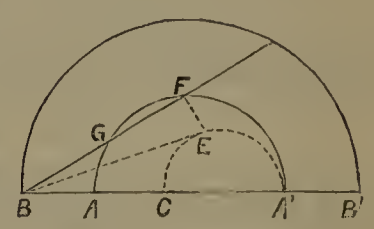
where (BC) signifies the supplement of the angle between PB′ and PC, or the angle between the faces ACD, ABD. We have, also,

$$\mathrm{PB'}.\Delta_2=3\mu'\mathrm{V},\quad \mathrm{PC'}.\Delta_3=3\nu'\mathrm{V},\quad \mathrm{PD'}.\Delta_4=3\pi'\mathrm{V},$$

[The rest in Volume.]

9891. (R. W. D. Christie.)—Draw a straight line cutting two concentric circles, so that the part intercepted by them is divided into three equal portions.

Solution by J. C. St. Clair.



Let BAA′B′ be any common diameter of the given circles. Take on it AC = BA, and upon A′C describe a semicircle. Let BE be the tangent to this circle from B, and on the circle (A) take F, so that BF = BE. Then BF is the required line. For let BF meet the circle (A) again in G; then

$$(\mathrm{BF})^2=(\mathrm{BE})^2=\mathrm{BC}.\mathrm{BA'}=2\mathrm{BA}.\mathrm{BA'},$$

and $\mathrm{BF}.\mathrm{BG}=\mathrm{BA}.\mathrm{BA'}$, $\therefore\ (\mathrm{BF})^2=2\mathrm{BF}.\mathrm{BG}$ and $\mathrm{BF}=2\mathrm{BG}$.

Hence the line is divided into three equal segments.

10653. (Professor Catalan.)—Décomposer, en une somme de deux carrés, le nombre $\mathrm{N}=17^3.73^5=10185000736409$.

[See Quest. 9967. In this Question there are twelve decompositions.]

Solution by R. W. D. Christie; Professor Zerr; *and others.*

By Euler, Lagrange, and others, we have

$$x^2+y^2=(a^2+b^2)^3=\left\{a(a^2-3b^2)\right\}^2+\left\{b(3a^2-b^2)\right\}^2$$
$$=\left\{a(a^2+b^2)\right\}^2+\left\{b(a^2+b^2)\right\}^2;$$

$$\mathrm{X}^2+\mathrm{Y}^2=(a^2+b^2)^5=\left\{a(a^4-10a^2b^2+5b^4)\right\}^2+\left\{b(5a^4-10a^2b^2+b^4)\right\}^2$$
$$=\left\{a(a^2+b^2)^2\right\}^2+\left\{b(a^2+b^2)^2\right\}^2$$
$$=\left\{a(a^2+b^2)(3b^2-a^2)\right\}^2+\left\{b(a^2+b^2)(3a^2-b^2)\right\}^2.$$

[The rest in Volume.]

10618. (H. Brocard.)—Les rayons vecteurs MF, MF′ d'un point d'une ellipse rencontrent la courbe en P, P′; trouver le lieu (1) du pôle de PP′, et du point de rencontre (2) de PP′ avec la tangente menée en M, (3) des perpendiculaires élevées en F sur FM, et en F′ sur F′M.

Solution by Professor Anderson; Rev. J. L. Kitchin; *and others.*

1. Let the eccentric angles of the points M, P, P′ be α, β, γ. Since the chord MP passes through F, whose coordinates are $-c$, 0, we have the equation $\tan\frac{1}{2}\alpha\tan\frac{1}{2}\beta=-\frac{a+c}{a-c}$; and, since MP′ passes through F′, $\tan\frac{1}{2}\alpha\tan\frac{1}{2}\gamma=-\frac{a-c}{a+c}$. The coordinates of the pole of PP′, whose equation is

$$x\cos\tfrac{1}{2}(\beta+\gamma)/a+y\sin\tfrac{1}{2}(\beta+\gamma)/b=\cos\tfrac{1}{2}(\beta+\gamma),$$

are

$$x=a\frac{1-\tan\frac{1}{2}\beta\tan\frac{1}{2}\gamma}{1+\tan\frac{1}{2}\beta\tan\frac{1}{2}\gamma},\quad y=b\frac{\tan\frac{1}{2}\beta+\tan\frac{1}{2}\gamma}{1+\tan\frac{1}{2}\beta\tan\frac{1}{2}\gamma},$$

or, denoting $\tan\frac{1}{2}\alpha$ by $1/\mu$,

$$x=a(1-\mu^2)/(1+\mu^2),\quad y=-\frac{2\mu}{1+\mu^2}\cdot\frac{2a^2-b^2}{b}.$$

Eliminating μ, the locus is found to be $y^2b^2/(2a^2-b^2)^2+x^2/a^2=1$.

[The rest in Volume.]

10191. (Prof. Wolstenholme, Sc.D.)—Prove that (1) the Lemoine-point of a maximum triangle inscribed in the ellipse $a^2y^2+b^2x^2=a^2b^2$ is given by any two of the three equations

$$\frac{x}{a}\cos\alpha+\frac{y}{b}\sin\alpha+\frac{a^2-b^2}{2(a^2+b^2)}\cos 2\alpha=0,\quad \frac{x}{a}\cos\beta+\&c.,\quad \frac{x}{a}\cos\gamma+\&c.,$$

where α, β, γ are the excentric angles of the corners of the triangle;

(2) at the Lemoine-point, $x/a \cos 3\alpha = y/b \sin 3\alpha = (b^2-a^2)/2(a^2+b^2)$; and that its locus is the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=\frac{(a^2-b^2)^2}{4(a^2+b^2)^2}$; and (3) that the Brocard-points are given by the two systems

$$\frac{x/a\cos\alpha+y/b\sin\alpha+\frac{1}{2}}{(a^2\sin^2\beta+b^2\cos^2\beta)}=\frac{x/a\cos\beta+y/b\sin\beta+\frac{1}{2}}{(a^2\sin^2\gamma+b^2\cos^2\gamma)}=\frac{x/a\cos\gamma+y/b\sin\gamma+\frac{1}{2}}{(a^2\sin^2\alpha+b^2\cos^2\alpha)},$$

$$\frac{x/a\cos\alpha+y/b\sin\alpha-\frac{1}{2}}{(a^2\sin^2\gamma+b^2\cos^2\gamma)}=\frac{x/a\cos\beta+y/b\sin\beta-\frac{1}{2}}{(a^2\sin^2\alpha+b^2\cos^2\alpha)}=\frac{x/a\cos\gamma+y/b\sin\gamma-\frac{1}{2}}{(a^2\sin^2\beta+b^2\cos^2\beta)},$$

where $\cos\alpha+\cos\beta+\cos\gamma=0$, $\sin\alpha+\sin\beta+\sin\gamma=0$.

Solution by Professor ANDERSON, M.A.

Since the inscribed triangle is maximum, we have $\beta=\alpha+\frac{2}{3}\pi$ and $\gamma=\alpha+\frac{4}{3}\pi$. The centre of the ellipse is the centroid of the triangle, and hence, the sides being parallel to the tangents at the opposite angles, their equations are $x\cos\alpha/a+y\sin\alpha/b+\frac{1}{2}=0$, $x\cos\beta/a+$ &c., $x\cos\gamma/a+$ &c. To find the coordinates of the Lemoine-point we notice that, if p_1, p_2, p_3 be the lengths of the perpendiculars from the angles A, B, C on the opposite sides, and λ, μ, ν the lengths of the perpendiculars from the Lemoine-point, $\lambda p_1=\mu p_2=\nu p_3$.

[The rest in Volume.]

9148. (Professor ASUTOSH MUKHOPADHYAY.) — Prove that the reciprocal polar of the evolute of the hypocycloid

$$\left(\frac{x}{\alpha}\right)^{\frac{2}{3}}+\left(\frac{y}{\beta}\right)^{\frac{2}{3}}=1 \quad \text{is} \quad \left(\frac{x^2}{\alpha^2}+\frac{y^2}{\beta^2}\right)^3=\left(\frac{x^4}{\alpha^2}-\frac{y^4}{\beta^2}\right)^2,$$

the radius of inversion being unity; if $\alpha=\beta$, the polar equation of the reciprocal polar is $r=\alpha\sec 2\theta$.

Solution by Professor SCHOUTE.

The hypocycloid is given by $x=a\cos^3\phi$, $y=b\sin^3\phi$; and the normal in the point ϕ is $-ax\cos\phi+by\sin\phi=b^2\sin^4\phi-a^2\cos^4\phi$. When this equation represents the polar $xx'+yy'=1$ of (x', y') with respect to the circle $x^2+y^2=1$, we have

$$x'=(-a\cos\phi)/(b^2\sin^4\phi-a^2\cos^4\phi),\quad y'=(b\sin\phi)/(b^2\sin^4\phi-a^2\cos^4\phi),$$

and by elimination of ϕ, as $\mathrm{Tg}\phi=-\frac{ay'}{bx'}$, for the reciprocal polar of the evolute

$$\left(\frac{y^4}{b^2}-\frac{x^4}{a^2}\right)^2=\left(\frac{x^2}{a^2}+\frac{y^2}{b^2}\right)^3,$$

a curve of the order eight of which the origin is a sextuple point, &c.

10724. (Professor ANDERSON, M.A.)—Perpendiculars are drawn to the symmedians of a triangle, at its angular points, forming another triangle. Show that the circumcentre of the former is the centroid of the latter.

Solution by R. TUCKER, M.A.

Let AK, BK, CK be the symmedians, and A′B′C′ the new triangle; then, since $c\beta-b\gamma=0$ is the equation to AK, the equation to B′C′ is $(b+c\cos A)\beta+(c+b\cos A)\gamma=0$; hence the points A′, B′, C′ are

$$\frac{-\alpha}{b+a\cos C\,.\,c+a\cos B}=\frac{\beta}{c+a\cos B\,.\,a+b\cos C}=\frac{\gamma}{a+c\cos B\,.\,b+a\cos C}$$

$$\text{\&c.}\quad=\quad\text{\&c.}\quad=\frac{2\Delta}{2abc\,(1+\cos A\cos B\cos C)},$$

whence the centroid of A′B′C′ is readily seen to be $R\cos A$, $R\cos B$, $R\cos C$; therefore, &c.

6810. (J. R. HARRIS, M.A.)—A chain is lying in a given curve on a smooth table, and an impulse is communicated to it along the tangent at one end. Apply the theorem that the kinetic energy of the resulting motion is a minimum to determine the impulsive tension at any point of the chain. If the energy of the resulting motion be distributed uniformly along the chain, and be λ per unit of length, prove that the tension and the mass per unit of length are given by

$$T=\sqrt{(\tfrac{1}{2}\lambda\mu\rho)}\,[\sqrt{(\rho+2s)}-\sqrt{(\rho-2s)}];\quad \mu\rho\propto\exp.\int\frac{1}{\rho}\,d\,(\rho^2-4s)^{\frac{1}{2}};$$

ρ being the radius of curvature of the chain at a point whose distance from the free end is s. [exp. $x\equiv e^x$.]

Solution by D. EDWARDES; G. EASTWOOD, M.A.; *and others.*

We have
$$\frac{d^2T}{ds^2}-\frac{1}{\mu}\frac{d\mu}{ds}\frac{dT}{ds}-\frac{T}{\rho^2}=0 \quad\text{.....}\quad (1).$$

If now we put $\mu(\dot{x}^2+\dot{y}^2)=2\lambda$, the equations of motion, s being the independent variable, give

$$2\mu\lambda=\left(\frac{dT}{ds}\right)^2+\frac{T^2}{\rho^2} \quad\text{.....}\quad (2).$$

[The rest in Volume.]

10678. (J. O'BYRNE CROKE, M.A.)—Show that, if Δ be the discriminant of the conic $ax^2+2hxy+by^2+2gx+2fy+c=0$, and $R^2=4h^2+(a-b)^2$, the semi-axes α, β are given by

$$\alpha^2=2\Delta/\{(h^2-ab)(a+b-R)\},\quad \beta^2=2\Delta/\{(h^2-ab)(a+b+R)\}.$$

Solution by Professors ANDERSON; ZERR; *and others.*

The equations of the conic referred to axes through its centre parallel to the axes of coordinates, and for determining the lengths of the semi-axes, are
$$ax^2+2hxy+by^2-\Delta/(h^2-ab)=0,$$
$$(h^2-ab)^2r^4+(a+b)\Delta r^2-\Delta^2/(h^2-ab)=0;$$
$$\therefore\ r^4+\frac{(a+b)\Delta}{(h^2-ab)^2}-\frac{\Delta^2}{(h^2-ab)^3}=0;\quad \text{also } (a+b)^2-R^2=-4(h^2-ab).$$

[The rest in Volume.]

10666. (Professor ORCHARD, M.A.)—A triangle, PQR, right-angled at Q, is inscribed in the conic $4x^2-9y^2-36=0$; find the envelope of the line PR.

Solution by Professors ANDERSON; AIYAR; *and others.*

Let the coordinates of the point Q be α, β, and the equation of the line PR $lx+my+1=0$. Then, writing down the equation of the pair of lines PQ, RQ, we find easily the condition of perpendicularity to be $13l\alpha-13m\beta+5=0$.

The line PR, therefore, passes through the point whose coordinates are $13\alpha/5$, $-13\beta/5$.

The locus of this point is the conic $25(4x^2-9y^2)=6084$.

QUESTIONS FOR SOLUTION.

10792. (Professor SYLVESTER.) — If of a symmetrical matrix the determinant and the sum of the squares of all its first minors both vanish, prove that (1) the sum of the principal first minors must also vanish; (2) that the same thing will be true if, instead of the determinant, the sum of the principal second minors vanishes along with the sum of the squares of all its first minors; and (3) apply (1) to prove that a general quadratic function of n variables (with m conditions imposed as to the reality of its coefficients) can always be represented as a sum of the squares of n linear functions of the variables, unless the discriminant of the well-known discriminating function of the nth order related to the given quadric vanishes, in which case such representation in general becomes impossible to be effected.

—793. (Professor NEUBERG.)—Deux sommets A, B d'un triangle donné se meuvent sur des droites données a, b, non situées dans le même plan; le troisième C est assujetti à se déplacer dans un plan donné. Trouver, par la méthode de Roberval, la tangente à la ligne décrite par C.

—794. (Professor MORLEY.)—In an infinite mass of perfect fluid are three straight parallel vortex-filaments of unequal strengths. Show that the circular cylinder which passes through the filaments is orthogonal to a fixed circular cylinder.

—795. (Professor SCHOUTE.)—On the sides of a triangle the points P, Q, R are given. To determine the envelope of the asymptotes of the hyperbolas that intercept segments on the sides of the triangle of which P, Q, R are the mid-points.

—796. (Professor GENESE, M.A.)—The join of the mid-points of the diagonals of a quadrilateral in a circle makes the same angles with any side that the third diagonal makes with the opposite side.

—797. (Professor DE LONGCHAMPS.)—On donne une circonférence Δ, de centre O, et deux diamètres rectangulaires AB, CD. Soit PP′ un diamètre mobile. On projette P, en Q, sur CD; P′, en Q′, sur AB. On considère alors le cercle Δ' circonscrit au triangle POQ′ et le cercle Δ'' circonscrit à P′OQ. 1°. Les circonférences Δ', Δ'' se coupent en un certain point I, dont on demande le lieu géométrique. 2°. Si l'on mène en P la tangente à Δ, elle coupe CD en R; de même la tangente en P′ coupe AB en S. On trace la circonférence Δ''' circonscrite au triangle ROS, et l'on demande le lieu du point commun à Δ''' et aux circonférences Δ', Δ''.

—798. (Professor CATALAN.) — Rendre calculable, par logarithmes, l'expression $\sin^2 x-2\sin x\sin y\cos(x+y)+\sin^2 y$.

—799. (The late Professor CLIFFORD, F.R.S.) — Two planes A, B are said to have an (x, y) correspondence, when to every point on the plane A correspond y points on the plane B, and to every point on B correspond x points on A. On each plane there is in general a locus of points, two of whose correspondents coincide; this is called the *cross-curve*. (Uebergangscurbe; CLEBSCH in *Math. Annalen.*) On each plane there is also a locus of these united correspondents; this is called the *node-curve*. Prove that (1) if a curve touch the cross-curve in either plane, the corresponding curve in the

other plane will have a node lying on the node-curve in that plane; (2) the correspondence may be represented as a (1, 1) correspondence of two multiple planes A′, B′; A′ consisting of y sheets and B′ of x sheets, which are connected together along the cross-curves; and (3) in a (1, y) correspondence, in which to straight lines in the plane A correspond curves of deficiency p in the plane B, the order of the cross-curve in A is $= 2(y+p-1)$.

10800. (Professor Hudson, M.A.)—If two circles can be drawn each to have double contact with an ellipse internally, the points of contact being the ends of conjugate diameters, and to touch one another, prove that the eccentricity of the ellipse must be greater than $(\frac{2}{3})$.

—801. (Professor Haughton, F.R.S.)—The daily energy of the average diet of all the armies of Europe is estimated at 3694 foot-tons. The daily work done for this expenditure of food (including the work done in moving the man's own body) is estimated at 430·6 foot-tons: if man be regarded as a perfect heat-engine, whose upper temperature is 109° F. (blood-heat), calculate from the foregoing data the lower temperature at which the engine is worked.

—802. (The late Professor Seitz.)—Two equal spheres touch each other externally. If a point be taken at random within each sphere, show that (1) the chance that the distance between the points is less than the diameter of either sphere is $\frac{13}{35}$, and (2) the average distance between them is $\frac{11}{5}r$.

—803. (The late Professor Matz, M.A.)—Determine the mean distance from the coordinate origin to all the points in the surface enclosed by the Cissoid of Diocles and its appertaining circle.

—804. (Professor Mukhopadhyay, M.A.)—Pliny informs us that "Thales determined the cosmical setting of the Pleiades to have happened in his time 25 days after the autumnal equinox." Supposing the longitude of the brightest star in that constellation to have been at the beginning of the year 1760, according to Dr. Bradley, ♉ 26° 38′ 34″, and its latitude 4° 1′ 36″, the precession of the equinox 50″·34, annually, and the latitude of Miletus 37° 30′; determine the time when Thales lived.

—805. (Professor Zerr.)—Solve the equation

$$x^{24}+x^{23}+x^{22}+x^{21}+x^{20}+x^{19}+x^{18}+x^{17}+x^{16}+x^{15}$$
$$= x^9.x^8+x^7+x^6+x^5+x^4+x^3+x^2+x+1.$$

—806. (Professor Wolstenholme, Sc.D.)—Prove that, if x, y, z be three finite quantities whose sum is zero, and if

$$(ax+by+cz)^2 = 4(bc+ca+ab)(yz+zx+xy) \text{ and } ax^2+by^2+cz^2 = 0,$$

then will $$(a+b+c)(bc+ca+ab) = 9abc.$$

—807. (Professor Orchard, M.A., B.Sc.)—A weight equals that of 24 pounds, applied to a piston, forces water out of a vertical cylinder, four feet in height, through an orifice in the base, the area of the orifice being the one-hundredth of that of the base. If the mass of water initially filling the cylinder be 3 pounds, show that the time in which it will be half emptied is given by $2 . g^{-} (9999)^{\frac{1}{2}} (18^{\frac{1}{2}} - 17^{\frac{1}{2}})$.

—808. (Professor Ramaswami Aiyar.)—A body moves in space from one position to another: show volumes equal to those described by surfaces fixed in the body may be obtained by two motions of the body, one of them about and the other along a certain axis in the body.

—809. (Professor Morel.)—Du foyer F d'une ellipse comme centre, avec le grand axe comme rayon, on décrit une circonférence. Soit A un point quelconque de cette circonférence; du point A, on mène à l'ellipse deux tangentes qui rencontrent la circonférence l'une en B, l'autre en C; démontrer que la ligne BC est tangente à l'ellipse, etqu'elle est perpendiculaire à la droite AF′, qui joint le point A au second foyer F′.

—810. (The Editor.)—Given the base of a triangle, and the locus of the centre of one of its four circles of contact; show, with illustrative examples, how to find the loci of (1) the vertex of the triangle, (2) the points in which its sides are touched by the four circles of contact.

—811. (D. Biddle.)—There are two concentric circles of known radius. On a diameter of the larger, draw a right-angled triangle with apex on the circumference, so that a tangent to the smaller, from the foot of the perpendicular (between apex and base) shall be parallel to one of the sides.

—812. (R. Tucker, M.A.)—DEF is the pedal triangle of ABC. K_a, K_b, K_c are the S-points of AEF, BFD, CDE; through K_a, K_b, K_c parallels B′C′, C′A′, A′B′ are drawn to the sides, cutting AC, AB, in M, N′; BA, BC, in N, L′; CB, CA, L, M′. Prove that ABC, A′B′C′ are equal, with (K) S-point of ABC on centre of perspective; that LL′NN′MM′ is the common cosine circle of the two triangles; that the two triangles have a common B-ellipse; and that the centroids of AMN′, BNL′, CLM′ have K for their centroid. [Other properties will be found in Vol. xlv., p. 57; Vol. li., p. 61.]

—813. (J. J. Walker, F.R.S.)—Show that, in the case of a homogeneous rectangular parallelepiped floating in a liquid (the densities of the two being $\rho : 1$), there will be a position of stable equilibrium in which the longest edge is horizontal, and the other two are inclined, provided their ratio lies between the square roots of $2(1-\rho)(4\rho-1)$ and $6\rho(1-\rho)$; *e.g.*, if $\rho : 1 = 4 : 5$, and the ratio of the least to the mean edge $= \sqrt{9} : \sqrt{10}$, then the inclination of the former to the horizontal, in the position referred to, will be about 20°.

10814. (H. McColl, B.A.)—If n points are taken at random in a given magnitude, and the magnitude be then divided into n random parts; show (without using the Integral Calculus) that the chance that each part contains exactly one point is $n!\,(n-1)!/(2n-1)!$. [A solution of this and of Question 5291 will involve a solution of Quest. 5273.]

—815. (A. Martin, LL.D.)—From a given point in the circumference of a circle a chord is drawn in a random direction, and then two points are taken on it at random, and a third point anywhere in the surface of the circle: find the chance that the triangle formed by joining these points is acute.

—816. (G. S. Carr, M.A.)—If 5 equal spherical conductors be placed with their centres at the corners of a square pyramid, an edge of the base being a and the slant edge b, and if the sphere at the vertex be insulated and charged with electricity E, while the other spheres are connected to earth; show that, if r, the radius of the spheres, be small compared to their mutual distances, the charge induced upon each of the uninsulated spheres will be $-\dfrac{ra\sqrt{2}}{b\,[a\sqrt{2}+(2\sqrt{2}+1)]}$ E.

—817. (E. M. Langley, M.A.)—Show, by a geometrical proof that applies to any regular $(2n+1)$-gon, that, if ABCDE is a regular pentagon and O any point on the minor arc CD of its circumcircle, then OA + OC + OD = OB + OE. (L'Hospital's *Sections Coniques.*)

—818. (Rev. T. Roach, M.A.)—If two ellipses have a common focus, prove that their points of intersection lie on a hyperbola, whose transverse axis equal to the difference of the major axes of the ellipses.

—819. (W. J. Greenstreet, M.A.)—Show how to find the meridian altitude of the Sun when an observation precisely on the meridian cannot be had.

—820. (G. H. Bryan, M.A.)—Find a law of error such that, if the probable errors in two observations are equal, the probable error in their sum is equal to that in either of the observations.

—821. (J. J. Barniville.)—The asymptotes of three congruent hyperbolæ coincide in pairs so as to form an equilateral triangle ABC; give to the simplest form of the trilinear equation of the sextic referred ABC.

—822. (J. D. H. Dickson, M.A.)—Find the sum of n terms of the series $\cos A + 2\cos\frac{A}{2} + 2^2\cos\frac{A}{2}\cos\frac{A}{2^2} + 2^3\cos\frac{A}{2}\cos\frac{A}{2^2}\cos\frac{A}{2^3} + \ldots$

—823. (H. W. Segar, M.A.)—If recurring series be bound by the relation $u_{n+1}+u_{n-1} = \alpha u_n$, prove that, β being constant,

$$u_{n+r}u_{n-r} = u_n^2 + \beta\int_r^2(\alpha), \text{ where } \int_r(\alpha) = \psi_1(\alpha)\,\psi_2(\alpha)\ldots\psi_{r-1}(\alpha),$$

and $$\psi_r(\alpha) = (-)^{r-1}\alpha + \frac{1}{(-1)^{r-2}\alpha+}\cdots\frac{1}{\alpha+}\;\frac{1}{-\alpha+}\;\frac{1}{\alpha}.$$

—824. (J. L. Mackenzie, B.A., B.Sc.)—The tangents at points A and B on a circle, and their chord of contact, cut a given line in L, M, P respectively. Any circle through L and M cuts the given circle in H and K, and PH, PK cut the given circle in X and Y; prove XY parallel to LM.

—825. (W. J. C. Sharp, M.A.)—Prove (1), (2), and therefrom deduce (3), (4), where $(-1)^m(2\sin A)^m\sin(mA+B+\frac{1}{2}m\pi)$

$$= \sin B - \frac{m}{1}\sin(2A+B) + \frac{m(m-1)}{1.2}\sin(4A+B) - \&c.\ldots\ldots\ldots(1);$$

$$(-1)^m(2\sin A)^m\cos(mA+B+\tfrac{1}{2}m\pi)$$

$$= \cos B - \frac{m}{1}\cos(2A+B) + \frac{m(m-1)}{1.2}\cos(6A+B) - \&c.\ldots\ldots(2);$$

$$\int\sin^m x\sin(m+n)x\,.\,dx,\quad \int\sin^m x\cos(m+n)x\,.\,dx\ldots\ldots\ldots(3,\ 4).$$

—826. (J. MacNeill.)—In a certain State the tax per £1 on a person's income varies as the square root of the number of pounds, and when the income is £100 the rate per £1 is 6*d*. Find the largest net income possible.

—827. (J. Brill, M.A.)—If $u = a\sin(u+\theta)\,.\,e^{u\cot(u+\theta)}$,

$$v = \int_0^\pi \frac{u\sin\theta\,.\,d\theta}{1-2c\cos\theta+c^2},$$

c lies between the values ± 1, and a between 0, e^{-1}, prove that $v = \frac{1}{2}\pi a\,e^{2cv/\pi}$.

Corrigendum.—In Quest. 10790, *for* $\cos^3\theta$, $\cos^5\theta$, *read* $\cos 3\theta$, $\cos 5\theta$.

NOTICE TO CORRESPONDENTS.

Correspondents should be careful (*a*) to write each Question and each Solution on a *separate* paper (otherwise, when used for printing, the

Editor has the labour of entirely *re-writing* such articles); (*b*) to make their Solutions as short as possible; (*c*) to send all Questions *early in the month*, but not to send Solutions till their Questions have been published; (*d*) to write their names at the *top* of *each* paper; (*e*) to *prepay* the postage in *full*; and (*f*) to send all communications to

W. J. C. Miller, The Paragon, Richmond-on-Thames.

THE LONDON MATHEMATICAL SOCIETY.

Thursday, November 13th, 1890.—J. J. Walker, F.R.S., President, in the Chair. E. J. Brooksmith, M.A., was admitted into the Society.

The President informed the members of the loss the Society had sustained by the recent death of Dr. A. J. Ellis, F.R.S., and gave a sketch of part of his life-work. Dr. Ellis was elected a member, June 19th, 1865, and served on the Council during the Sessions 1866–7, 1867–8. Subsequent to that date his philological work prevented his taking any active part in the work of this Society. The President, in some detail, stated the grounds which had induced the Council to award the De Morgan Medal to Lord Rayleigh, F.R.S. On the presentation of the Medal, Lord Rayleigh briefly expressed his thanks for the Society's gift.

The Treasurer read his report, which, on the motion of S. Roberts, F.R.S., seconded by Prof. M. J. M. Hill, M.A., was unanimously accepted. At the request of the Chairman, G. Heppel, M.A., consented to act as Auditor. The Scrutators (R. A. Sampson, M.A., and Dr. Morrice) having examined the balloting papers, declared the gentlemen, whose names were printed in our November issue, to be duly elected on the Council for the ensuing Session. Prof. Greenhill, F.R.S., then took the Chair, and called upon the retiring President for his address on "The Influence of Applied on the Progress of Pure Mathematics." On the motion of the Treasurer, seconded by Lord Rayleigh, Mr. Walker consented to allow his Address to be printed in the *Proceedings*. The following further communications were made: — "Spherical Harmonics of Fractional Order," R. A. Sampson, M.A.; "Proofs of Steiner's Theorem relating to Circumscribed and Inscribed Conics," Prof. Mathews, M.A.; "On an Algebraic Integral of Two Differential Equations," R. A. Roberts, M.A.; "Some Geometrical Constructions," Mr. Oscher Ber (communicated by Prof. Hill); "On the Analytical Representation of Heptagrams," Prof. L. J. Rogers, M.A.

The following papers are proposed for communication at the December meeting:—"On the Reversion of Partial Differential Expressions with two independent and two dependent Variables," E. B. Elliott, M.A.; "On the Extension to Matrices of any order of the Quaternion Symbols *S* and *V*," Dr. H. Taber, Clark University, Mass., U.S.A. "On the Flexion of a Thin Elastic Shell under Pressure," A. B. Basset, F.R.S. "On Newton's Classification of Cubic Curves," W. W. R. Ball, M.A.

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